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A

GENERAL COMMERCIAL DICTIONARY:

COMPREHENDING

TRADE, MANUFACTURES, AND NAVIGATION;

AS ALSO

AGRICULTURE,

SO FAR AS IT IS CONNECTED WITH COMMERCE;

WITH

BRIEF ABSTRACTS OF THE LAWS

RELATING TO THE

REGULATION AND PROTECTION OF TRADE AND TRADESMEN;

EXHIBITING

THEIR PRESENT STATE,

AND THEIR CONNECTION IN THESE KINGDOMS WITH THOSE OF OTHER PARTS OF THE WORLD.

PARTLY FROM AUTHENTIC SOURCES, AND PARTLY COMPILED FROM *THE BEST AUTHORITIES.*

BY THOMAS MORTIMER, ESQ.

WITH CONSIDERABLE ALTERATIONS AND ADDITIONS,

BY WILLIAM DICKINSON, ESQ.

THE THIRD EDITION, CORRECTED AND REVISED.

LONDON:
PRINTED FOR LONGMAN, HURST, REES, ORME, BROWN, AND GREEN,
PATERNOSTER-ROW;
AND SOLD BY EVERY BOOKSELLER IN THE UNITED KINGDOM.
1823.
Price £1. 5s. in boards.

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PREFACE

TO

THE FIRST EDITION.

MANY years have elapsed since any work, having the objects of the present, was offered to the public.

The respectable publications of Postlethwaite and Beawes, although they cannot be called practical Dictionaries of Commerce, were well adapted to the periods at which they appeared: but since their last editions, the face of Commerce has undergone a total change; the views of mercantile men in Britain have been extended in a degree of which the ablest political speculators could not entertain the most remote idea; and, above all, the laws and customs relative to trade, given in former works, have long become obsolete, and their places have been supplied by others corresponding with the present policy of the various maritime nations.

It can scarcely be necessary to observe, that such a publication as the present must, in every point of view, prove a desideratum in a country which has latterly absorbed the trade of the world, and which may be denominated the source of all Commerce, and the focus of Arts and Manufactures. That such a country should so long have been without a work of this nature, has afforded matter of great surprise; and every Bookseller has heard daily complaints relative to so glaring a defect in our national literature.

Anxious to fill up the chasm, the Editor has turned his attention to the present undertaking; and by the aid of the best English publications; by the assistance he has derived from voluminous productions on the subject of Commerce, which have lately appeared in France, Germany, and Holland; by the acquisition of many original documents; and by a sedulous attention to the subject for upwards of half a century, he trusts that his intentions will not prove abortive: but, on the contrary, that he shall be found to have presented to the trading part of the community, an important body of practical commercial knowledge.

Whatever it is requisite for a man of business to become acquainted with, it has been the Editor's care to introduce into this work; and it will be found, on comparison, that this Dictionary contains at least TWO THOUSAND ARTICLES MORE THAN ANY SIMILAR

PRODUCTION, in the English, or any other language. In fact, though this work is presented to the world in the compact and portable shape of an octavo, yet it contains twice as much letter-press as Anderson's and Macpherson's Annals of Commerce, published in four volumes quarto; and far more than Postlethwaite's Dictionary, printed in a larger type, in two volumes folio! Speaking to commercial men, it may not be deemed indecorous for the Editor to mention, that this work, with all its advantages, is offered to the public, in 1810, for TWENTY-FIVE SHILLINGS; while the Dictionary just mentioned was published at FIVE GUINEAS, in 1760.

The foreign denominations of commodities which, it will be perceived, are annexed to each article in six and sometimes in eight languages, form an entirely new feature in a work of this nature, and the utility of such a nomenclature must be obvious to every reader.

Under the heads of Europe, Asia, Africa, and America, is introduced a methodised account of the commerce, manufactures, and, in some instances, of the politico-commercial regulations of the several governments.

In a word, nothing has been omitted which could tend to render this work useful in the counting-house, and of necessary reference to men of business, and to inquisitive persons in general. The Editor and Proprietor, who have spared neither labour nor expense in giving it every possible degree of perfection, flatter themselves that they shall meet with their recompense in the approbation and patronage of the Public; and they confess they shall in a certain degree be disappointed if, in due time, the work is not considered as deserving of a station in every counting-house and place of business in the British dominions.

As they cannot presume, notwithstanding all their anxiety, that so extensive a compilation can be without faults and errors of some kind; they earnestly invite their Readers to favour them with such communications as may render so important a work perfect in any future edition.

London,
January 1. 1810.

PREFACE

TO

THE SECOND EDITION.

It would have been injustice to the original compilers of this work to have suppressed their own account of its design; it has therefore been thought right to insert their preface. The demand for a second edition conveys sufficient observation on the utility of the first.

The Proprietors, in offering this amended volume to the protection of the public, abstain from any idle professions: at the same time, they must be permitted, in justice to themselves, to observe, that they have sedulously attended to the suggestions of those who have thought the work worthy their criticism; that they have corrected such errors as the kindness of friends pointed out; made such emendations as the important alterations in our commercial relations rendered expedient; and supplied, to the best of their judgment, such deficiencies as had been discovered. The last-mentioned improvement has more particularly occurred in legal subjects; the anterior edition not having, it was conceived, treated of that branch of knowledge sufficiently to render to commercial persons the necessary instruction for the protection of their rights; for the avoiding of difficulties, and perhaps dangers; nor even for the common intercourse of society.

On a perusal of the work, it will be found that a prodigious number of new articles of information have been introduced, and that the old ones have been revised and corrected, at least so far as could be effected without an entire alteration of the system on which it was originally undertaken. With respect to the authorities cited, it may be proper to observe, that though the doctrine exhibited in each particular instance may be derived from a remote source of the highest reputation, references are invariably made, when practicable, to such established works as are likely to be in the possession of most readers. By way of illustration, on legal subjects, maxims which may have flowed from Littleton, or Coke, are offered on the more generally acceptable authority of Blackstone.

The greatest difficulty to be encountered arose from the determination to introduce an accession of information, without materially

augmenting the size of the volume. With what degree of judgment this design may be considered to have been accomplished, it is not for the Proprietors, or Editor, themselves to anticipate; but they offer their work to the Public, in the fullest confidence that such diversified instruction on the numerous subjects of almost daily general interest to the superior order of commercial persons, was never before presented in so compendious a form.

London,
March 30, 1819.

PREFACE

TO

THE THIRD EDITION.

THE comparatively short time which has elapsed since the publication of the second edition of this work, may be referred to as a convincing proof of its favourable progress in the public estimation. Since that period, various legislative enactments have been made, materially affecting our commercial interests, and some important cases, on points of law, have been determined, which are carefully introduced into the present edition. It only remains to add, that where the lapse of time and the course of events have affected the previous statements of the work, such corresponding alterations have been made as were necessary to complete the requisite information down to the present period.

London,
June, 1823.

A

DICTIONARY

OF

TRADE, COMMERCE,

AND

MANUFACTURES,

&c. &c.

A, IMPORTS the year, as A.D. *Anno Domini,* the year of our Lord.

A. A. among chemists, signifies an amalgama, or the operation of amalgamation.

A, ā, or ā ā, signifies an ana, or equal quantity of each different medicine prescribed in a recipe.

AAM, a liquid measure at Amsterdam, containing about 63 pounds weight.

ABACA, a kind of hemp or flax, made from the fibrous part of an Indian plantane, the white makes very fine cloth, but the gray is used for cordage and cables.

ABAFT, or AFT, a sea phrase, for the stern or hinder part of a ship or vessel.

ABANDONMENT, in its primary signification, is the voluntary renunciation of any property, so as that it shall no longer be reckoned among the effects of the party renouncing. Its most ordinary application in commercial transactions is to marine insurances; it then signifies the exercise of a right, which the assured claims, to call upon underwriters or insurers to accept of what is saved, and to pay the full amount of the insurance as if a total loss had happened. It is a practice as ancient as insurance itself, but must be total, and not partial, or of any particular portion of the property insured. The insured has the right of election to abandon, or not; but if he do abandon, he must give notice in a reasonable time to the insurer, or he will be considered by law as having waved his right, and can never after recover for a total loss. This right, however, is, after all, only a modified one, for it cannot be exercised unless the damage *exceed* half the value; *or* the voyage be absolutely lost, or not worth pursuing; *or*, further expense being *necessary*, the insurer refuse to pay it: for if neither the thing insured, nor the voyage be lost, and the damage do not amount to a moiety of the value, this right cannot be exercised. When the underwriter has discharged his insurance, and the abandonment is made, he stands in the place of the insured, and is entitled to all the advantages of that situation in case the ship or property be not lost, or be afterwards recovered. *Park.* 6. 9.; 1 *T. Rep.* 608.; 1 *Black. R.* 276.

ABAS, a weight used in Persia for pearls, of about 3½ grains avoirdupois weight.

ABASSI, a Persian silver coin, (of two mamoudis, or four chayes) worth about one shilling sterling; there are double and treble Abassis, which being liable to adulteration, the payments in the coin are made by weight, and not by the number of pieces.

ABAT CHAUVEE, a sort of French wool of inferior quality.

ABATELEMENT, a term used by the French in the ports of the Levant depriving all French merchants of the right of carrying on any trade, who disavow their bargains, or refuse to pay their debts.

ABATEMENT, or Rebate, is a discount allowed for prompt payment; it is likewise allowed at the Custom-house on goods which have received damage by salt water, &c. being reported by the surveyor or land waiter on the back of the warrant.

These are, perhaps, the most ordinary applications of the term in commercial transactions, but it has many other significations in law.

Abatement of a freehold is where a person dies seized of an inheritance, and before the person entitled can enter, a stranger enters and obtains possession. This has been denominated *abatement*, but is a metaphorical application of the expression. 3 *Black. Com.* 168.

Abatement of a nuisance is a remedy allowed by the law to a party injured by any nuisance, to remove or *abate* it. The reason for allowing this summary method, whereby a person may take a remedy into his own hands, is because some injuries which injure or disturb a man's daily occupations, cannot wait the slow progress of the ordinary forms of law. However it is a remedy which, to be exercised safely, must be done with great discretion. 3 *Black. Com.* 5, 6.

Abatement among legatees is where a testator leaves pecuniary legacies, and the estate falls short to answer them, the legatees shall abate in proportion. 2 *Fonbl.* 369.

Abatement, Pleas of, are objections made by a defendant in a suit, whereby he alleges some matter to show, either that he ought not to be put upon his defence at all, or at least not in the manner and form exhibited in the suit of the plaintiff. These pleas are of too great variety, and too technical to be further treated of here. 3 *Black. Com.* 301.

Abatement by death. The demise of *the sovereign* for the time being, formerly caused an abatement of all suits between subjects, as well as all patents and commissions by royal authority; but the inconvenience arising from such discontinuance being a great grievance, a remedy was applied by statute, viz. by 1 *Edw.* 6. c. 7. much enlarged and extended by 1 *Anne*, c. 8.

The decease of *the parties* to a suit, or of either of them, *may* also occasion an *abatement* of such suit. When it *will* have that operation, and when it *will not*, is matter of technical distinction into which it is unnecessary to enter, but the reader is referred to stat. 8 & 9 *Wil.* 3. c. 11. and to *Black. Com.* by *Archbold, in notes*, v. 3. p. 302.

ABB, the yarn of a weaver's warp, is so called by the clothiers; they also say *Abb-wool*, in the same sense.

ABELICEA, the name of a tree, growing principally in Crete; the wood of which is called santalus adulterinus, and pseudo-santalum, or *Bastard Sanders*.

ABEL-MUSK. *See* MUSK SEED.

ABIES, a species of Pine, *Marina*, sea-fir; the Sertularia *abietina*. The *Cupressus*, a species of Antipathes is by some writers denominated *Abies recta*. *See* RESIN.

ABOARD, in or on board a ship.

ABOUCOUCHOU, a sort of woollen cloth manufactured in Languedoc, Provence, &c. &c. in France, and sent from Marseilles to the Levant.

ABRA, a Polish coin, value about 12½d. sterling; at Constantinople it passes for one fourth of an *Aslani*, and at Smyrna and Cairo it is current for the same value as a Dutch dollar.

ABROHANI, or Mallemolle, a fine Bengal muslin.

ABROTANOIDES, a kind of coral like southern wood, whence it takes its name, according to Clusius. It is found on rocks in the bottom of the sea.

ABSINTHIUM, *see* WORMWOOD.

ABUCCO, or Abocco, or Abocchi, a weight used in the kingdom of Pegu; it is equal to a pound and a half, and to four and a half ounces light weight of Venice. *See* WEIGHTS.

ABUKESB, a Dutch dollar so called by the Arabs, which is current among them; the impression of the lion being so very bad, that they take it for a dog, and so call it *Abukesb*, being a *dog* in their language.

ACACIA, (Ger. *Acaciensaft*. Fr. *Suc d'acacia*. It. *Acacia*. Sp. *Acacia verdadera, o'de Levante*. Port. *Acacia*. Lat. *Acaciæ succus*.) Egyptian thorn, a species of Mimosa, from which the Chinese make that yellow which we see bears washing in their silks and stuffs, and appears with so much elegance in their painting on paper. The flowers are gathered before they are fully opened, and put into an earthen vessel over a gentle heat, being stirred continually, until they are nearly dry and of a yellow colour: then to half a pound of the flowers, a sufficient quantity of rainwater is added, to hold the flowers incorporated together. It is then to be boiled until it becomes thick, when it must be strained. To the liquor they add half an ounce of common alum, and an ounce of calcined oyster shells reduced to a fine powder. All these are mixed together into a mass. An addition of a proportion of the ripe seeds to the flowers, renders the colour somewhat deeper. For making the deepest yellow, they add a small quantity of Brazil wood.

ACACIA *Juice*, (Ger. *Acaciensaft*. Fr. *Suc d'acacia*. It. *Acacia*. Sp. *Acacia verdadera, o'de Levante*. Port. *Acacia*. Lat. *Acaciæ succus*.) is prepared by inspissating to a due consistence the juice of the unripe fruit of the Mimosa *Nilotica*. It is brought from Egypt, wrapt in bladder, in masses of from four to eight ounces each. The best is outwardly of a deep brown colour; inwardly, of a reddish or yellowish brown. It soon softens in the mouth, and has a rough, not disagreeable, taste, which is followed by a sweetish relish. It is used as a

cooling, and mildly astringent and styptic medicine. The *German acacia* is frequently sold for it. This is the juice of unripe sloes. It may be distinguished from the true acacia chiefly by its colour, which is as black as that of Spanish liquorice; it is also harder and heavier, and of a sharp taste.

ACACIA *Gum. See* GUM *Arabic.*

ACCEPTANCE, } *see* BILLS OF
ACCEPTOR, } EXCHANGE.

ACCEPTILATION, remission of a debt by an acquittance from a creditor.

ACCESSARY is derived from the Latin word *accedo*, and signifies the addition of something inferior to that which is of superior importance. Thus, in law, it means a person who participates with the principal actor in an offence, as by advice, aid, concealment, or comfort. Those who advise a criminal act, or aid in its perpetration, are accessaries *before* the fact; those who conceal or comfort the offender, or subsequently participate in the fruits of the offence, are accessaries *after*. In the highest offence, viz. treason, by the law of England, all who consent in any way are principals. Also in cases criminal, but not capital, there are no accessaries, for all parties concerned *before* are in the situation of principals; and those who receive the offenders *after*, are under no penalty, except in the case of certain offences enacted by statute, wherein receivers are specially declared to be subject to the punishment of accessaries.

ACCOMMODATION, a friendly agreement or composition between persons at variance. *Accommodation bills*, or *notes*, are those for which no value has been given, and are usually made use of by distressed persons to raise money on, for the purpose of supporting their credit. (For the laws respecting this kind of bills and notes, *see* BILLS OF EXCHANGE.)

ACCOMPLICE. — Accomplice is used in colloquial language as synonimous with accessary; but in technical precision it has a very different signification. The term *Accessary excludes* the supposition of the person to whom it is applied being a principal, and indeed is placed, to a certain degree, in opposition to it; but being an accomplice presumes that sort of *direct* and *immediate* participation, which constitutes a co-principal. The distinction between the two was more precisely recognized in the practice of the Scotch, than in that of the English courts of justice; but in modern times several statutes passed by the legislature of the United Kingdom have adopted the word according to the construction put upon it by the former, and have not only holden out an engagement of indemnity, but in some instances also a pecuniary reward, to accomplices who discover their co-principals so that they can be prosecuted to conviction. 4 *Black. Com.* 330.

ACCOUNT, or ACCOMPT, signifies in general all kinds of computations made arithmetically, *viz. Time*, by years, months, days, &c. *Distances*, by leagues, poles, perches, &c. *Weights*, by tons, hundreds, quarters, pounds, ounces, &c. *Long measure*, by rods, ells, yards, &c. *Liquid measure*, by tuns, pipes, hogsheads, barrels, &c. *Dry measure*, by quarters, bushels, pecks, &c. *Money*, by pounds, shillings, pence, &c. &c. Monies of account are an imaginary species, used in different countries in order to facilitate the keeping of *accounts*, as pounds, &c. in England, Millreas in Portugal, &c. &c. &c.

Books of account are so universally known that it is useless here to describe them, more than to state that the principal ones are the waste book, journal, ledger, bill book, cash book, invoice and sale book, &c. &c. In keeping accounts the Italian method of *double entry* has very justly obtained the preference, as thereby it is next to impossible to commit error, provided the balance at the end of the year agree; as for every debtor (either *real* or *imaginary*) there must be a creditor in like manner.

In books of account the *real* debtor is understood to be the person or persons to whom goods are sold, and the *real* creditor to be the persons of whom money, &c. &c. is received in payment, and the *imaginary* accounts are such as *Profit and Loss, Commission Account, Charges Account, &c. &c.*

Accounts current are usually furnished by merchants to each other at least once a year, in which their entire transactions are stated, a balance struck, and when such balance is found free from error, it is carried either to the debit or credit of a *new account*, according as the balance may be at the time of finishing it, and so commences their new transactions; and this account, like all others, is closed with the exception of *errors or omissions.*

Account *of sales* is an account given by a merchant or factor to his principal for goods or merchandize consigned to him for sale, stating the sales made of such, with the purchasers' names, the prices or rate at which they sold, and therefrom are deducted all charges of freight, carriage, insurance, &c. as also the commission for selling, which being done, the remainder is called *the net proceeds*, the amount of which is carried or transferred to the consignee's credit in account current, *viz.* The following may serve as sufficient examples:

Sales, charges, and net proceeds of 500 tierces Ox mess beef, received per the Co[illegible] John Thompson, master, from Cork, sold for account of George Goold, Esq. of the said city.

Sold JORDAIN AND Co. 500 tierces, at 6*l.* per tierce.		£3000
CHARGES.		
Cash paid for freight, 125*l.* landing and sufferance, 5*l.* wharfage, pickling, and cooperage, 10*l.* 15*s.* cartage and porterage, 5*l.* 5*s.*	146*l.*	356 4 6
Insurance, stamp, and policy, as per account furnished	90*l.* 4*s.* 6*d.*	
Commission and risk of debt on 3000*l.* at 4 per cent	120*l.*	
Nett proceeds (in cash 10th June) at your credit, in account,		2643 15 6

Errors and omissions excepted.

GEO. WEBSTER & SONS.

Sales of 10 hhds. Jamaica sugar, received from London, and sold at Antwerp, April, 1818.

Wt. Gross	17933 lbs.		
Tret, 2 ℘ cent.	359		
	17574		
Tare, 14 ℘ cent.	2460		
Net	15114 lbs. at f. 34 ℘ 100 lbs.		f. 5138 15 0
	Rebate, $1\frac{1}{2}$ ℘ cent.		77 1 6
			5061 13 6
CHARGES.			
Freight from London,		f. 200 10 0	
Custom-house charges, cartage, &c.		58 6 6	
Warehouse rent and porterage,		10 0 0	
Commission and delcredere, 3 ℘ cent.		151 17 0	
			420 13 6
Net proceeds in florins of exchange			4641 0 0

Exchange at 40 2 ℘ £ is £385 " 2 " 11 British sterling.

	cwt.	qr.	lb.
N. B. The said 10 hhds. sugar weighed at London	166	1	21
Tare	16	1	0
Net	150	0	21 at 51*s.* 4*d.* ℘ cwt.

would be £385 " 9 " 7.

Sales of 26 bales Georgia cotton, received from London, and sold at Antwerp, April, 1818.

Wt. Gross	7816 lbs.		
Tret, 2 ℘ cent.	156		
	7660		
Tare, 4 ℘ cent.	306		
Net	7354 lbs. at 43 groats ℘ lb.		f. 7905 11 0
	Discount, 2 ℘ cent.		158 2 0
			7747 9 0
CHARGES.			
Freight from London			
Duty, landing, weighing, porterage, &c.		f. 31 11 0	
Warehouse rent		6 10 0	
Postage of letters		2 8 0	
Brokerage, $\frac{5}{8}$ ℘ cent.		64 11 3	
Commission and delcredere, 3 ℘ cent.		232 8 9	
			337 9 0
Net proceeds in florins of exchange			7410 0 0

Exchange at 12 florins ℘ £ sterling, £617 " 10 British sterling.

	cwt.	qr.	lb.
N. B. 7816 lbs. Antwerp wt.	72	1	12 English
Deduct 12 ℘ cent.	1	1	24
Net	71	0	16 or 7967 lbs. at $18\frac{1}{2}$*d.* ℘ lb. £614 " 2 " 5.

Pro forma Account Sales of 14 Hogsheads (Single Loaves) Refined Sugar, shipped from London to Bremen.

		Rixdoll.	Gr.
1395 Loaves, net 10169½ lb. at 19 yr.		2682	22
30 Ditto - - 215½ at 18¼		54	45
43 Ditto - - 304 at 18		76	0
		2812	67

CHARGES.

Freight	115	29	
Duty at Elsfleth, Town River, and quay dues	28	6	
Cooperage on board and lighterage	11	29	
Landing, cartage to the warehouse	10	8	
Cooperage on receiving and delivering	5	12	
Warehouse rent	15	40	
Insurance against fire; Brokerage, postage, and petty charges, about	14	5	
Commission and guarantee, 3 %	84	28	
Insurance	0	0	
			286 37
Net proceeds in rixdollars			2526 30

Exchange at 590 rixdollars ℔ £100 sterling is £428 " 2 " 8 British.

Pro forma Account Sales of 100 Bags St. Domingo Coffee, shipped from London to Bremen.

		Rixdoll.	Gr.
Wt. Gross - 15000 ℔.			
Tare - 200			
Net 14800 ℔. at 15 yr.		3083	24

CHARGES.

Freight	0	0	
Duty at Elsfleth, Town River, and quay dues	42	55	
Cooperage on board and lighterage	14	58	
Landing, cartage to the warehouse	15	20	
Cooperage on receiving and delivering	11	7	
Warehouse rent	13	64	
Insurance against fire; Brokerage, postage, and petty charges, about	20	12	
Commission and guarantee, 3 %	92	36	
Insurance	0	0	
			210 66
Net proceeds in rixdollars			2872 30

Exchange at 590 rixdollars ℔ £100 sterling is £486 " 8 " 6 British.

Sales of 6 Chests Shell Lac, received from Bombay, consigned to A. B. and Co. of London, and sold at the East India Company's Sale, February 1817.

6 Chests Shell Lac, Wt. Net 13cwt. 3qrs. at 47s. ℔ cwt.			32 10 5

CHARGES.

Home consumption duty on 50lb difference between landing and delivery, at 7½ ℔ £	1	11	3
Company's charges on £32 " 10 " 5 at 4 ℔ cent	1	6	0
Warehouse rent	1	6	0
Dock dues and fees	0	5	4
Insurance from fire	0	1	2
Brokerage on £32 " 10 " 5 at ½ per cent	0	3	3
Commission on ditto at 2½ ℔ cent	0	16	3
			5 9 3
Net proceeds			£27 1 2

Sales of 200 Bales Cotton Wool, received from Calcutta, consigned to A. B. and Co. of London, and sold at the East India Company's Sale, February 1817.

10 bales cotton wool, N W	3210	Lot 933	at $16\frac{1}{2}d.$ ℔ lb	-	220	13	9
10	3184	4		-	218	18	0
10	3197	5		-	219	15	0
10	3219	6		-	221	6	1
10	3187	7		-	219	2	1
10	3191	8		-	219	7	7
10	3244	9		-	223	0	6
10	3213	40		-	220	17	10
10	3266	1		-	224	10	9
10	3189	2	$16\frac{3}{4}d.$	-	222	11	4
10	3199	3	$16\frac{7}{8}d.$	-	224	18	7
10	3188	4	$17d.$	-	225	9	3
10	3293	5	$17\frac{1}{8}d.$	-	234	19	4
10	3221	6		-	229	16	7
10	3186	7		-	227	6	8
10	3207	8	$17d.$	-	227	3	3
10	3173	9	$17\frac{1}{8}d.$	-	226	8	1
10	3246	50	$17d.$	-	229	18	6
8	2580	1		-	182	15	0
8	2599	2		-	184	1	11
4 Damaged $\frac{1}{12}$	1338	3	$15\frac{1}{4}d.$	-	85	0	3
200 Bales	64325 lb.				4488	1	2

CHARGES.

Home consumption, duty on 86 lbs. difference between landing and delivery, at 8 " 7 ℔ 100 lbs. -	0	7	5	
Company's charges on £4488 " 1 " 2 at 30s. ℔ cent.	67	6	5	
Charge for bags - - - -	34	9	4	
Warehouse rent - - -	14	10	0	
Freight - - - - -	14	11	8	
Dock dues - - - -	11	4	0	
Insurance from fire - - -	6	14	8	
Brokerage on £4488 " 1 " 2 at $\frac{1}{2}$ ℔ cent. -	22	8	10	
Commission on ditto, at $2\frac{1}{2}$ ℔ cent. - -	112	4	0	
				283 16 4
Net proceeds				£4204 4 10

Sales of 50 Chests East India Indigo, received from London, and sold at Hamburg.

50 Chests, wt. gross - 14700 lbs. Real tare - 3240 lbs.

Tare and draft 3314 Draft $\frac{1}{2}$ ℔ cent. 74

3314 lbs.

			Mks. Bco.
Net 11386 lb at 16 Schill. Flem. ℔ lb. -			68316 0
Rebate $8\frac{2}{3}$ ℔ cent			5448 8
			62867 8
Discount at 1 ℔ cent			628 10
			62238 14

CHARGES.

	Mks. Cur.		Mks. Bco.		
Stade duty - - - -			49	0	
Duty on 62200 at $1\frac{1}{2}$ ℔ cent. -	933	0			
Lighterage, warehouse, and weighing	65	0			
Drawing samples, cooperage, &c. -	40	0			
Weighing, taring, and delivery -	60	0			
Labourers, postage, &c. -	21	0			
Warehouse rent 1 month -	30	0			
	1149	0	at 22 ℔ 941	12	
Brokerage $\frac{5}{6}$ ℔ cent - - -			569	4	
Fire insurance, &c. - - -			38	14	
Commission and delcredere 3 ℔ cent. - -			1867	2	
					3466 0
Net proceeds in Marks Banco					58772 14

N. B. Freight and insurance on the above were paid in London, and consequently they are to be deducted from the net proceeds.

Sales of 50 Puncheons Rum received from London and sold at Hamburg

		Mks. Cur.	Mks. Bco.
31 puncheons, 1806 vertels at 51½ rixdoll. ℔ 30 vertels 9300 14 at 26 ℔ cent. - - - -			7381 10
	Discount, 1 ℔ cent.		73 13
			7307 13
17 ditto, 962 vertels, at 51½ ditto, ℔ ditto (2 *months' credit*)			3931 15
2768 vertels - - -			11239 12

2 ditto, used for filling up

50 puncheons.

CHARGES.

	Mks. Bco.		Mks. Cur.	
Freight, £22 " 10 at 34 " 3	289	0		
Primage, 15 ℔ cent. -	43	6		
Stade money	12	8		
			344	14
Lighterage -			30	0
Wharfage and storing -			75	0
Import duty, at 1½ ℔ cent.			168	10
Warehouse rent -			50	0
Brokerage on 2768 vertels, at 2s. per vertel -			346	0
Delivery - -			25	0
Cooperage, and filling up			50	0
Half the expences, by measuring			12	8
Postage, drink money, &c.			15	14
			773	0
		at 23 ℔ cent.	644	11
Fire insurance, policy and stamps -			28	4
Commission and delcredere, viz.				
Guarantee on 3931, at 1 ℔ cent. -			39	5
Commission on 11239, at 2 per cent. - -			224	13
				1281 15
Net proceeds in Marks Banco				9957 13

Sales of 50 Casks Pearl, or Pot Ashes, received from London and sold at Rotterdam.

Wt. Gross -	16250 lbs.	
Scale, 1 ℔ cent.	163	
	16087	
Tare, 45 lb. ℔ cask	2250	
Net	13837 lbs. at 130 shillings ℔ 100 lbs. -	f. 5396 9
	Rebate, 10 ⅔ ℔ cent. -	578 3
		4818 6
	Discount, 1 ℔ cent.	48 4
		4770 2

CHARGES.

Duty inwards, weigh duty, and permits -	f. 80 0	
Landing, housing, and delivery - -	37 10	
Brokerage - - - -	20 0	
Warehouse rent - - - -	7 10	
Fire insurance - - - -	6 13	
	151 13	
Commission and delcredere, 3 ℔ cent.	143 2	
		294 15
Net proceeds		f. 4475 7

Exchange at 11 guilders ℔ £ sterling, is £406 17 British.

For net English weight, 138 cwt. 23 lbs. or 58*s.* 11*d.* ℔ cwt.

Sales of 15 Casks of Gum, received from London and sold at Rotterdam.

Wt. Gross -		21216 lbs.		
Scale, 1 ℘ cent. -		212		
		21004		
Tare,	2050			
Surt, 1 ℘ cent.	210			
		2260		
	Net	18744 lbs. at 50 f. ℘ 100lbs. -	f. 9372	0
		Discount, 1 ℘ cent.	93	14
			9278	6

CHARGES.

Duty inwards, weighing duty, and permits -	f. 146	0	
Landing, housing, and delivery -	30	0	
Brokerage - - - -	46	17	
Warehouse rent - - - -	7	10	
Fire insurance - - - -	10	10	
	240	17	
Commission and delcredere, 3 ℘ cent. -	278	7	
			519 4
Net proceeds			f. 8759 2

Exchange at 11 guilders ℘ £ sterling, is £796 " 5 " 8 British.
For net English weight, 186 cwt. 3 qrs. 11 lbs. or 85*s.* ℘ cwt.

Accounts current state as already mentioned general transactions of the year, and are as follows.

Dr. GEO. GOOLD, Esq. Cork, in account with G. WEBSTER AND SONS, London. Cr.

1818.				1818.			
Jan. 3. To your bill to Pike and Co. 6 February	1500			Mar. 10. By net proceeds of 500 tierces beef, ℘ Columbus, 10 June	2643	15	6
18. To amount invoice of sundry, per Isabella, Cox	820	16	5	15. By Cottrell on Puget and Co. due 6th April	500		
Feb. 6. To cost of a lottery ticket	21	10		By balance carried to debit in new account	59	5	11
10. To do. of 1200*l.* insured on goods, per Albion, Cork to Jamaica	130	10	6				
Mar. 6. To cash paid your acceptance to Barton & Co. of Bourdeaux	720						
Ap. 20. To commission on bills accepted 1500*l.* at ½ pr. cent. 7*l.* 10*s.* on ditto paid 720*l.* at ⅛ p. 18*s.*	8	8					
To postages paid, your account	1	16	6				
	£3203	1	5		£3203	1	5

Errors and omissions excepted.

GEO. WEBSTER & SONS.

LONDON, 20th April, 1818.

An account of *interest* is where there are mutual dealings, and on which an account current exists; here there is a debit and credit for the interest of money *paid and received* and a balance struck, which balance is either brought to the debit or credit of the person's account, as it turns out on closing the interest account; it is usually called an *interest account*, and is calculated from the debit and credit side of the account current.

ACCOUNTANT, or Accomptant, is a book-keeper or person conversant with accounts. It is also applicable to persons in the public offices, &c. as the *accountant* of the Bank, of the South Sea, or India Company, Custom-House, Excise, the Accountant General, &c. Of the last-mentioned officer it is necessary to give some particulars, as he is a person in whose official responsibility and duties, so large a portion of society is interested. He is an officer of the Court of Chancery, appointed to receive, and account for, all monies belonging to the suitors of that court; which monies he is to invest in the public funds in trust for the parties interested, till disposed of by order of the court. The Bank is answerable for the monies so deposited by this officer. He is prohibited from taking any fees for his labour, on pain of being punished for extortion, but is paid a certain allowance. 12 Geo. 1. c. 32. Counterfeiting the hand-writing of the Accountant General is felony, *sans* clergy, by the same statute.

ACCOUNTING-HOUSE, or Counting-House, a place set apart by merchants and traders to transact their business in, and where their books and all vouchers relative to their business are deposited.

ACETABULUM, a Roman liquid measure, equal to one-eighth of an English pint.

In Botany, the name of a species of the peziza, a genus belonging to the cryptogamia fungi of Linnæus.

In Anatomy, the cavity in the bones of the pelvis, which receives the head of the thigh bone.

ACETOSA, or Acetosella, sorrel; the juice of sorrel is sometimes used as an agreeable refrigerant drink in fevers. The concrete acid, *oxalic acid*, usually sold under the name of *salt of lemons* is used in some of the arts. *See* ACID, *Oxalic*.

ACHIA, or Achiar, a sort of cane that grows in the East Indies, is pickled green in the country, with vinegar, pepper, and other spices, and sent home to Europe in stone or earthen jars; the colour is pale yellow, but resembles our cucumbers: this article is of great consumption in Holland.

ACHIOTTE, a drug used in dyeing, so called by the Brazilians; it is commonly called *Rocou*. *See* ROCOU.

ACHTELING, a German liquid measure, 32 of which make one heemer, and four schiltems make one Achteling. *See* WEIGHTS.

ACHTENDEELEN, a Dutch corn measure, equal to about 536lb. avoirdupois weight.

ACIDS; those substances which impress the organs of taste with a sharp, sour, and cooling sensation, are in common language denominated *acids*. The characteristic properties of acids are the following:

1. When taken into the mouth they occasion a sour taste.

2. They change certain vegetable blue colours to red, such as tincture of litmus, or syrup of violets; and restore the blue colours which have been turned green, or the red colours which have been turned blue by an alkali. The old chemists divided acids into mineral, vegetable, and animal, according to their supposed origin. This, however, is not only an inconvenient, but an incorrect method of arrangement, as many of these bodies are found in all the three natural kingdoms. Acids have been generally considered as combinations of oxygen with some other substance, termed their radical or base; and it has been proposed to divide them into classes, as composed of one, two, three, or more radicals; and those of which the radicals are at present unknown. We shall describe them in this order.

Sulphuric Acid is a combination of oxygen and sulphur; and is obtained by burning sulphur with a proportion of nitre, in a close chamber lined with lead. The floor of the chamber is covered with water, to absorb the acid gas as it is formed, which solution is afterwards concentrated by boiling. That usually exposed for sale is of a specific gravity, about 1.845. When good, it is nearly devoid of colour and smell. It has an oily appearance, and thence is commonly called *oil of vitriol*. Sulphuric acid is much used by dyers and calico-printers, but is not often employed in other arts.

Nitric Acid is composed of oxygen, and a peculiar substance termed nitrogen, or azote. It is obtained by decomposing nitre by means of sulphuric acid. It is clear, and nearly colourless; has a pungent smell, and a strong acid taste, even when largely diluted with water. The acid of commerce, termed *nitrous acid*, is the same with the above, only that it contains a greater proportion of nitrogen. It is of a citron colour, and gives out red fumes on being exposed to the air. This is a very important article to the artizan: diluted with an equal proportion of water, it forms what is commonly called *aqua-fortis*, which is much used by dyers; particularly for dissolving tin: this solution heightens, and fixes many colours, especially that of cochineal. It is also used by brass-founders, silver-refiners, gilders, leather-dyers, and calico-printers. Two parts of nitric acid, and one of muriatic acid, constitute *aqua-regia*, the liquid employed for dissolving gold, and is consequently of important use to gilders and gold refiners.

Muriatic Acid (this is treated of in this place from its similarity, in many respects, to the acids we have described, and from the uses to which they are applied being to a certain extent similar, although it is one of those of which the base is not known), is composed of an unknown base, hydrogen, and, perhaps, oxygen. It is usually obtained by decomposing muriate of soda

(common sea salt) with sulphuric acid. It is colourless, has a penetrative, suffocating smell, and gives out white fumes on exposure to the atmosphere. It is much employed in the arts, more particularly in combination with alkalies, when it forms neutral salts. The most important use to which it is applied, is that of *bleaching*, when it is in the state usually termed *oxymuriatic acid*. It has also been employed for fumigating the dwellings of persons sick of fevers, and pestilential disorders, for the purpose of purifying the air.

Carbonic Acid. This acid cannot be obtained pure, but in the state of gas. It was formerly called fixed air; but from being composed of carbon and oxygen, the above torm has been more properly applied to it. It is contained in considerable proportions in chalk, lime-stone, and magnesia, and is copiously disengaged from fermenting vegetable substances, and naturally from many parts of the earth; as from beneath the lake *Averno* in Italy, and the *Grotto del Cane*. Many springs are also impregnated with it; as those of *Spa*, *Seltzer*, and *Pyrmont*. Water may be made to absorb, by pressure, three times its bulk of carbonic acid gas. This mixture has a bright sparkling appearance, and a slightly acidulous refreshing taste.

Phosphoric Acid is a compound of oxygen and phosphorus, and is obtained by burning the latter substance in the open air. When first obtained, it is in the form of white snowy flocks, which, after a short time, attracts a sufficiency of moisture from the atmosphere to change them into a liquid state. This solution is colourless, has a strong acid taste, and a pungent smell. It is not employed in the arts.

Fluoric Acid may be obtained from the substance termed fluor spar, which is a combination of fluoric acid and lime. It is composed of hydrogen, and a base termed fluorine, respecting the nature of which little is known. Fluor acid, in the state of gas, is invisible; water rapidly absorbs it, and forms liquid fluoric acid. It has an acid taste, and the peculiar property of corroding silica, whence it has been employed for etching on glass. It is also used for depriving glass of its polish, and in some degree of its transparency.

Boracic Acid. This acid is obtained from the mineral salt termed borax. It is in the form of small flakes, slightly acid, and unalterable in the air. It has not been applied, when in a pure state, to any of the arts.

Arsenic Acid is a combination of arsenic and oxygen. It is in the form of a heavy, thick, incrystallizable mass, of an acid taste, soluble in hot water. It is not used in the arts.

Tungstic Acid is in the form of a tasteless yellow powder. It is composed of oxygen and tungsten, and is found native in wolfram and some other minerals. It dissolves several of the metals, and assumes a blue colour in proportion as it abandons its oxygen.

Molybdic Acid. This acid is composed of oxygen and molybdenum. It is in the form of a pale yellow powder, and requires a large quantity of water for its solution.

Chromic Acid is an orange-coloured powder, composed of oxygen and chromium; it has an acrid metallic taste, is soluble in water, and crystallizable. Combined with different saline substances, it forms a variety of beautiful colours, which promise to be of great use to the painter and enameller.

Acetic Acid, or the pure acid of vinegar, may be obtained by decomposing acetate of copper, or acetate of soda or potash, by sulphuric acid. A thousand parts of acetate of copper (distilled verdigris) will furnish 486 parts of pure acetic acid. In its general properties, acetic acid is very similar to acetous acid, which we shall presently describe, but differs from it in the following respects. The active qualities of this acid make it nearly resemble some of the mineral acids; it is corrosive and intensely acid to the taste; it exhales a pungent odour, and is free from the spirituous flavour of distilled vinegar. It dissolves copper and some other metals; and it is capable of partly decomposing alcohol, forming acetic ether. It is used by chemists, and occasionally in medicine, as a stimulant to the nostrils in fainting fits; for this purpose, some acetate of potash is put into a bottle, and a little sulphuric acid poured upon it.

Acetous Acid, usually termed distilled vinegar, may be obtained from common vinegar by distillation, and also from nearly all saccharine liquors which have gone into acetous fermentation. It may also be acquired from wood by distillation; in this state it is usually termed *pyro-ligneous* acid. Acetous acid is a transparent colourless fluid; its specific gravity 1.0095, nearly as volatile as water; exhaling a pungent, fragrant odour; its taste is sharply acid and agreeable. Its component parts are oxygen, hydrogen, and carbon. Its uses are the same as those of vinegar, only that it is more powerful.

Oxalic Acid is found in a large proportion in the juice of sorrel, in combination with potash, from which it may readily be separated by a chemical process. It is in the form of crystals, of a very acid taste, soluble in water. This acid may also be obtained from sugar; whence it has sometimes been called *acid of sugar*. It is used by calico-printers, either pure or in the form of super-oxalate of potash, instead of citric acid; but the pure oxalic acid is apt to leave a stain on the linen, and the super-oxalate of potash is not sufficiently soluble in water to render the solution of a sufficient strength for many

purposes. Oxalic acid is usually sold under the name of salt of lemons, for removing ink-spots from linen, &c.

Tartaric Acid is obtained from the tartar of commerce; it is crystallizable, soluble in water, and of a pleasant acid taste. It is used in medicine, and by calico-printers to discharge false prints.

Citric Acid is obtained from the juice of lemons. It crystallizes in rhomboidal crystals, extremely acid to the taste, and readily soluble in water. It is used in medicine, for domestic purposes, and by calico-printers.

Malic Acid, as the name imports, is obtained from the juice of apples. It is in the form of an acid, reddish-coloured liquid, which is incrystallizable. It has not been applied to any use except as a chemical test.

Lactic Acid is obtained from milk after the curd has been separated. It is of a yellow colour, incapable of crystallization, and has not hitherto been applied to any use.

Gallic Acid is found in the nut-galls of commerce, and various other astringent substances; and it is on this which depends the power of giving a black colour to the solutions of iron. It is in the form of thin, transparent plates, and in minute needle-shaped crystals of an acid austere taste.

Mucous Acid, or saccholactic acid, may be obtained from gum arabic and other mucilaginous substances, by treating them with nitric acid. It is in the form of a white gritty powder, with a slightly acid taste.

Benzoic Acid is contained in the gum-resin of that name. It is in the form of a light, white, flocculent powder, of a peculiar aromatic odour. Its taste is acrid and bitter. It is soluble in boiling water. It is only used in medicine.

Succinic Acid is prepared from amber. It is in the form of shining white crystals, of a slightly acid taste. It is used in medicine, and as a re-agent, but is not otherwise employed in the arts.

Camphoric Acid may be obtained by treating camphor with nitric acid. It is in very white crystals, of a slightly acid bitter taste, and a smell somewhat resembling that of saffron. It has not been used in the arts.

Suberic Acid is produced from cork by means of nitric acid. Its taste is acid, and is generally in the state of powder; it is not crystallizable. Hitherto it has not been applied to any use.

Laccic Acid. This acid is procured from *white lac*. It is a reddish fluid, of a bitter saltish taste. It crystallizes in needle-shaped crystals.

Prussic Acid is composed of hydrogen, nitrogen, and carbon. It is in form of a colourless liquid, of a sweet taste, and does not alter the colour of vegetable blues. It is usually obtained from prussian blue, by distillation with sulphuric acid. Its principal use is as a chemical test. Lately it has been employed as a medicine to lessen the vital powers of the system.

Sebacic Acid is obtained from animal fat. It has the form of a liquid, of an acid, sharp, bitterish taste; and when mixed with nitric acid, will dissolve gold.

ACORI, or Blue Coral; it is fished up, on the coast of Africa, from *Rio-del-re* to the river of the *Camarones*, where the Dutch traffic for it: the coral of the kingdom of Benin is remarkably fine, it grows in the form of a tree, upon a rocky bottom. *See* CORAL.

ACORNS, (Ger. *Eicheln, Eckern*. Du. *Akers*. Da. *Agern*. Sw. *Ollon*. Fr. *Glands*. It. *Ghiande*. Sp. *Bellotas*. Port. *Bolotas*. *Landeas*. Rus. *Schedudii*. Pol. *Zoladzy*. Lat. *Glandes*,) the seed or fruit of the oak. They are a powerful astringent, and were formerly used medicinally in decoction: They are now only applied to the feeding of swine and poultry, and for this purpose they are superior to almost every other species of food.

ACQUIT, a discharge or release in the united kingdoms of Great Britain and Ireland; but in France it is a sort of permit for goods sent from one place to another, in which are specified the marks and numbers, &c. of the packages, and also the limited number of days for their transit. In bills of exchange the word signifies *paid* or *discharged*.

ACQUITTANCE, a release or discharge of a debt *in writing*; some are made in presence of a public notary, and *in law* they should be a deed sealed. 3 Salk. 298. pl. 2. An acquittance or receipt in full of all demands will discharge all debts, except such as are on specialty, viz. bonds, bills, and other instruments sealed and delivered, which can only be destroyed by some other specialty of equal force, such as a general release, &c. 2 Cro. 650.

ACRE of land is 4 square roods, a rood 40 perches or poles: a Welch acre is double.

ACRE, or Lacre, this word is used in the dominions of the Mogul, and is a corruption of the word *Lac*; in his revenues it signifies 100,000 rupees of about 2s. 6d. sterling; 100 lacks of rupees make a *crore* in Indostan, or 10,000,000 rupees. The pound sterling is about 8 rupees, consequently a *lack of rupees* amounts to £12,500 sterling. The rupees of Surat and Bengal are worth about 30 sous of Holland, or 3 francs of France. *See* MONIES.

ACT OF HONOUR, is usually drawn up by a notary public, for the security of a *third person* who interferes for a friend abroad, in preventing his bill from being returned or dishonoured, for want of regular acceptance, or payment by the party on whom it is drawn, and is often done for endorsers on such disgraced bills, which not only prevents the heavy expences of re-exchange, but likewise preserves the credit of

such parties; it is therefore necessary for the safety of the merchant, to have an act of honour annexed to the report of such bills whereby he holds all parties legally bound to him for reimbursement, the act of honour is, viz. "Afterwards on the same day, month, and year, before me, the said notary and witnesses personally came and appeared, with Mr. A. B., of this city, merchant, who declared he was ready, and would accept the said bill of exchange, now under protest for the honour and account of Mr. C. D. the drawer (*as the case may be*), holding him the said drawer thereof, and all others concerned, always obliged to him the said appearer for reimbursement in due form of law." *See* BILLS OF EXCHANGE.

ACTION. An action signifies, in law, "a legal demand of a man's right." The person so demanding is denominated "*Plaintiff*;" and the person against whom the demand is made, "*Defendant*." Civil actions are divided into three kinds, viz. *real, personal,* and *mixed*. *Real* actions are such as respect land. *Personal,* such as relate to some personal debt, duty, or recompence. *Mixed,* are when the cause of complaint partakes of both some real and some personal demand, as where a man seeks to recover land, and *also* a recompence for damage done to that land. 3 *Black. Com.* 118.

The forms of actions are as various as the descriptions of grievances to be redressed; but the limits, to which a book of this kind must necessarily be restricted, do not admit of a technical specification of them.

ACTS OF PARLIAMENT. *See* STATUTES OF THE REALM.

ADAMANT, an ancient name for the diamond. It is also used for a very hard species of iron, and for the magnet or loadstone.

ADAMANTINE SPAR, (*spath adamantine, corundrum, nella corrivindum, tella convindum, corone,*) a stone found in India and China; crystallized, or in a mass. The Indian is the best. Its colour is grey, with shades of green and light brown; its fracture is foliated and sparry, sometimes vitreous. It is brittle, and of such hardness as to cut rock crystal and most of the gems. Specific gravity from 3.950 to 3.959. The Chinese variety differs from the Indian in containing grains of magnetic iron ore disseminated through it; in being generally of a darker colour, and having externally a chatoyant lustre: its specific gravity is greater, and its hardness somewhat inferior. There are two varieties known of corundrum in mass. That from Bengal is of a purplish hue: specific gravity 3.876. It is called by the natives *corone*. That from the coast of Coromandel is a foliated texture, and seems to be confusedly crystallized: its specific gravity is 2.785. This stone is employed for polishing gems,

ADARME, a weight used at Buenos Ayres, and in other parts of Spanish America, and is one-sixteenth part of an ounce Troy weight, which is to that of Madrid, as 100 is to 93.

ADATIS, a fine Bengal muslin, 13 yards to the piece.

ADDITION is the art of joining one thing to another, or of augmenting a thing by the accession of others.

In Arithmetic it is the first of the four fundamental rules, and consists in finding the amount of several numbers or quantities severally added to one another. The number when found is called the "*sum*, or *aggregate*."

In law it signifies the title given to a man, beside his Christian and surnames, descriptive of his estate, degree, trade, or the like. For example, yeoman, gentleman, and esquire, are additions of estate; knight, baronet, earl, marquis, and duke, and such like titles of honor, are additions of degree; carpenter, butcher, clothier, merchant, are additions of trade. In legal proceedings these additions, applied as respectively due, are always necessary, that one man may not be molested in mistake for another. 1 *Black. Com.* 403. In suits or actions which may be prosecuted to outlawry, they are prescribed to be used by stat. 1 Hen. 5. c. 5.

ADELE, an Egyptian weight, used principally for rice, consisting of 210 okes, each of three rotolos, a weight of about two drachms less than an English pound. The adele varies in different parts of Egypt; at Rosetto it is only 150 okes.

ADENOS, a kind of cotton, otherwise called *marine cotton*. It comes from Aleppo by the way of Marseilles.

ADIPOCIRE, a soft, ductile, greyish-white matter, apparently intermediate between fat and wax, formed by a peculiar decomposition of dead animal bodies. Great quantities of this matter were found on opening the cemeteries of the *Innocents* burial-ground at Paris in the years 1786 and 1787. According to the testimony of grave-diggers, this conversion of animal matter is never observed in those bodies that are interred singly, but it always takes place in the common vaults (*fosses communes*). To effect this change nearly three years are required. Animal matter having passed into this state, appears to resist for a long time any further alteration; some of the pits that had been closed above 40 years were found to be filled with little else than a solid mass of *adipocire*. Its component parts are water, ammonia, and a concrete oil; in fact, an ammoniacal soap. A piece of flesh inclosed in a box having several holes in its sides, and placed in a running stream, will be changed into this substance in a month or two: a similar conclusion takes place by macerating it in very diluted nitrous acid.

ADIT, in a general sense, the passage

to, or entrance of, any thing. It is mostly used as applied to *mines*, where it signifies the hole or aperture whereby they are entered and dug, and by which the water and ores are carried away. The adit is usually made on the side and near the bottom of a hill, about four, five, or six feet high, and eight wide, in the form of an arch; sometimes cut in the rock and sometimes supported with timber, so constructed that the sole or bottom of the adit may answer to the bottom of the shaft, only somewhat lower, that the water may have a sufficient current to pass away without the use of the pump. Damps and the impurity of the air are the great impediments against driving adits above 20 or 30 fathoms, by reason of the necessity, in this case, of letting down air-shafts from the clay to meet the adit. The best remedy against this is that practised in the coal mines near Liege, where they work their adits without shafts; the manner of which is described by Sir James Moray. (*Phil. Trans.* vol. i. p. 79.)

ADJUSTMENT, is an expression used in settling averages on losses or policies of insurance on ships or merchandize, and when the underwriters sign such *adjustment* it is considered as finally settled. At foot of the policy it runs thus: "Adjusted a loss on this policy of ninety pounds seven shillings and sixpence per cent. payable in one month. London, 20th April, 1818." After such adjustment is signed by the underwriter, it is considered as a promissory note between him and the assured, and cannot be afterwards disputed.

ADMEASUREMENT. By the 6 G. 1. c. 21. sect. 33. the tonnage of ships inwards is to be measured thus: Take the length of the keel within board (so much as she treads on the ground) and the breadth within board, by the midship beam from plank to plank, and half the breadth for the depth; then multiply the length by the breadth, and that product by the depth, and divide the whole by 94, the quotient will give the true contents of the tonnage.

ADMINISTRATION, in general, is the management or direction of affairs.

ADMINISTRATOR, in law, he to whom the ordinary commits the administration of the goods of a person deceased in default of an executor. An action lies for or against an administrator, as for or against an executor; and he shall be accountable to the value of the goods of the deceased, and no farther: unless there be waste or other abuse chargeable on him. If the administrator die, his executors are not administrators; but the court is to grant a new administration. If a stranger who is neither administrator nor executor take the goods of the deceased, and administer, he shall be charged, and sued as an executor, not as an administrator. The origin of administrators is derived from the civil laws.

ADMINISTRATRIX, is a woman who administers.

ADMIRAL, a great officer who has the command of the navy, and the hearing of all maritime causes; the term is also used for the commander in chief of a single fleet or squadron. It is also applied to all flag-officers in general; an admiral carries his flag at the main top mast head.

Vice admiral, is the commander of the second squadron, and carries his flag at the fore topmast head.

Rear admiral, is the commander of the third squadron, and carries his flag at the mizen topmast head. The rank of an admiral and his station in the line are also indicated by the colour of his flag. Hence there are admirals, vice admirals, and rear admirals of the white, of the blue, &c. &c.

ADMIRAL, is also an appellation given to the most considerable ship of a fleet of merchantmen, or of the vessels employed in the cod fishery of Newfoundland; he possesses privileges as long as the fishing season continues, and carries a flag on his mainmast.

ADMIRALTY, properly signifies the offices of lord high admiral, whether discharged by one single person, or by joint commissioners called *Lords of the Admiralty*. Theirs is a sovereign court, where cognizance is taken in all maritime affairs, whether civil or criminal; all crimes committed on the high seas, or on great rivers below the first bridge next the sea, are cognizable in this court only, and before which they must be tried by judge and jury; but in civil cases the mode is different, the decisions being all made according to the civil law. Appeals from the vice-admiralty court, in our plantations and settlements, may be brought before the courts of admiralty in England, but they may also be brought before the king in council. But in case of prize vessels condemned in any courts of admiralty, or vice-admiralty, as lawful prize, the appeal lies to certain *commissioners of appeals* consisting chiefly of the privy-council, and not to judges' delegates, and this by virtue of divers treaties with foreign nations, by which particular courts are established in all the maritime countries of Europe for the decision of this question, "*whether lawful prizes or not?*" for this being a question between subjects of different states, it belongs entirely to the law of nations, and not to the municipal laws of either country, to determine it.

ADRIANOPLE RED, or LIZARY, a species of madder, coming from the Levant.

ADVANCE, denotes money paid before goods are delivered, a business performed on consignments of goods; it is usual with merchants to advance from one half to two thirds of their amount, on receiving invoice, bill of lading, and orders to insure them from sea risk, &c. &c.

ADVENTURE, a speculation in goods sent abroad under the care of a super-cargo, to dispose of to the best advantage for the benefit of his employers.

ADVENTURINE, or Aventurine, a precious stone of a yellowish brown colour, full of little specks, which seem to be of gold: it is found in Bohemia, Silesia, and in different parts of France; it is rather brittle, but takes the polish easy.

ADVICE, is usually given from one merchant or banker to another *by letter*, informing him of the bills or drafts drawn on him, with all the particulars of date, *or sight*, the sum, to whom made payable, &c. and where bills frequently appear for acceptance or payment, they are refused to be honoured for *want of advice*. It is also necessary to give advice as it prevents forgeries: if a merchant accept or pay a bill for the honour of any other person, he is bound to advise him thereof, and this should always be done under *an act of honour* by a notary public.

ADULTERATION, the act of debasing by an improper mixture. We have laws against the adulteration of coffee, tea, tobacco, snuff, wine, &c.

Adulteration of coin is effected by making use of a wrong metal, or an undue alloy, or too great an admixture of the baser metals with gold or silver; *adulterating* is somewhat less extensive than *debasing*, which includes diminishing, clipping, &c. To adulterate or debase the current coin is a capital crime in most nations.

ADVOCATE, is still used in countries and courts where the civil law obtains, for those who plead and defend the causes of clients trusted to them. *Lord Advocate* or *King's Advocate*, one of the great eight officers of state in Scotland, who as such sat in parliament without election; he is the principal crown lawyer in Scotland, his business is to act as public prosecutor, and to plead in all causes that concern the crown.

ADZE, or Addice, a cutting tool of the axe kind, having its blade made thin and arching, and its edge at right angles to the handle, chiefly used for taking off thin chips of timber or boards, and for paring away certain irregularities, which the axe cannot come at. The adze is used by carpenters, but more by coopers, as being convenient for cutting the hollow sides of boards, &c.

ÆGYLOPS. (*Bromus arvensis*, Lin.) The great wild oat grass, or drank. It grows in hedges and the sides of fields in May. By culture it becomes a species of corn. In the northern parts of America it is improved to great advantage; and in the low wet boggy grounds of Great Britain it would be profitable, as it thrives best in water. It grows like oats, but in quality resembles rice.

ÆGYPTIACUM, a name formerly given to several medicinal preparations, the only one of which now in use is that called *mel ægyptiacum*, which is composed of honey and verdigris. It is useful for cleansing foul ulcers, and is much employed by farriers for that purpose.

AEM, Am, or Ame, a German liquid measure; it is commonly of 20 vertels, or 80 masses; at Heydelberg it is of 12 vertels, and the vertel of 4 masses, which reduces the *aem* to 48 masses; at Wirtemberg the *aem* is of 16 yunes, and the yune of 10 masses, which makes the *aem* about 160 masses. This measure is not the same as the *aam* of Amsterdam. *See* WEIGHTS AND MEASURES.

ÆSTUARY, in Geography, denotes an arm of the sea which runs a good way within land, such is the Bristol Channel, and many of the friths of Scotland.

ÆTITES, *Eagle-stone*, a flinty or crustated stone, hollow, and containing a nucleus, which, on shaking, rattles within. It is found in several parts of the continent; near Trevoux in France, a pit a few feet deep cannot be dug without finding strata or beds of the coarser or ferruginous kind. They are originally soft, and of the colour of yellow ochre. But the finest and most valued of all the eagle stones are accidental slates of one or other of our common pebbles.

AFFA, a weight used on the Gold Coast of Guinea. It is equal to an ounce, and the half of it is called *aggeba*. Most of the blacks on the Gold Coast give these names to the above weights.

AFFIDAVIT, signifies an oath in writing, sworn before some person who is authorised to take the same, as, for example,

Affidavit of Goods sold and delivered.

§. A. B. of, &c. maketh oath, and saith, that C. D. of, &c. named in the procuration or letter of attorney hereunto annexed, is justly and truly indebted unto him, this deponent, in the sum of £—— sterling, for goods and merchandizes sold and delivered, as more fully appears by the account also hereunto annexed.

Another for Goods sold and delivered, when made by a Clerk.

§. A. B. of, &c. clerk to Messrs. C. and D. of, &c. maketh oath, and saith, that E. F. of, &c. named, &c. is justly indebted unto the said C. and D. for goods and merchandizes sold and delivered to the said E. F. and shipped for them by this deponent; and this deponent further saith that the several accounts and invoices also hereunto annexed, and marked A. No. 1, were duly extracted from the books of the said C. and D. and examined by him this deponent.

There are affidavits in commercial transactions of various kinds, but these are sufficient by way of example.

AFFIRMATION in law signifies an indulgence allowed to Quakers, who, in cases where an oath is required, may make

a solemn affirmation, that what they say is true; and if they make a false *affirmation*, they are subject to the penalties of perjury. It is not allowed in criminal prosecutions.

AFFRAY signifies, in legal language, a fighting in that *public manner* that tends *to affright* other peaceable persons, derived from the French word *effrayer*. Offenders subject themselves to be set in the stocks by a constable on view, and to give security before a magistrate for keeping the peace. 4 *Black. Com.* 145.

AFIOUME, or Fiume, a kind of flax, which comes from Egypt by way of Marseilles and Leghorn.

AFRICA is the first in alphabetical order of the four grand divisions, by which geographers have distinguished the great continents of the terraqueous globe. It is surrounded on every side with water, except where it is joined to Asia by the Isthmus of Suez, which separates the Mediterranean Sea from the Red Sea, and is but about one hundred miles in breadth. Thus it is peninsular, bounded on the north by the Mediterranean, which divides it from Europe; west by the Atlantic, which separates it from America; south by the Southern Ocean; and east by the Isthmus of Suez, the Red Sea, and the Indian Ocean. This quarter of the globe is neither so fertile, nor so populous, as the other three, there being in the interior immense deserts of burning sands; beside which, the greatest portion of this continent being within the torrid zone, the heat is nearly intolerable. The coasts, however, are fertile, and the country abounds with wild animals, valuable, in a commercial view, for their skins or their feathers. Among these are to be reckoned, the Camel, the Hippopotamus, the Rhinoceros, the Zebra, and the Ostrich. It also abounds in gold dust, fruits, and many other vegetable productions peculiar to hot countries; all of which will be noticed, individually, under the respective divisions into which this continent almost necessarily resolves itself, by the distinctions of natural produce, government, religion, and manners. The greatest length of this continent is short of 5000, and its greatest breadth of 4000 miles. There are some large rivers; among which are reckoned the Nile, the Niger, the Zaire, the Senegal, and the Gambia, and several of inferior magnitude, but of nearly equal importance to the inhabitants of the coast, especially on the western one. The inhabitants consist of Pagans, Mahometans, and Christians. In the whole interior of the country, from one tropic to the other, they are exclusively Pagans, (with the exception of a few Jews, who are scattered over the whole approach to the northern extremity, and carry on all the trade.) These are, no doubt, the original inhabitants of Africa, and are all blacks. The northern parts are inhabited principally by Mahometans. In the southern and eastern, are some Christians, with a mixture of all other descriptions of religious faith.

Northern Division of Africa, This skirts the coast from the Isthmus of Suez to the extremity of the empire of Morocco; is the breadth of the northern extremity of this continent, from east to west, and is denominated the *Barbary Coast*. There is nothing but a desart in this division, till we come to the kingdom of *Tripoli*, bounded by the Mediterranean on the north; by Mount Atlas on the south; and by the dominions of Tunis on the west. This kingdom is divided into six provinces, of which Tripoli is the capital; and, indeed, the only place of any importance, The inhabitants are Mahometans, and tawney, with a mixture of Jews and renegadoes from all parts of the world. The principal articles of commerce peculiar to Tripoli are *ashes*, *feathers*, and *skins*. Foreign gold and silver coins pass here according to their weight and standard; but accounts are kept in piastres, and grimmellins, and aspers.

The next contiguous state in the same direction, is that of *Tunis*. Its capital of the same name stands on a point of the Gulph of Golette, ten miles from the Mediterranean sea, is five miles in circumference, and a place of considerable strength and importance. The kingdom is divided into eight districts, but the trade, wealth, and power, are wholly absorbed by the capital, which has within it more than 10,000 families.

The celebrated Carthage is within this division of the Barbary coast. The inhabitants of Tunis are a mixture of Turks, Moors, Arabians, Jews, and Christians, of various nations. Their general character is superior to that of all the Barbary nations, inasmuch as the arts and commerce are more cultivated among them, and their manners therefore less ferocious. The Tunisians export fruit, ivory, oil, wax, honey, wool, hides, leather, sponge, corn, madder roots, &c., and have some manufactures, particularly of velvets, silks, and linens. They import fine wool and woollen cloth, spices, sugar, wine, spirits, vermilion, and other colours, hardware, iron, steel, paper, &c. &c. The principal part of the revenues of the state arise from the duties on exports. Most European kingdoms have consuls here, who are treated with respect. All *public* instruments are in the Arabic language, much corrupted; but the common affairs of life are conducted in the jargon, denominated *lingua Franca*. Burboes, Aspers, and Piastres, are the current monies at Tunis, in which accounts are kept.

Algiers is the next state to Tunis, and takes its name from its capital, which is now

the only place of consideration in the kingdom, the others having fallen into decay. It is divided into 18 provinces; but, except on the sea-coast, where the air is salubrious and the verdure fine, the country is almost a desart, abounding, indeed, in a great variety of beasts and birds, as lions, tygers, leopards, &c.; but above all, in ostriches, which, on account of their feathers, are highly valuable. The city of Algiers stands on a declivity close to the sea; is about three miles in circumference; is supposed to contain a population of more than 100,000 persons, of whom nearly 20,000 are Jews; and, till very lately, an average of 2000 Christian slaves. The Algerines are considered the most cruel and dangerous people of all Africa, being ferocious by nature, perfidious upon system, and repacious from habit. They have for centuries been averse from labour, holding commerce in contempt, and living almost altogether by piracy. The religion of the state is Mahomedan, but all the commerce is carried on by Jews. They export ostrich feathers, wax, honey, hides, fruit, copper, corn, oil, and live bullocks and sheep. The imports are principally gold and silver embroideries, spices, sugars, rice, linens, lead and pewter, dye-woods, and spirits, especially rum. But on the whole there is but little trade carried on at Algiers, compared with some other of the Barbary States. All sorts of Spanish money are current here; but accounts are usually kept in Saimes, or Dobles, of 50 Aspers.

The united empire of *Morocco* and *Fez* compose the westernmost state of the coast of Barbary. This was the ancient Mauritania, and is divided from Algiers by a considerable river (the Mulvia); is bounded on the south by the celebrated mountain, called the Great Atlas; on the north by the Mediterranean; and on the west by the Atlantic Ocean. This empire is divided into 14 provinces, in which are situated several places of considerable consequence. Morocco, the capital, is eight miles in circumference, enclosed by a wall and ditch; is pleasantly situate on an extensive plain, well watered; contains more than 20,000 inhabitants, consisting of a large portion of Jews, who carry on most of the trade, and are extremely rich, though heavily taxed. Fez is the second city of the empire, and considered the great magazine, and mart of it, a river of the same name passing through it, and dividing itself into several canals, for the conveyance of merchandize. Maquinex is also a considerable place, and has a great market. Sallee is the principal port, and is a capacious but shallow harbour. Tangier, anciently Tigris, once in possession of the English, being the dowry of King Charles the Second's Queen, was a sea-port of some importance, but is now reduced to a mere fishing town. The empire of Morocco being locally situated opposite to Gibraltar, and in the vicinity of those parts of Europe with which Great Britain has so intimate a connection, a superior interest cannot but be necessarily attached to it. The Emperor of Morocco has very recently issued a decree, encouraging European merchants to settle in his dominions, offering encouragement and support; and particularly placing them under the protection of all the governors and magistrates of his empire.

The commerce hitherto carried on between the British dominions and the coast of Barbary, has, in general, been both trifling and indirect, but is capable of great extension. The principal articles for exportation in Morocco, are skins, hides, and leather of all kinds, furs, wool, flax, fruit, wax, honey, feathers, pot-ash, gold-dust, and corn. The imports are cloths of all kinds, muslins, callicoes, fustians, spices, cochineal, colours, iron, tin, brass, steel, drugs, looking-glasses, watches, sugar, spirits, &c. &c.

The coins are Sluces, Blanquilloes, and Ducads; and all Spanish money is current.

The Moors of this part of the African coast carry on a brisk trade with Gibraltar, in cattle, fish, game, and fruit.

Western Division of Africa. This coast, which is washed by the Atlantic from the tropic of Cancer to that of Capricorn, and even beyond it, comprehends a great number of rivers, and separate independent native governments and European settlements. From the empire of Morocco to Cape de Verd, the most westerly point of this continent, the country comprises small states, subject to the governments of Moorish princes, in which there is nothing particularly worthy of notice, as except a district called the *Gum* Desart, there is no portion of it which particularly produces any article of commercial intercourse. Cape Verd, somewhat fancifully said to be so called from its extraordinary verdure, is situated between two large rivers, the Senegal and the Gambia. The trade up these two rivers consists principally in gold dust, ivory, wax, hides, indigo, rice, millet, ostrich and heron feathers, &c. The principal exports, which are bartered in exchange for these articles, are bar iron, copper vessels and plates, coarse woollen and cotton goods, combed wool, linen shirts of different qualities, white thread, needles, glass beads, sabres, fire-arms of all kinds, gunpowder, ball, shot and flints, padlocks, knives, scissars, small looking-glasses, ordinary trinkets, especially of silver, and some scarlet cloth for the princes and great men. On this part of the coast is cultivated, with industry and success, by the natives, the plant Manioc, the fruit of which, like our potatoe, grows at its roots. It is 18 months in coming to maturity, and re-

quires a long and troublesome process to render it useful; but when completed is nutricious, and makes bread of rather an insipid flavour.

The river Sierra Leone, rendered interesting to us of late by the expensive settlement which we have made upon it, bounds that portion of the coast north, which is called Malaguette; whence comes the name of a pepper, which makes a great article of trade, more commonly known *among us* by the name of Guinea Pepper, as the district of country is by that of the Guinea coast. Here the best ivory of the whole continent is to be found, as well as civet and ambergris; and there are all the varieties of quadrupeds in the interior, for which Africa is celebrated, from the elephant to the monkey. There are also great diversities of poultry and fish, and the tropical fruits are in abundance.

We next come to what has been long denominated the Gold Coast, bounded on the north by a river of the name of Da Costa, and on the south by another river called Volta. Here are the gold mines in the interior, from which the country takes its name; besides which considerable quantities of this metal are found, after the heavy rains, to which the climate is subject, washed down into the rivers, brooks, &c.; which the inhabitants collect in wooden bowls, and, after washing, barter for European commodities, particularly for woollen, cotton, and silk manufactures, for beads, looking-glasses, earthen-ware, iron bars, and brandy.

Certain little shells serve the purpose of small money among the natives, all through the regions bordering on the coast. Between the Gulph of Guinea and Cape Negro, the southermost point of any importance on this side of the African continent, intervene three kingdoms of considerable extent and population, viz. those of *Benin*, *Congo*, and *Angola*. There is little to distinguish these from the other countries on the western side of this continent, of which we have been treating, except that the land is in general better cultivated; trees are in greater plenty and variety, the natives more humanized, and the tame animals in greater request and abundance. Since the slave trade has been restrained, not to say abolished, by the European powers, the articles of traffic are nearly the same throughout all this line of coast.

The continent of Africa begins to contract itself rapidly from *Cape Negro* to the southermost point, at which point is the Cape of Good Hope. To render the description therefore of this portion as succinct as possible, we shall suppose a line to be drawn across it, from Cape Negro to a corresponding point on the eastern or opposite coast, viz. *Mosambique*, which will present nearly an equilateral triangle, (each side consisting of something more than 700 miles,) and give some description of the whole country within it, beginning from the Cape of Good Hope, and advancing northward to the ideal line already mentioned.

Cape of Good Hope. This place was first discovered by the Portuguese, in 1493; settled by them about 1600; afterwards was in the hands of the Dutch, and is now a British settlement. It is as advantageously situated for navigation and commerce as any place in the world, and will probably become, at no very remote period, one of the most valuable of our dependencies.

The climate here is divided into two seasons only, winter and summer; or the wet, and the dry, monsoon. The wet season begins in March, the dry in September; so that the summer begins at the Cape about the time it concludes with us. Their summer is excessively hot, their winter far from severe, but wet. They have no thunder or lightning, but in March and September, but they are subject to very violent winds, which do great damage to the corn and fruits, and endanger any shipping that are near the coast. They have not only great plenty, but great variety of springs, which abound in waters, both agreeable to the palate, and medicinal. They have excellent clay for making bricks, earthen-ware, chalks, both white and red, various bituminous substances, stone of a durable kind for building, lime-stone, flint, and beautiful marble. Most kinds of European grain thrive here; but, it is said, oats the least of any. Beside what trees might be indigenous, numerous kinds have been introduced, as well from India as Europe, which thrive well. They have oak, fir, pine, cypress, orange, lemon, citron, quince, pomegranate, apricot, apple, pear, peach, plumb, chesnut, walnut, and almond trees; and the vine in great variety has been of late years introduced, and succeeds beyond expectation. Aloes are of spontaneous growth, and flax and hemp have been introduced. Horticulture flourishes, and every table vegetable known in Europe grows to admiration; indeed, much exceed in size those of the countries from which they were exported. Domestic animals and tame cattle are plentiful. The oxen are fine, and the sheep numerous. Those belonging to the country have a peculiarly large tail, weighing 20 pounds, or upwards, which yields a prodigious quantity of grease. The wild animals are much the same as in other parts of Africa, but the wild asses abound. They have buffaloes, civet cats, wolves, and wild hogs. Of birds they have great variety, but for use the goose predominates over most others: of these they have various species, and all of them good. Of fish they have innumerable quantities and kinds, as well

those known in Europe as others peculiar to their own shores. In short, nature has no where bestowed greater plenty from the abundance of her stores than on the Cape of Good Hope and the adjacent country; and no doubt remains that most of the produce of both the East, and West, Indies would thrive here, if properly introduced and encouraged. After having enumerated the articles in which it *does*, or *may be* made to abound, and observed upon its centrical situation, with respect to the other continents of the world, it is unnecessary to be more particular respecting its commerce.

The region of the Cape of Good Hope is immediately flanked by the country of the Hottentots, extending as far northward as the tropic of Capricorn; a harmless and inoffensive, but indolent people; of a dark olive complexion, filthy in their habits, and excessively addicted to liquor of the strongest kinds. They are not, however, without ingenuity, and make good handicraftsmen. There is no doubt but as the colony of the Cape increases in size, and the influence of society and wealth spreads over its vicinity, these people will become more expert, and more addicted to the habits of civilized life.

Eastern Division of Africa. — The kingdoms of *Sofala* and *Monomopata*, which lie to the north of the Hottentots, abound in gold and ivory, which are brought to *Mozambique* on the eastern coast, and bartered for the productions of Europe with the Portuguese, who have settlements here. *Melinda* is the last kingdom in Africa, from the Cape of Good Hope to the streights of Babelmandel, at the entrance of the Red Sea, where European ships anchor in order to trade. Here also the Portuguese have settlements, and exchange the produce of Asia and of Europe for those of this continent.

No other place on the eastern side of this continent presents itself to the attention of the commercial reader, till we arrive at the kingdom of *Ægypt*, and of this it is unnecessary to notice more than its capital, *Grand Cairo*, which carries on a considerable and an increasing trade by means of Alexandria and Rosetta, its ports. They are distant from one another about 50 miles, and from the capital itself about 400 miles. At one or the other of these all European ships discharge their merchandize destined for Cairo, and take in their return cargoes. The exports from Ægypt are numerous, and of great variety; drugs of many kinds, as rhubarb, opium, coculus indicus, sassafras, gums of almost all sorts, aloes, assafœtida, saffron, &c.; fruits, as spices, tamarinds, &c.; manufactures, as carpets, linen, and silk handkerchiefs, and other articles of dress worked with gold, taffetas and other light silks; pebbles highly polished for various purposes of utility or ornament; leather prepared like that of Morocco Mocha coffee, wax, ivory, and mother of pearl. The imports are even more numerous; lead, tin, fire-arms, cutlery, hardware, instruments of all kinds, arsenic, black lead, antimony, quicksilver, vitriol, brass wire, paper, dyewoods, glass beads, cloths of nearly all kinds.

Business in general is done by the assistance of brokers, who are mostly Jews. Merchants who consign goods to Cairo must take especial care relative to the packing them, for the excessive heat is such as few cases or barrels can stand, if not secured by extraordinary means. Accounts are kept in piastres of 128 aspers.

AFSLAGERS, are at Amsterdam, auctioneers appointed by the burgomasters for attending public sales; they are also called *vendic meester*.

AFT, in the sea language, the same as *abaft*.

AGALLOCUM, or Agallochum. *See* ALOES-WOOD.

AGARIC, a species of fungus growing on the branches of several trees, particularly the oak; from its readiness to take fire it is sometimes called *touch-wood*. It grows in the form of a horse's hoof; externally it is of a dusky ash colour, and internally of dusky red; it is soft and tough. The best time for taking it from the trees is in autumn when the weather is fine, and after great heats. Beat into a pulp, and applied to a wound, it is used to stop bleeding.

AGATE, (Ger. *Achat*. Du. *Achaat*. Da. and Sw. *Agat*. Fr. *Agate*. It. Sp. and Port. *Agata*. Rus. and Pol. *Agat*. Lat. *Achates*.) A genus of semi-pellucid gems which takes its name from the river *Achates* in Sicily, on the banks of which it is found. These stones are variegated with veins and clouds, but have no zones like those of the onyx. They are composed of crystal, coloured by a large quantity of earth.

Agates are arranged according to the different colours of their ground. Of those with a white ground there are three species, 1. The *dendrachates*, *Mocoa stone*, or *arborescent* agate. 2. The *dull milkly-looking* agate. This species is common on the shores of rivers in the East Indies, and also in Germany and some other parts of Europe. 3. The *lead-coloured* agate, called the *phassachates* by the ancients.

Of the agates with a *reddish* ground there are four species, 1. An impure one of a *light flesh-colour*; this is sometimes variegated by spots of irregular figures or veins. It is found in Germany, Italy, and some other parts of Europe. It is of but small value, and is wrought into toys, and sometimes into the German gun-flints. Particles of moss are sometimes found imbedded in it. 2. Of a pure *blood-colour*, called *hæmachates* or the *bloody agate* by the ancients. 3. The *clouded and spotted* agate, of a pale flesh-colour, called by the ancients the *cornelian achates* or *sardachates*. 4. The *red-lead*

coloured one, variegated with yellow, called the *coral agate*.

Of those with a *yellowish* ground there are two species, 1. That of the colour of yellow wax, called *cerachates*. 2. A very elegant stone, of a yellow ground, variegated with white, black, and green, called the *leonina* and *leontesera*, or lion stone.

Of the agates with a *greenish* ground there is only one known species, called *jaspachates*.

Of all these species there are many varieties, some of them having natural representations of animals, trees, letters, &c.

Considerable quantities of these stones are still found near the river Achates in Sicily. The oriental ones are all said to be brought from the river Gambay. A mine of agates was some time ago discovered in Transylvania, of divers colours, some of them weighing several pounds. The lapidaries pretend that the Indian agates are finer than the Sicilian, but Labat states that in the same quarries there are found pieces much finer than others, and these fine pieces are sold for Indian agates in order to enhance their prices.

Agates may be stained artificially by a solution of silver in nitric acid, and afterwards exposing the part to the sun. This fact will make some of those curious figures we find in them suspected of being the work of art: this may be determined by laying them for a few hours in *aqua-fortis*, when the artificial figures will disappear.

AGATE is also a name of an instrument used by gold-wire drawers, so called from the agate in the middle of it.

AGE, with reference to legal and commercial transactions, is of most material importance, as by age the periods are determined when persons are enabled to execute certain powers and privileges, make contracts, and be liable to answer for offences. The ages of males and females are different for different purposes. At *fourteen* years of age *a male* may consent to marriage, may choose his guardian, and is not disqualified from making a disposition of personalty; at seventeen he may be an executor; and at twenty-one he may make contracts, and do *all acts* which the law allows to persons of sound mind. A female at *seven* years of age may be betrothed in marriage, at nine is dowable, at twelve may consent to or dissent from marriage, at fourteen may appoint a guardian, at seventeen may be an executrix, and at twenty-one is of *full age*, in like manner as a *male*.

The law of England privileges persons under twenty-one from punishment for many offences of *omission*, because it presumes them to be without the capacity to perform; but for offences of *commission*, there is no absolutely determinate rule. Persons under the age of fourteen years are *generally* holden not liable to suffer for capital crimes; but this rule is by no means universal, for every year produces in practice many exceptions; the ascertained discernment or judgement of the infant is holden equivalent to the supposed discretion arising from superior age. 4 *Black. Com.* 22.

AGENT, is a person employed or taken to be employed by another to transact business *in the place* of his employer. For all contracts therefore, entered into by a person in the capacity of an accredited agent, the principal is generally answerable. On the other hand, the principal has in equity in many cases a right to a discovery of the transactions of his agent, and a demand of the property with which he was entrusted, or the value of it, even against those with whom the agent has had dealings. A notice to an agent as purchaser for another, is good notice to the principal. Where one acts in execution of the authority given by another, it is the act of that other, and the agent acquires no right, nor brings any obligation on, himself. But if such person act without authority, as agent of another, he is liable himself for his acts. There are frequently nice distinctions arising out of the difference between a general and a special authority given to a person to act as the agent of another, especially in commercial transactions, but they are too numerous as well as too nice to admit of specification. See the following authorities on the subject. *Fenn* v. *Harnson*, 3 *Term Rep.* 757. 4 *Ditto*, 177. *Whitehead* v. *Tucket*, 15 *East. Rep.* 400. *Le Fevre* v. *Lloyd*, 1 *Marsh. Rep.* 318.

AGENT AND PATIENT. The agent is doer of a thing, and the patient the party suffering the thing to be done; as where a woman endows herself of the best part of her husband's possessions, this being the sole act of herself to herself, makes her *agent and patient*. Also if a man be indebted unto another, and afterwards he makes the creditor his executor, and dies, the executor may retain so much of the goods of the deceased as will satisfy his debt; and by this retainer he is agent and patient, that is, the party to whom the debt is due, and the person that pays the same.

AGGOUED-BUND, in Bengal, is the silk produced, in the most favourable season of the year.

AGIO, (signifies aid or assistance, being a Venetian word,) a bank term in Holland, and expresses the difference between money, bank money, or current money, and cash. If therefore a merchant sell his merchandize, stipulated to be paid, either 100 livres bank money, or 105 cash or current money, in such case the *agio* is said to be 5 per cent. As the agio varies almost in every country, the mode of calculating it will be found under the word *Exchange*.

AGITO, *also called* GIRO, a small weight used in the kingdom of Pegu: two agitos make a half biza, and the biza weighs a

hundred tecalis, equal to 2 lb. 5 oz. *heavy*, or 3 lb. 9 oz. *light weight* of Venice.

AGNEL, an ancient French gold coin, first struck under the reign of St. Louis, worth about 12 sols, 6 deniers, or 7¼d. sterling. The aguel is sometimes called *moreton d'or*, and *agnel d'or*, from the figure of a lamb struck on one side.

AGNELET, an ancient silver coin, worth about 20 sols, first struck under Philip le Bel.

AGNUS-CASTUS SEED, (Ger. *Schafmüllen*. Du. *Kuischboomzaad*. Da. and Sw. *Agnus-Castus frö*. Fr. *Petit poivre*. It. *Semenza d'agnocasto*. Lat. *Agni-Casti Semen*,) also called vitex seed, from the chaste tree.

AGNATI, the relations by the *father*, who were preferred by the Roman laws to the *cognati*, or relations by the *mother*: till the edict of the emperor Justinian, *Nov.* 118, abolished all distinctions between them. 2 *Black.* 235.

AGREAGE, so called at Bourdeaux, elsewhere called *courtage*, (brokerage.)

AGREEMENTS, are the consent of two or more persons concurring, the one in parting with, and the other in receiving some property, right, or benefit. Agreements are of various kinds, and in various forms; but there must be such words in all as show the meaning and assent of the contracting parties; and they must be certain and complete. They may be *executed* agreements, referring to matters past or present; or they may be *executory*, and bear reference to matters to be done at a future period.

A very small number of forms is sufficient for illustration, and more would only suffice for mischief, by inducing mercantile persons to attempt doing that for themselves which can only be executed with skill and safety by the assistance of men professionally astute.

All agreements are subject to a stamp duty.

An Agreement between a Debtor and his Creditors by Indenture.

This indenture, made this day of ———, in —— year of the reign of our sovereign Lord George the ——, by the grace of God, king of the united kingdoms of Great Britain and Ireland, &c. between A. B. of, &c. of the one part; C. D. of, &c. E. F. of, &c. and G. H. of, &c. creditors of the said A. B. of the other part. Whereas the said A. B. on the day of the date of these presents, stands justly indebted to his said creditors, in the several sums of money following, that is to say, to the said C. D. in the sum of ——, to the said E. F. in the sum of ——, and to the said G. H. in the sum of ——, making in the whole, the sum of ——, which said several sums of money, the said several and respective creditors, at the request of the said A. B. are contented, and do hereby respectively agree to accept and take in such manner and proportion as hereinafter is mentioned. Now this indenture witnesseth, that the said A. B. for himself, his heirs, executors and administrators, doth hereby covenant, promise, and agree, to and with the said several creditors above named, their executors and administrators respectively, that he the said A. B. his heirs, executors, and administrators, or some or one of them, shall and will, by and with the consent, directions, nomination, and appointment of his said other creditors respectively, testified by their being made parties to these presents, and sealing and delivering hereof, well and truly pay, or cause to be paid, unto the said C. D. his executors or administrators, the full sum of —— on —— next ensuing the day of the date hereof, or within three days after, and the sum of ——— more monthly (*as the case may be*) on —— of every month then next and successively following, or within three days after, until the said full sum of —— is fully paid and satisfied, (or until the sum of [*as the case may be*] shall be paid,) which is hereby agreed by the said several respective creditors, to be in full satisfaction and discharge of the aforesaid sum of ——, and of all other sum and sums of money, now due or owing to the said creditors above named, or any of them respectively, upon special trust and confidence nevertheless, and to the intent and purpose that he, the said C. D. his executors and administrators, shall and will upon demand pay and satisfy unto each and every of the said creditors above named, an equal part and share of all such sum and sums of money, as shall from time to time be so paid to him or them respectively, by the said A. B. in proportion to the several debts hereinbefore mentioned, to be due to the said several creditors hereinbefore named. And the said C. D., E. F. and G. H. creditors of the said A. B. as aforesaid, for themselves severally and respectively, and for their several and respective executors, administrators, and assigns, and not the one for the other, do and each of them doth fully covenant, promise, and agree, to and with the said A. B. his executors and administrators, that unless, and until some default shall happen to be made by the said A. B. his executors or administrators, of or in payment of the said several sums of money hereinbefore covenanted, to be paid to the said C. D. his executors or administrators, on the several days and times above limited for the payment thereof, according to the true intent and meaning of the said covenant and of these presents, that they, said creditors above named, or any of them, or any of their executors or administrators respectively, shall not nor will sue, arrest, imprison, implead, attach, seize, levy, condemn, or prosecute the said A. B. his heirs, executors, or administrators, or any of them, or their lands or tenements, goods

or chattels, or any part thereof, for or upon account of the said sums of money as aforesaid, or any other sum or sums of money now due or owing to them, or any of them respectively, in any wise however. And in case the said creditors, their executors or administrators, or any of them respectively, shall, before such default be made, act or do in any manner contrary to the said covenant, he the said A. B. shall be, and is hereby for ever acquitted, exonerated, released and discharged of and from all sum and sums of money, bills, bonds, reckonings, accounts and demands whatsoever, due, owing or belonging to, or which may or might be asked, claimed, or demanded by such of the said creditors respectively, so acting or doing contrary to the said covenant, for any matter, cause, or thing whatsoever, unto the day of the date of these presents. (*If occasion, add the following clause:*) And the said A. B. doth hereby covenant and promise, to and with the said several creditors above named, their executors and administrators, that within the space of ——, after the said several creditors have sealed and executed these presents, he shall and will deliver to each of the said several creditors above named, a true account of all his stock or quantity of, &c. that he had by him on the —— day of —— and also a true list of all the goods and debts now due, owing, or belonging to him, from any person or persons whomsoever, together with an account of their names or places of abode, who have or owe the same. In witness whereof the said parties have hereunto set their hands and seals the day and year, in the beginning written.

Another, by Memorandum.

Memorandum.—Whereas A. B. &c. now stands indebted unto us, whose names are hereunto subscribed, in the several sums of money set opposite to our respective names, which he being unable at present to satisfy, hath requested us to grant him time of payment, in manner hereinafter mentioned; to which we have respectively assented; therefore we hereby do, and each of us doth, give unto the said A. B. time of payment thereof, in manner following, that is to say, —— from the date hereof, for the payment of one ——— part of each of our respective debts, —— for the payment of —— thereof; and —— for the payment of the residue thereof, with legal interest, to be computed on the whole of such respective sums of money, from the day of the date hereof, to wit, the —— day of —— as witness our hands, &c.

Agreement respecting a Concern with a Vessel in Copartnership.

Articles of agreement, indented, made, &c. between A. B. of, &c. of the one part, and C. D. of, &c. of the other part. Whereas the said A. B. hath this day purchased of the said C. D. one half part or share of all that —— or vessel, called the ——, of the burthen of —— tons, or thereabouts, and also one half part or share of all and singular, the anchors, cables, ropes, masts, sails, sail-yards, boats, oars, arms, ammunition, apparel, and furniture whatsoever, to the said —— or vessel belonging, or in any wise appertaining, which —— or vessel is now employed in —— trade, whereof the said C. D. is master, as by the bill of sale thereof, reference being thereunto had, will more fully appear. Now this agreement witnesseth, and the said party doth hereby mutually covenant and agree to and with the other of them, his executors and administrators, by these presents in manner following, that is to say, first the said C. D. doth hereby covenant, promise, and agree, to and with the said A. B. his executors and administrators, that he the said C. D. shall and will from time to time, and at all times, so long as he the said C. D. shall continue master of the said —— or vessel, duly enter or cause to be entered in some convenient book or books, by him the said C. D. to be kept for that purpose, a just and true account of all receipts, payments, and disbursements whatsoever by him the said C. D. to be received and paid for and on account of the said —— or vessel, and the said employment thereof; and shall and will once in every —— months deliver unto the said A. B. a true and faithful state of the said account or accounts by him to be kept as aforesaid; and also shall and will, on the delivery and statement of the said account or accounts, pay or cause to be paid unto the said A. B. his executors, administrators, or assigns, his the said A. B.'s half part or share of all the profits, benefits, and advantages, that may in any wise arise and be made by the said —— or vessel, and the employment thereof; and the said A. B. doth for himself, his executors, and administrators, covenant, promise, and agree, to and with the said C. D. his executors and administrators, that in case loss or damage shall at any time be suffered or sustained by and on account of the said —— or vessel, and the employment thereof, that then, and in such case, the said A. B. his executors, administrators, or assigns, shall and will pay, or cause to be paid, unto the said C. D. his executors, administrators, and assigns, when thereunto required (proper vouchers, and receipts being first delivered to him or them) his the said A. B.'s one half part or share of all such loss or damage so to be suffered or sustained as aforesaid; and for the true performance, &c. In witness, &c.

Agreement to extend Time for making an Award.

Whereas differences and disputes having arisen between A. B. of, &c. of the one part, and C. D. and E. F. of, &c. of the

other part, the said parties, in order to put an end thereto, entered into arbitration bonds, bearing date the ——, in the penal sum of ——, to abide by the award of G. H. of, &c. and J. K. of, &c. concerning the premises, so as they should make their award on or before the ——, now last past; but if the said arbitrators should not make their award by that time, then to abide by the award or umpirage of L. M. of, &c. or of his nominee as therein mentioned, so as such umpire or nominee should make his award on or before the ——, then and now next coming. And it was thereby amongst other things agreed, that if the said L. M. should decline taking upon himself the said umpirage, that the same should be ended and determined by such person as L. M. should nominate for that purpose. And whereas the said arbitrators did not make their award by the time limited in the said bonds; and the said L. M. declining the umpirage, and having nominated N. O. of, &c. in his stead, the said parties have agreed to extend the time for making his award to the —— day of ——, now next ensuing. Now it is hereby agreed, between the said A. B. C. D. and E. F. that the time for the said nominee's making his award or umpirage shall be, and the same is hereby extended to the said —— day of —— next; and that the said parties shall be bound by and perform the award and umpirage of the said N. O. if made in writing under his hand and seal, ready to be delivered to the said parties, or such of them as shall require the same, on or before the said —— next, as fully and effectually, and in like manner as if the same had been made and delivered before the said ——; and that this submission or agreement shall and may be made a rule of some of his majesty's courts of record at Westminster, if any of the said courts shall so please. And that the said bonds shall stand and be mutual securities for the due performance of such last-mentioned award or umpirage. In witness, &c.

AGRICULTURE, in its *primary* sense, signifies merely the cultivation of the earth; but that in which it bears reference to commerce is much more extensive, comprehending not only the operations by which agriculture is executed, as manuring, digging, ploughing, sowing, reaping, &c.; but the articles produced by means of those processes, as grass, corn, wood, and even the cattle, which are depastured, and brought to perfection by them. Particular information respecting these several articles individually, as objects of commerce, are treated of under their several appropriate denominations; but a general view of the agriculture of the British dominions, in the gross, is a necessary preliminary to the understanding of the subject in detail.

Tillage and pasturage, in colloquial language, farming and grazing, are the two grand divisions into which agriculture, as a science, is separated. They are mutually subservient to each other on all occasions; but in some instances, as in the modern introduction of turnips, carrots, and such other roots for the use of cattle, as well as of, what are denominated, *artificial grasses*, the latter is entirely dependent on the former.

Under the general term *corn*, are usually comprehended wheat, barley, oats, rye, beans, and peas. These belong to the department of tillage. Turnips, carrots, potatoes, tares, vetches, and all the other esculents, which are cultivated for the immediate food of cattle in their green state, as well as all the different species of grass which are not indigenous, although produced by the operations of the spade, the plough, and the harrow, are in common parlance attributed to the division of pasturage, or grazing department of agriculture.

All the different products of the earth, as they are connected with commerce internal, or external; *direct*, as corn, hay, straw; or *remote*, as horses, oxen, sheep, and swine, which are reared and fed by means thereof; cannot be sufficiently considered under the general denomination of agriculture, but must, in a great degree, at least, as has been observed, be referred to their specific heads, as individual articles; but it may be interesting to give a mere sketch of the present state of agricultural produce throughout the kingdom.

Since the general prevalence of inclosures in England, there has been a more equal distribution of tillage, and pasturage, over the whole kingdom, than formerly; but still there is a preponderance of one or the other, as the circumstances of each district render most appropriate or convenient.

Near great towns, where cows for their milk, and horses for pleasure, are in much request, the land is generally in pasturage; in regions more remote from excessive population, especially in parishes not inclosed, tillage usually prevails. On chalky hills, on the downs near the sea-coast, and on the less extensive heaths which still remain, sheep are usually bred, and depastured till they are taken to the richer inclosures for feeding. The strong rich land is pretty equally divided between pasturage for oxen, or cows for extensive dairies, (which supply considerable articles of commerce in butter and cheese,) and corn, especially wheat and beans. The lighter land, consisting of sand, or loam, is principally dedicated to the growing of barley, oats, turnips, and artificial grasses. The northern parts of the kingdom, and a cold region in the centre of it, viz. in the county of Derby, as well as a large portion of Wales, produce, almost exclusively, oats, the meal of which is

made into cakes, which serve the inferior orders for bread. Barley is principally grown in Norfolk and Suffolk, and in some of the midland counties: at least these districts supply the chief quantity of this article for all the malt of the kingdom, so far as it composes an article of commerce. The eastern side of the island, comprehending parts of Lincolnshire, Cambridgeshire, and Essex, have been, at some period or other, covered with the sea, and are low and fenny. Those parts which have been best drained afford rich pasturage, and some good tillage land; but that which is but partially drained will only grow oats, and afford peat for firing, and a very coarse hay. Immense tracts of mountain and heath still remain in all the wild and uncultivated monotony of nature, at the northern and western extremities of the island. These, however, respectively supply hardy breeds of cattle, in which continual traffic is carried on with the other parts of the kingdom, to which they are driven to be fed; and on this supply the markets of the metropolis in a great degree depend.

Sheep and swine form totally distinct heads of consideration. They are, in their different species, bred and fed in all parts of the kingdom, and both compose very considerable ingredients in commerce, as well external, as internal; the reader is therefore referred to those particular heads, as they stand in alphabetical order, for the necessary information respecting them.

Ireland produces nearly the same agricultural commodities as Great Britain. It abounds in corn, grass, and cattle, in the last-mentioned of which a large importation is annually made into England. In time of war the fleet and army are, in a considerable degree, supplied with beef and pork from Ireland, and large quantities of the latter are at all times exported to different parts of the world, especially to the West Indian islands.

It also produces butter and cheese in great abundance, which, as has been observed, are considerable articles of traffic.

It may not be amiss, in concluding this article, to give the comparative estimate of the inhabitants of Great Britain, as divided into the three descriptions of population, viz. the agricultural, the mercantile, and the independent, or unproductive. In 1811, the population returns made England consist of 697,353 families of an agricultural description; 923,588, addicted to trade and manufactures, either directly or indirectly; and 391,450, who live independently of labour, on the produce of rents, or interest of money. The proportion of agriculture contrasted with manufacture, will rise higher if Wales be included, for their trade is quite in its infancy, and the farmers are to the merchants as two to one.

AGROUND, the situation of a ship whose bottom hangs or rests upon the ground, so as to render her immoveable.

A-HEAD, a sea term, signifying farther onward than the ship, or at any distance before her, lying immediately on that point of the compass to which her stern is directed. It is used in opposition to *astern*, which expresses the situation of any object behind the ship.

A-HULL, in the sea language, the situation of a ship when all her sails are furled, on account of the violence of the storm, and when, having lashed her helm on the lee-side, she lies nearly with her side to the wind and sea, her head being somewhat inclined to the direction of the wind.

AIGRIS, a stone which serves instead of current coin, among the Issinais, a nation of Africa, on the coast of Guinea, where the river Asbin runs, near the Gold Coast; it is of a greenish blue colour, without any lustre, hard, but does not take a good polish; they give its weight of gold for it. They make little bits of it, called *betiquets*, which are bored through in the middle, that they may string them on small threads, made of the bark of trees; they serve as ornaments for the beards of the kings, tresses being made of the hair, which are passed through those cylinders. Akœfini, a king of the Issinais, is said to have had, in the twenty tresses of his beard, sixty of those cylinders, which were worth at least 20,000 crowns.

AIR, *in Physics*, is now applied solely to the atmosphere, or that thin, fluid, elastic, transparent, ponderous, compressible, and dilatable body, surrounding the earth to a considerable height, and which is adapted for the respiration of animals. Other bodies, having some of the physical properties of air, but not adapted for the respiration of animals, were formerly called by that name, as carbonic acid, when in the gaseous state, was termed *fixed air*; those fluids have now received the name of *gases*.

AIR, *in Music*, is a tune, which is set to words, or to short pieces of poetry that are called *songs*.

AIR-*Jacket*, a sort of jacket made of leather, in which are several bags or bladders, composed of the same materials, communicating with each other. These are filled with air through a leathern tube, having a brass stop-cock accurately ground at the extremity, by which means the air blown in through the tube is confined in the bladders. The jacket must be wet before the air be blown into the bags, as otherwise it will immediately escape through the pores of the leather. By the help of this, a person may be supported in the water without making the efforts used in swimming.

AIR-*Pipes* are machines for drawing foul air out of ships, or other close places, by means of fire. These were first employed by Mr. Sutton, a brewer in London, and are usually called *Sutton's Air-Pipes*. One ex-

tremity is placed in a hole in the side of a furnace, closed in every other part except the outlet for the smoke; the other in the place which it is desired to purify. The rarefaction produced by the fire causes a current of air to be determined to it, and the only means by which the air can arrive at the fire being through the pipe, a quick circulation in the places in which the extremity of the pipe may be situated, is consequently produced. A machine capable of answering the same purpose was invented by Mr. Desaguliers, which he called the *ship's lungs*. It consisted of a cylindrical box set up on its edge, and fixed to a wooden pedestal. From the upper edge of the box issued a square trunk, open at the end, and communicating with the cavity of the box. Within this box was placed a cylindrical wheel, turning on an axis. It was divided into 12 parts by means of partitions placed like the radii of a circle. These partitions did not extend quite to the centre, but left an open space of about 18 inches diameter in the middle; towards the circumference, they extended as far as possible without interfering with the case, so that the wheel might always be allowed to turn freely. Now it must be evident, that if the wheel be turned towards that side of the box on which the trunk was, every division would push the air before it, and drive it out through the trunk, at the same time that fresh air would come in at the open space in the centre, to supply that which was thrown out through the trunk. If this machine, then, is placed in a room where a circulation of air is wanted, and the trunk made to pass through one of the walls; by turning the wheel swiftly round, the air will be forced with great velocity out of that room, at the same time that fresh air will enter through any openings by which it can have access, to supply that which has been forced out.

Besides these machines, the ventilators of Dr. Hales, and those called *wind-sails*, are likewise used for the same purpose. The former of which is an improvement of the Hessian bellows: the other is a contrivance for throwing fresh air into those places where putrid air is apt to lodge; but none of these means are so convenient nor effectual as the air pipes of Sutton.

AIR-*Shafts*, among *miners*, denote holes or shafts let down from the open air to meet the *adits*, and furnish fresh air. The damps, deficiency, and impurity of air, which occur when adits are wrought to a great length, make it necessary to let down air-shafts, in order to furnish a free circulation of air through the whole work.

AIR-*Trunk* is a contrivance of Dr. Hales, to prevent the stagnation of putrid effluvia in jails and other places, where a great number of people are crowded together in a small space. It consists only of a long square trunk open at both ends, one of which is inserted into the ceiling of the room, the other extends a good way beyond the roof.

ALABASTER, (Ger. Du. Da. Sw. and Pol. *Aabaster*. It. Sp. and Port. *Alabastro*. Fr. *Albâtre*. Rus. *Alabastr*. Lat. *Alabastrites*,) a kind of stone resembling marble, but softer. It is of various colours, but the white shining alabaster is most common; it is used by sculptors, for the formation of small statues, vases, columns, &c. &c. It is found in many parts of England, especially in Derbyshire and Nottinghamshire; near Newark, in the latter county, it is called simply *plaister*, and is burnt in ovens for the purposes to which that article is generally applied. *See title* GYPSUM.

ALB, a Turkish coin, also called Asper. *See* ASPER.

ALBE, a small coin, current in Germany, worth only a French sol, and seven deniers, or $\frac{3}{4}$d. English.

ALBERNUO, a kind of camlet, brought from the Levant, by way of Marseilles.

ALBUS, a small coin or halfpenny, current in Cologne, and in the countries of the Lower Rhine, 4 *albusses* make $4\frac{1}{2}$ cruitzers, or a simple *blaffart*. Its value is $\frac{2}{40}$*d*. English.

ALCANNA, a drug used in dyeing, which comes from Egypt, and other parts of the Levant.

ALCAVALA, in the Spanish finances, is a per centage tax upon the sale of every sort of property, whether moveable or immoveable; and it is repeated every time the property is sold.

ALCHYMY, the branch of Chemistry, which had for its principal object the transmutation of metals into gold; an obsolete absurdity.

ALCOHOL, is a name applied to highly rectified *spirit of wine*. When pure, it is perfectly the same whether it be obtained from brandy, wine, or any other fluid which has undergone the spirituous fermentation. It is a light, transparent, colourless liquor, of a sharp, penetrating, agreeable smell, and of a warm, stimulating taste. The specific gravity of alcohol, when perfectly pure, is 0.800, but the strongest spirit which is afforded by mere distillation, according to Mr. Nicholson, is 0.820, at the temperature of 71°. The alcohol, or rectified spirit of commerce, has rarely a specific gravity below 0.8371.

Alcohol is used in medicine and the arts for a variety of purposes. It is the only solvent of many resinous substances, and consequently is usefully applied for the extracting and dissolving the colouring matter of those bodies.

ALDER, a tree, according to the classification of botanists, of the birch kind. It is too soft and flexible to be used for any better purposes than those to which turners apply most of the white woods. It is much

esteemed by them, as also for making water-pipes under ground, in which situation it will last a considerable time. The bark of the alder is useful to dyers in the preparation of some colours. It is a strong styptic. It is not generally esteemed to come under the denomination of timber, but is one of the kinds of wood comprehended under that appellation in stat. 13 Geo. 3. c. 33. made for the protection of woods.

ALDERMAN, is defined by Johnson to be "an incorporated magistrate," but erroneously; for there are numerous instances of aldermen who are not magistrates, and of incorporated magistrates who are not aldermen. Among our Saxon ancestors, alderman was a title of nobility. It is now *generally* understood to designate an associate to the mayor, or other head officer, of a city, borough, or town, incorporated by charter, or otherwise. The numbers, powers, and privileges of these officers differ from one another extremely, according to the antiquity of each respective incorporation, the extent of the civil community over which they are respectively appointed to preside, and other circumstances. The 26 aldermen of London preside over an equal number of wards: they have particular privileges and immunities by charter and custom, not necessary to be enumerated here.

ALE, a fermented liquor, obtained from an infusion of malt, and differing from strong beer chiefly in having a less proportion of hops. Various sorts are known in the United Kingdoms of Great Britain and Ireland, particularly *pale* and *brown:* the former is brewed from malt slightly dried, and is esteemed more viscid than the latter, which is made from malt more highly dried, or roasted. *See* BEER. The duties on beer and ale make a principal branch of the revenues in England. They were laid the 12th year of Charles II. and have been continued, by several subsequent acts of parliament, to the present time. *See* DUTIES.

ALE-CONNER, an officer in London, who inspects the measures used in public-houses. There are four ale-conners, who are all chosen by the common council of the city.

ALE-HOUSES, must be licensed by justices of the peace, who take recognizances of the persons licensed, and of their sureties, viz. 10*l.* each, that they will not suffer unlawful gaming, or other disorderly practices in their houses. Every person, excepting those who sell ale in fairs, selling ale without licence is liable to a penalty of 20*l.* for the first offence, and disqualification to sell ale thereafter for a second offence, with all costs. The licence is granted on the first day of September, or within 20 days after, at a general meeting of the justices for the division to which the applicant belongs, upon his producing a certificate to his character, unless, by living in a city or town corporate, this last circumstance is dispensed with, and continues in force for one year only. Ale-house keepers, selling ale in short measure, are liable to a penalty not exceeding 40 shillings, and not less than 10 shillings. They are likewise liable to a fine of 40 shillings for permitting gaming by inferior persons. 30 Geo. 2. c. 24.

ALE-SILVER, a tax paid annually to the lord mayor of London, by all who sell ale within the city.

A-LEE, in the sea language, a term only used when the wind, crossing, or flanking the line of a ship's course, presses upon the masts and sails, so as to make her incline to one side, which is called the lee-side; hence when the helm is moved over to this side, it is said to be *a-lea* or *hard-a-lea.*

ALEGAR, sour ale, used by the dyers.

ALEMBIC, a chemical vessel usually made of glass or copper, formerly used for distillation; the bottom part, which contains the subject for distillation, is called, from its shape, the *cucurbit;* the upper part, which receives and condenses the steam, is called the *head,* the beak of which is fitted into the neck of a receiver. Retorts, and the common *worm-still,* are now more generally employed.

ALFANDIGA, the name of the custom-house at Lisbon.

ALGORITHM, an Arabic word, expressive of numerical computation.

ALIBI, a colloquial term among the vulgar, used to express that a person under trial for any crime was *elsewhere* at the time it was committed.

ALICENDE, an Ethiopian tree, from which a flax is prepared, and cloth made.

ALIEN, in law, a person born out of the king's allegiance, in contradistinction to a denizen or natural subject. The word is formed from the Latin *alius,* "another;" *q. d.* one born in another country. An alien is incapable of inheriting lands in Britain, till naturalized by an act of parliament; nor can he enjoy any office, vote at an election for members of parliament, or be returned on any jury, unless where an alien is a party in a cause, when the inquest is composed of an equal number of denizens and aliens. The reasons for establishing these laws were, that every man is presumed to bear faith and love to that prince and country, where he received protection during his infancy; and that one prince might not settle spies in another's country; but chiefly that the rents and revenues of the country might not be drawn to the subjects of another. Some have thought that the laws against aliens were introduced in the time of Henry II., others that it is an original branch of the feudal law; for, by that law, no man can purchase any lands, but he must be obliged to do fealty to the lords of whom the lands are holden; so that an alien who owed a previous faith to another prince, could not take an

oath of fidelity in another sovereign's dominions. It was claimed as a right of the prerogative of the crown of England to send aliens out of the kingdom at its pleasure; but there were differences of opinion, not only respecting the mode of exercising the right, if admitted, but also respecting the claim of right itself. Wherefore, by 43 Geo. 3. c. 155. continued and amended by subsequent statutes, as circumstances required (viz. in 56th and 58th of Geo. 3.), it is provided, that the king may by proclamation, or order in council, direct any alien to depart the kingdom, on pain of being apprehended and imprisoned, &c. &c. And all aliens permitted to remain are to be registered in the manner directed by the statute, and to be under the surveillance of the magistrates where they reside. By these statutes, masters of vessels are prohibited, under severe penalties, from landing aliens, without making a declaration of their names, &c.; and the aliens themselves are prohibited, under penalty of imprisonment, from landing, without delivering a declaration in writing of their names, &c. &c. to certain persons appointed to receive the same.

ALIENATION, is the act by which one man transfers the property and possession of lands, tenements, &c. to another.

ALIEN'S-DUTY, is otherwise called *petty customs* and *navigation-duty*. Fish dried or salted, and cod-fish or herrings not caught in British vessels, and cured by British subjects, pay a double *alien's-duty*.

ALIMONY, is that allowance which every woman is entitled to from her husband, except in cases of elopement or adultery.

ALIQUANT PART, in arithmetic, is that number which cannot measure any other exactly without some remainder. Thus 7 is an aliquant part of 16; for twice 7 wants 2 of 16, and 3 times 7 exceeds 16 by 5.

ALIQUOT PART, is that part of a number or quantity which will exactly measure it without any remainder. Thus 2 is an aliquot part of 4; 3 of 9; 4 of 16, &c.

ALKALIES, a class of saline substances, possessing in general the following properties: — They have an acrid taste; they change the blue juices of vegetables to a green, and the yellow to a brown colour; and they have the property of rendering oil miscible with water. They are readily soluble in water; quickly destroy the organization of animal bodies; and with acids form neutral salts.

Alkalies have been usually divided into fixed, and volatile. Of the former there are two species — potash, and soda, or, as they are frequently called, vegetable and mineral alkalies; from the former being obtained from vegetable substances, and the latter principally from mineral bodies, particularly sea salt, which consists principally of muriate of soda. The volatile alkali is properly called ammonia. Potash and soda have been discovered by Sir H. Davy to be oxides of metals, which he has called potassium and sodium. — For a more particular account of these substances, *see* POTASH, SODA, and AMMONIA.

ALKANET, Anchusa, or Bugloss, (Ger. *Orkanet*. Du. *Ossetong*. Da. *Oxetunge*. Sw. *Röd Oxtungerot*. Fr. *L'Orcanette*. It. *Ancusa*. Sp. *Arcaneta*. Port. *Alcanna Bastarda*. Rus. *Wolowoi jasük*. Pol. *Czerwieniec*. Lat. *Alcanna spuria seu vulgaris*,) grows naturally in the Levant; the flowers grow in long spikes, coming out *imbricatim*, like the tiles of a house; it may be propagated by seeds, which should be sown either in the spring or autumn, upon a bed of light sandy earth, and plants transplanted at two feet distance from one another. The root imparts an elegant red colour to oily substances, and is therefore an ingredient in ointments, plasters, &c. It improves the colour of mahogany. That which grows in England is greatly inferior to what comes from abroad.

ALLAY. *See* ALLOY.

ALLEGATION, is used in common parlance as synonimous with alledgement, or matter alledged. The correspondent Latin word signified, among the Romans, the verification of any instrument signed by the emperor. It means, in some civil proceedings, the producing of instruments to authorise some act.

ALLEGEAS, a stuff manufactured in the East Indies, sometimes of cotton, sometimes of a vegetable which is indigenous, and is spun like flax or hemp.

ALLEGIANCE, the legal faith and obedience which every subject owes to the sovereign authority of the state. In these kingdoms, this oath has been altered in form at many different times. At the revolution of 1688, the period at which we date our present constitution, the old oaths of allegiance imposed by statutes 1 Eliz. and 3 Jac. 1. were abrogated, and a new one substituted. The last of these was prescribed by 1 Geo. 1. c. 13., and is nothing more than as follows: — "I, A. B., do sincerely promise and swear to bear true allegiance to His Majesty King George, so help me God." Anciently, in England, every male above twelve years of age was required to take the oath of allegiance, and it was a high contempt to refuse.

Allegiance is either perpetual or temporary. Perpetual to all who are natural-born subjects, or naturalized by an act of the state; temporary to all persons who are not natural-born subjects, but who are residing under the protection of the laws.

Quakers alone are exempt from the obligation of taking the oath of allegiance, and are permitted in lieu thereof to make a simple *declaration* of fidelity. 8 Geo. 1. c. 6.

ALLEVEURE, a small brass Swedish coin, worth about ½d. English money.

ALLEY, from the French word *Aller*, to go, signifies a narrow street, path, or passage. It is metaphorically used in the modern husbandry for the space which is left between the parallel rows of corn.

ALLIGATION, is a rule or operation whereby questions are resolved relating to the mixture of divers commodities or ingredients together, with the value, effect, &c. thereof in composition.

ALLOCATION, denotes the admitting or allowing of an article of an account, especially in the exchequer. Hence *Allocatione Faciendâ*, is a writ directed to the Lord Treasurer, or barons of the Exchequer, commanding them to allow an accountant such sums as he has lawfully expended in the execution of his office.

ALLOTTING, or ALLOTMENT *of goods*, is when a ship's cargo is divided into several parts, bought by divers persons, whose names are written on as many pieces of paper, which are applied by an indifferent person to the several lots or parcels; by which means the goods are divided without partiality.

ALLOWANCES *to bankrupts out of their estates.* *See* BANKRUPTS.

ALLOWANCES *made to the discoverers of bankrupts' effects.* *See* BANKRUPTS.

ALLOWANCES *made at the Custom-house on merchandize, &c.* *See* DUTIES, *&c.*

ALLOY, or ALLAY, properly signifies a proportion of a baser metal mixed with a finer one. The alloy of gold is estimated by carats, that of silver by pennyweights. In different nations, different proportions of alloy are used; whence their monies are said to be of different degrees of fineness, or baseness, and are valued accordingly in foreign exchanges.

The chief reasons alledged for the alloy of coins are, 1. The mixture of the metals, which, when smelted from the mines, are not perfectly pure. 2. The saving the expence it must otherwise cost if they were to be refined. 3. The necessity of rendering them harder, by mixing some parts of other metals with them, to prevent the diminution of weight by wearing in passing from hand to hand. 4. The melting of foreign gold or coin which is alloyed. 5. The charges of coinage, which must be made good by the profit arising from the money coined. 6. And lastly, The duty belonging to the sovereign, on account of the power he has to cause money to be coined in his dominions. In a more general sense, the word is employed in chemistry, to signify the union of different metallic matters; whereby their density, specific gravity, and other properties are capable of being changed.

Whether gold or silver be above or below standard, is found by assaying. *See* ASSAY.

ALLSPICE. *See* PIMENTO.

ALLUM. *See* ALUM.

ALMADIE, or ALMADY, a kind of African canoe or small vessel, about four fathoms long, commonly made of bark. Almadie, is also the name of a kind of long-boats, fitted out at Calicut, which are 80 feet in length, and 6 or 7 in breadth: they are exceedingly swift, and are otherwise called *cathuri*.

ALMAGRA, a fine deep-red ochre, with some admixture of purple, very heavy, of a dense, yet friable structure, and rough dusty surface. It adheres very firmly to the tongue, melts freely and easily in the mouth, is of an austere and strongly astringent taste, and stains the skin in touching. It is the *sil atticum* of the ancients. It ferments very violently with acids, which distinguishes it from the *sil syricum*: there are large quantities of it in many parts of Spain. It is used in painting and in medicine as an astringent.

ALMANACK, a book or table, containing a calendar of days and months, the rising and setting of the sun, the age of the moon, the eclipses of both luminaries, &c. Their authority is so far recognized by the law of England that they may be judicially taken notice of, and the fact of a certain event having taken place on a particular day may be ascertained by reference to the almanack. 3 *Black. Com.* 333. Almanacks of all kinds, those annexed to the book of common prayer only excepted, are subjected to a stamp duty; and every person selling one unstamped, on conviction before one justice, on the oath of one witness, is to be committed to the house of correction for not exceeding three months. And *any person* apprehending such offender, may take him before a justice, and on producing a certificate of the conviction, shall be entitled to receive 20s. from the receiver-general of the stamp duties. 30 Geo. 2. c. 19. 44 Geo. 3. c. 98.

ALMENE, an Indian weight of about 2lb. used on that coast for weighing saffron.

ALMOND, a Portuguese measure for oil; an *almond* is equal to four gallons and a half, and 26 almonds make a pipe.

ALMONDS, (GER. *Mandeln.* DU. *Amandelen.* DA. *Mandler.* SW. *Mandlar.* FR. *Amandes.* IT. *Mandorle.* SP. *Almendras.* PORT. *Amendoas.* RUS. *Mindal.* POL. *Migdal.* LAT. *Amygdala,*) a kind of medicinal fruit, contained in a hard shell, which is inclosed in a tough cottony skin. The tree which produces this fruit, nearly resembles the peach both in leaves and blossoms; it grows spontaneously only in warm countries, as Spain, and particularly Barbary. It flowers early in the spring, and produces fruit in August. *Almonds* are of two kinds, sweet, and bitter; the Jordan

almond is of the first quality; next the Valencia, (a smaller sort of about half the price,) and the inferior almonds are from Barbary, whence principally come the bitter ones. From the port of Malaga in Spain come the finest almonds, both in the shell, as well as the kernel. In medicinal cases, the oil drawn from almonds is found useful; and that extracted from the bitter *one*, if dropped into the ear, proves good against deafness. Almonds are imported in casks, boxes, and serons. For *Oil of Almonds, see title* OIL.

ALMONDS, among lapidaries, signify pieces of rock crystal, used in adorning branch-candlesticks, &c. on account of the resemblance they bear to the fruit of that name.

ALMOND-FURNACE, among refiners, that in which the flags of litharge, left in refining silver, are reduced to lead again by the help of charcoal.

ALMOXARIFARGO, is a duty paid *ad valorem* on the exportation of hides from South America in European vessels, to the king of Spain.

ALNAGE, or AULNAGE, from the French *aune* or *alne*, an ell, the measuring of woollen manufactures with an ell. As a proof of the goodness of such commodities, a seal was invented, and affixed as a mark that the articles were made according to the statute; but, it being now possible to purchase these seals, they are affixed, whenever the vender pleases, to all cloths indiscriminately, to the great prejudice of woollen manufactures.

ALNAGER, ALNEGER, or AULNEGER, q. d. *Measurer by the ell*, signified a sworn public officer, who by himself or deputy was to look to the assize of woollen cloth throughout the land, as to the length, width, and work thereof; and also to the seals for that purpose ordained. The office of king's alnager seems to have been derived from the statute of Richard I. in the year 1197; but this office was abolished by the statute 11 & 12 *W. III. cap.* 20.

ALOES, (GER. DU. DA. SW. IT. and LAT. *Aloe*. FR. *Aloes*. SP. *Aloe, Acibar*. PORT. *Aloes, Azevre*. RUS. *Sabir*. POL. *Aloe, Aloa*,) is the inspissated juice of the plant *aloe;* an article usually mentioned in common parlance, as if it consisted of fruit or berries, and always therefore used as a plural. It is, however, an inspissated juice of a plant, produced in many of the hot climates. There are many different kinds, but for our purpose here it is only necessary to distinguish three.

1. The *socotorine*, vulgarly contracted into *succatrine*, is a native of *Socotara*, an island in the Arabian sea. This we obtain from the Levant principally, being brought in skins. It is the juice expressed from the leaves of the plant, boiled till it becomes of a proper consistency, then poured into earthen pots, where it remains several months, and lastly is transferred to the skins for sale. This sort is, to a certain degree, transparent, inodorous, and of a yellow colour when broken.

2. The *hepatic*, so denominated from its liver colour. This kind is resinous, smells like myrrh, and is produced in China, but imitated in many other countries; among the rest, in the West India Islands, and in part of America.

3. The *horse* aloes, so denominated from its excessive coarseness, being only adapted to the use of horses and other cattle, and more technically known by the name of *caballine*. This sort comes principally from Jamaica and Barbadoes, in both of which islands large quantities are prepared, and generally conveyed in the shells or skins of large gourds.

The general nature of all these is the same, their particular differences consisting in the different proportions of gum to their resin; and in their colours and flavours.

The socotrine contains less than half the quantity of resin or sulphurous matter, and about a third more of saline substance than the hepatic. By these differences in their constituent parts, their applications in pharmacy are directed. The socotorine is the only proper kind for internal use. The hepatic, being more resinous, is more applicable to external purposes, as cuts and wounds.

The caballine is used both externally and internally for horses and cattle of all kinds; but is at best a very coarse medicine, even for them, and should, at all events, be corrected in its proximate effects, by an admixture of warm spices.

ALOES WOOD. (GER. *Aloeholz*. DU. *Aloëhout, Paradyshout*. DA. *Aloetræ*. SW. *Aloeträ*. FR. *Bois d'aloès*. IT. *Legno di Aloe*. SP. *Aloe chino*. PORT. *Páo de Aloes*. RUS. *Aloe derewo*. POL. *Aloe drzewko*. LAT. *Lignum Aloes*.) The aloe-wood is the product of the *excæcaria agalloca*, a tree growing in China, and some of the Indian islands. There are three sorts, viz. the calambac or tambac, the common aloe-wood, and the calambour.

1. The *calabac*, or finest aloe-wood, is of a light spongy texture, very porous, and its pores so filled up with a soft and fragrant resin, that the whole may be pressed and dented by the fingers like wax, or moulded about by chewing in the mouth, in the manner of mastich. Its scent is very fragrant, and its taste acrid and bitterish, but very aromatic and pleasant. It is very variable in its colour; some variegated with black and purple, some with black and yellow, and some yellow alone, like the yolk of an egg.

2. The *common* aloe-wood, or *lignum aloes vulgare*, is the second in value; this is of a more dense and compact texture, and consequently less resinous than the other. It

is in small fragments of a dusky brown colour, variegated with resinous black veins. Its smell is very agreeable, but not so strongly perfumed as the former sort; its taste is somewhat bitter and acrid, but aromatic.

3. The *calambour*, called also *agallochum sylvestre*, and *lignum aloes mexicanum*, is light and friable, of a dusky green, black, and deep-brown colour, and often mottled. Its smell is fragrant and agreeable, but much less sweet than either of the two other sorts; its taste bitterish. It is to be met with in large logs; and is used by cabinet-makers and inlayers.

The two first of those aloes are used in medicine as a cordial. A very fragrant oil may be produced from them by distillation, recommended in paralytic cases. It is the general opinion that these three sorts of aloes-wood are produced by one tree, the calambac or tambac being the heart of the trunk.

ALOOF. *See* LUFF.

ALPHABET, the several letters used in any language, disposed in their proper order. The word is derived immediately from the names of the two first letters of the Greek language, viz. *alpha* and *beta*. We reckon 26 letters in the English alphabet; the French have only 23; the Dutch 26; the Spaniards 27; the Italians 20.

The Chinese can scarcely be said to have an alphabet, for their language is hieroglyphical, where each character or symbol stands for a whole word, and therefore these are as numerous as the things to be represented, or ideas to be expressed.

ALPHABET, among merchants and traders, is a kind of index with the 26 letters in their order, in which are arranged the names and surnames of those with whom open accounts are kept, and which refers to the folio of the ledger where those accounts are written, in the form of debtor and creditor, serving to find with facility such accounts as are necessary to be turned to.

ALPHOENIX, the white barley sugar; it is made of common sugar, which is boiled until it becomes easy to crack, when it is poured upon a marble table greased with oil of sweet almonds, and moulded into various figures with a brass crotchet.

ALQUIER, is both a liquid and dry measure in Portugal. *See* WEIGHTS AND MEASURES.

ALQUIFOU, or Arquifou, a sort of leaden ore, which, when broken, looks like antimony. It is used by the potters to give a green varnish to their works, and thence is called potters'-ore. It is met with in Cornwall, &c. The potters mix a small portion of manganese with the alquifou, and then the varnish or glazing of their ware is of a blackish hue. For the foreign names of this article, as well as for further information respecting glazing, *see* POTTERIES, and POTTERS' ORE.

ALTIN, a money of account in Muscovy, worth three copecs; 100 of which make a ruble, worth about 4*s*. 6*d*. British money.

ALTOM, a name given in Hungary to the coin called a *sequin*, when stamped with the Turkish monarch's stamp.

ALUDELS, in chemistry, are earthen pots without bottoms, inserted into each other, and used in sublimations.

ALUM, (Ger. *Alaun*. Du. *Aluin*. Dan. *Allun*. Sw. and Fr. *Alun*. It. *Allume*. Sp. *Allumbre*. Port. *Pedra hume*. Rus. *Kwasszä*. Pol. *Halun*. Lat. *Alumen*,) a mineral substance composed of a peculiar earth termed *alumine*, and sulphuric acid; that sold under the name of common alum, contains a portion of potash and ammonia. Most of the alum to be met with is artificially prepared. The purest is that manufactured at La Tolfa, near Civita Vecchia, in the Roman state. The ore made use of is the *alaunstein* or *alum-stone*, of the Germans, which is procured about a mile from the place where it is made. This, called Roman alum, is usually met with in small crystals, and has a reddish colour. It may be deprived of its colour by being re-dissolved and crystallized.

Native alum is found at Göttwig in Austria, in Carinthia, in the clefts and caverns on Stromboli, the Solfatara near Naples, the Grotto of San Germano, Miseno, and other places in Italy. This differs from alum artificially prepared, in containing a greater quantity of aluminous earth and a portion of iron.

This salt is extremely useful in the art of dyeing, as by means of it a great number of colours are fixed and rendered permanent upon cloth, which otherwise would not adhere in any degree, or only for a very short time. It constitutes the basis of crayons, which generally consist of the earth of alum finely powdered and tinged for the purpose. In the preparation of Prussian blue, it prevents the iron contained in the sulphate of iron used, which is soluble in acids, from being precipitated by the superfluous alkali employed in the preparation of that pigment; that is, the alkali which is not coloured by the saturating matter. It is also of use in the making of candles, increasing the hardness of the tallow. Wood sufficiently soaked in a solution of alum does not easily take fire; and the same is true of paper impregnated with it, which for that reason is very properly employed in preserving gunpowder, as it also excludes the moisture of the air. Paper impregnated with alum is useful in whitening silver and silvering brass without heat. Alum is also of use in tanning, where it assists in restoring the cohesion of the skins almost entirely destroyed by the lime. Vintners use it for

fining their wines; and it is employed in the salting of fish to dry them. It is of various uses in medicine as a styptic and astringent. The *aluminous mordant*, so much employed by calico-printers, is *acetite of alumine*, and is prepared by adding gradually a solution of common alum in rain-water, to a solution of pearl-ash, or any other sufficiently pure alkali, till the liquor is just on the point of becoming turbid, in order to saturate the excess of acid in common alum. A cold saturated solution of acetite of lead in rain-water is then to be stirred in as long as any precipitation takes place. A double chemical decomposition here takes place, as acetite of alumine and sulphate of lead are formed, the latter of which being insoluble in water, subsides, and the supernatant liquor, containing the acetite of alumine in solution, may then be drawn off by a syphon. By gradually evaporating it, and then setting it aside to cool, small needle-shaped crystals are formed, which are exceedingly deliquescent, and by a heat inferior to that of boiling water, they are deprived of the acetic acid.

ALUM *Works*, places where alum is prepared and manufactured in quantities for sale. They differ from alum mines, as in the former an artificial alum, and in the latter natural alum, is produced.

AMADOW, (Fr. *Amadou*. Ger. *Zunderschwamm*,) a kind of tinder or touchwood coming from Germany. It is a kind of mushroom or spongy excrescence, which grows on old trees. This substance is boiled in common water, and afterwards dried and well beaten, then put in a strong ley, prepared with saltpetre; after which it is again put to dry in an oven.

AMAIN, in the sea language, a term importing to lower something at once. Thus to *strike amain*, is to lower, or let fall, the topsails; *to wave amain*, is to make a signal by waving a drawn sword or the like, as a demand that the enemy strike their topsails.

AMALGAM, a word derived immediately from the Greek language, and signifying simply a *joining together*. It is used exclusively in chemistry, (except, indeed, sometimes metaphorically in colloquial language) to signify an allay of metallic metal with mercury.

AMALGAMATION, the operation of making an amalgam, or mixing mercury with any metal. For the combination of any one metal with another, it is generally sufficient that one of them be in a state of fluidity. Mercury being always fluid, is therefore capable of amalgamation with other metals without heat; nevertheless, heat considerably facilitates the operation. To amalgamate without heat, requires nothing more than rubbing the two metals together in a mortar; but the metal to be united with the mercury, should be previously divided into very thin plates or grains. When heat is used, which is with some metals indispensably necessary, the mercury should be heated till it begins to smoke, and the grains of metal made red hot before they are thrown into it. If it be gold or silver, it is sufficient to stir the fluid with an iron rod for a little while, and throw it into a vessel filled with water. This amalgam is used for gilding or silvering of copper, which is afterwards exposed to a degree of heat sufficient to evaporate the mercury. Amalgamation with lead or tin is effected by pouring an equal weight of mercury into either of these metals in a state of fusion, and stirring all with an iron rod. Copper amalgamates with great difficulty, and iron not at all.

AMAN, a sort of blue cotton cloth, which comes from the Levant by the way of Aleppo.

AMANUENSIS, signifies a clerk or secretary who writes, by the special direction of another, what that other dictates. It is derived from the Latin word *manus*, a hand.

AMBASSADOR, or EMBASSADOR, a public minister sent from one sovereign prince, as a representative of his person, to another. Ambassadors are either ordinary or extraordinary. Ambassador *in ordinary* is he who constantly resides in the court of another prince, to maintain a good understanding, and look to the interest of his master. Ambassadors *extraordinary*, are such as are sent on some particular occasion only, and who retire as soon as that is accomplished. By the law of nations, none under the quality of a sovereign prince can send or receive an ambassador. Ambassadors should never attend any public solemnities, as marriages, funerals, &c. unless their masters have some interest therein; nor must they go into mourning on any occasions of their own, because they represent the person of their prince. By the civil law, the moveable goods of an ambassador, which are accounted an accession to his person, cannot be seized on, neither as a pledge, nor for payment of a debt, nor by order or execution of judgment, nor by the king's or state's leave where he resides, as some conceive; for all actions ought to be far from an ambassador, as well that which toucheth his necessaries as his person: if, therefore, he hath contracted any debt, he is to be called on kindly; and if he refuses, then letters of request are to go to his master. Nor can any of the ambassador's domestic servants that are registered in the Secretary of State's office be arrested in person, or goods, by stat. 7 Ann. cap. 12. A. D. 1708., an act passed on a particular occasion, for preserving the privileges of *ambassadors*, and *other public ministers*, of foreign princes and states, for protecting their property from

being seized on, also the persons of the ambassadors as well as their domestics from arrest by writ, execution or otherwise, and for punishing any person or persons who may attempt to sue or molest them. But by sect. 5. no merchant (*who comes within the bankrupt law*) and puts himself into the service of an *ambassador*, can receive any benefit from this act. No person can be punished for arresting the servant of an ambassador, unless the name of such servant be first registered in the office of one of the principal Secretaries of State, and by such Secretary transmitted to the Sheriffs of London and Middlesex, for the time being, or their under-sheriffs and deputies, who shall, upon the receipt thereof, hang up the same in some public place in their offices, whereto all persons may resort, and take copies thereof, without fee or reward. 1 *Bl. Com.* 256. But this registering is not a condition, precedent, &c. to ambassadors' servants being entitled to the privileges given, but is merely an indemnity to a bailiff arresting prior to such registry. *Heathfield* v. *Clinton*, 4 *Burr. Rep.* 2017., and *Hopkins* v. *De Roebeck*, 3 *Term R.* 79. How far a consul comes within the description of "*a public minister*," see *Clarke* v. *Critico*, 1 *Taunt. R.* 106.

AMBER, (*Succinum.*) (Ger. *Bernstein.* Du. *Barnsteen.* Da. *Bernsteen, Rav.* Sw. *Bernsten, Raf.* Fr. *Ambre jaune.* It. *Ambra gialla.* Sp. *Ambar.* Por. *Ambar, Ambre, Alambre.* Rus. *Jantar.* Pol. *Bursztyn.* Lat. *Succinum, Electrum.*) This is a pellucid and very hard inflammable substance, of one uniform structure, a bituminous taste, very fragrant smell, and highly electric.

The generality of authors contend for this substance being a bitumen, which trickling into the sea, from some subterraneous sources, and then mixing with vitriolic salts, that abound in these parts, becomes congealed and fixed. However, as good amber is found by digging a great distance from the sea, it is probable that it is a bitumen of the naphta or petroleum kind, hardened into its present state by union with oxygen or acids.

The natural colour of amber is a fine pale yellow, but it is often made white, and sometimes black; in both cases it is rendered opaque by the admixture of extraneous bodies. The most frequent variation, however, from the yellow, is into a dusky brown; sometimes it is tinged with metalline particles, and remains pellucid. The salt, oil, and tincture of amber, have been variously applied in medicine; but its mechanical uses for toys, beads, cabinets and utensils, and the better sorts of varnishes, are of more importance.

This substance is principally to be met with on the sea-coasts of Prussia. The river Giaretta in Sicily, formerly called Simetus, which takes its rise on the north side of Mount Ætna, throws up near its mouth great quantities of fine amber, some of which is more electric, and emits a stronger smell, than what comes from the Baltic. Some pieces of this amber contain flies and other insects, curiously preserved. It is generally supposed to issue from the earth in a liquid state, at which time the insects that alight upon it are caught, and by their struggle to get loose, soon work themselves into its substance; which hardening round them, they are for ever preserved in the greatest perfection. Large fine pieces are constantly found at the mouth of the Simetus, supposed to have been brought down by the river; but it is singular that none of it is ever found but on the sea-shore. This amber at Catanea is manufactured into beads, crosses, &c.

AMBERADA, fictitious *amber*, which the Europeans use in their trade with the negroes on the coast of Africa, particularly in the river Senegal. There are some large and red pieces of it, 1000 of which making 20 ropes or strings, weight about 3lb.; there are others small, and also red, which weigh about 2½lb.

AMBER-GRIS or AMBER-GREASE, (Ger. *Amber.* Du. *Amber.* Da. *Ambra.* Sw. *Grå Ambra.* Fr. *Ambre-gris.* It. *Ambra-grigia.* Sp. *Ambar-gris.* Port. *Ambar-gris.* Rus. *Ambra.* Pol. *Ambra.* Lat. *Ambra, Ambra grisea,*) is a solid, opaque, generally ash-coloured, fatty, inflammable substance, variegated like marble, remarkably light, rugged and uneven in its surface, and has a fragrant odour when heated; it does not effervesce with acids, melts freely over the fire into a kind of yellow rosin, and is hardly soluble in spirit of wine. It is found on the sea-coast, or swimming on the sea, or in the abdomen of whales, in various shapes and sizes, weighing from half an ounce to upwards of one hundred pounds weight.

The colours of ambergris vary; there is first the *white*, which is scarce, and of little value, as it seems either not to be ripe, or mixed with some heterogeneous matter; then the *ash-coloured* or true ambergris; afterwards the *black*, which is inferior to the preceding sort, and frequently adulterated; and lastly, the *brown* ambergris, which has a particularly unpleasant smell. It looks mostly sleek or smooth, as if covered with a skin. It is now pretty well ascertained to be an hardened portion of the fæces of the *Physeter macrocephalus*, or sperma-ceti whale; and the difference in appearance, of that usually sold, arises from its being more or less recent. That which is fresh generally retains a disagreeable odour. It is usually mixed with portions of the beak of the *sepia octopodia*, or cuttle-fish, which is the constant and natural food of that species of whale.

Mr. Homberg found that a vessel in which he had made a long digestion of hu-

man fæces, acquired a very strong and perfect smell of ambergris, so that any one would have thought a great quantity of essence of ambergris had been made in it.

Ambergris ought to be chosen in large pieces of an agreeable odour, entirely grey on the outside, and grey with little black spots within. The purchaser should be very cautious, as this article is easily counterfeited with gums and other drugs.

Ambergris is chiefly found in the Atlantic ocean, on the sea-coast of Brazil, of the East Indies, China, Japan and the Molucca Islands; but most of it brought to England comes from the Bahama Islands and Providence.

The use of ambergris is now nearly confined to perfumery; it was formerly recommended in medicine by eminent physicians. In Asia, and parts of Africa, it is used as a spice in cookery.

AMBER-SEED, (Ger. *Bisamkörner.* Du. *Muskuszaad.* Da. *Desmerkorn.* Sw. *Desmanskorn.* It. *Granelli d'ambretta.* Sp. *Ambarilla.* Port. *Ambaralhi.* Pol. *Ziarka pizmowe.* Fr. *Ambrette.* Lat. *Abelmoschi grana,*) a small odoriferous seed used as a perfume. It is sometimes brought from Egypt, but is likewise imported from Martinico.

AMBULANT, the name given at Amsterdam to brokers, or exchange agents, who have not been sworn before a magistrate. They transact business like others, but their testimony is not received in the courts of justice.

AMENDMENT, in legal language, signifies the correction of an error committed in any process, which may be amended even after judgment. In very early times, the only way of rectifying the mis-spellings and other mistakes of clerks, in making up records, although no way affecting the merits of the case, was by writ of error, which was expensive and vexatious; wherefore many statutes of the realm were passed to remedy the mischief, by allowing amendments of the records to be made, under the circumstances pointed out by them respectively. Partly by force of these statutes, and partly by the increased liberality of the courts of law, amendment of clerical errors, and all other mere mistakes, are now amendable; or, what is the same thing in effect, the exception against them is prevented; so that, as Blackstone observes, "writs of error cannot now be maintained but for some *material* mistake assigned." 3 *Black. Com.* 407.

AMERCEMENT, signifies the discretionary pecuniary punishment of any offender against his sovereign, or superior lord, at whose *mercy* he stands. The difference between *amercements* and *fines* is, that the latter are pecuniary recompences, which are by some means or other defined, limited, and certain; while the former are entirely discretionary. The most ordinary colloquial application of the term now, is to the fines set upon persons presented at manorial courts for nuisances.

AMERICA, one of the four divisions of the globe into continents, and much the largest. It is probably bounded entirely by the ocean, though the north-east part of it approaches so near to an extremity of Asia, within the Arctic circle, that it has been long a matter of doubt whether the two continents be entirely separated. It is so long, as to extend over, not only the torrid, but the temperate, and part of the frigid, zones. A continent so extensive must of necessity be various in its climate, soil, and productions, animal, vegetable, and mineral. It is divided by nature into two parts — North, and South America, which are united by the isthmus of Darien; but is further divided artificially by the governments to which the different portions of it are subject. For our *present* purpose, it will be best considered under *five* specific heads, beginning at the southernmost point, and proceeding northward; viz. *Spanish* America, *Portuguese* America, the *United States*, *British* America, and, lastly, the American *Islands*, under various governments, commonly denominated the *West Indies.*

The aboriginal olive-coloured inhabitants, who are now reduced to but a few tribes, and inhabit the interior, do not stand sufficiently prominent for commercial notice under any designation; because, though furs, and other items of barter, originate with them, they pass through the hands of the white population, and are considered as articles of commerce under the divisions already projected respectively. The French and the Dutch, indeed, have each a settlement in the province of Guiana, on the coast of the Atlantic Ocean, but they are too inconsiderable in territory to interfere with this distribution.

Spanish America, then, comprehends Chili, Paraguay, Peru, and Terra Firma, on the south of the isthmus; and on the north, Mexico, New Mexico, Albany, California, and (disputed by the United States) the two Floridas. While these provinces continue at war with the mother country, all the *import* commerce must be as comprehensive as irregular in its *nature*, and the *export* in its *channels.* It is sufficient, therefore, to observe generally, that the province of Chili abounds in gold, silver, tin, copper, quicksilver, and lead. Paraguay, beside the articles just enumerated, has a variety of precious stones: the cotton tree is a native of the country; and wax and honey are abundant. In the province of Peru are the famous mines of Potosi, which produce silver in greater plenty than is to be found in any other part of the world. The town of Potosi is the largest in Peru, and

here is a great mart for all sorts of European commodities, which are easily exchanged for silver. The article of quicksilver *was* wholly engrossed by the crown, and probably *will be* by whatever government shall succeed, being necessary for refining the silver. They have, beside, articles for exportation, the tree which yields the Peruvian bark, the balsam of Peru, rhubarb, sarsaparilla, dragon's blood, storax, guaiacum, and many other vegetable productions. While these colonies were under the complete dominion of Spain, the greatest share of their trade was confined to the port of Cadiz, as all vessels passing and repassing on government account were confined to that port. Wines, brandies, iron, steel, and great varieties of linen, from Spain, Germany, and Holland, made the chief articles of export; and it is almost unnecessary to say, that gold and silver, both coined and in bullion, copper, coffee, and sugar, were the principal *returns*.

Peru has so many fine ports along its coast, that it may be considered the maritime province of all South America. The trade here flows through three channels: by the Straits of Magellan from Europe; through the North Pacific from India and Mexico, or Guatimala; and through the interior with the southern provinces of Chili and Buenos Ayres. Its exports and imports have been doubled within the last 20 years; and the principal branch of its commerce is that carried on round Cape Horn.

The exports of Peru, as has been observed, are chiefly gold, silver, brandies, sugar, pimento, salt, wool, and some *coarse* woollens. Its imports are most kinds of European goods, especially silks, linens, cottons, and *fine* woollens; mercury, glass, wax, paper, medicines, wines, books, furniture, &c. From Buenos Ayres it receives tea, live stock, and provisions; from the other internal provinces, indigo, tallow, timber, cordage, pitch, copper, and other articles of less importance.

Chili also supplies Lima with grain and fruits, salted meat, soap, wine, &c.

From the Philippine Islands, muslins, tea, and other Indian articles are imported to the amount of near 300,000 dollars annually, in exchange for gold and silver exported to Asia.

The produce of the mines of Peru and Chili may be about 1,730,000*l.* annually, and agricultural produce exported about 870,000*l.*; while the value of European goods imported is reckoned about 2,500,000*l.* in the same period.

Portuguese America, is washed by the Atlantic Ocean from the River Plata to the River Amazon, a length of more than 2000 miles. It was not discovered by the Portuguese till 1500, and not settled by them to any extent till fifty years afterwards. It has now become so populous and powerful, that from having been only a colony of Portugal, it has become the seat of government, and the residence of the royal family; and it is thought by most well-informed persons must either continue so, or become independent; especially after the example that has been set by the other portions of this continent.

The kingdom is divided into several provinces, not less, we believe, than sixteen; but it is unnecessary to notice these divisions further than by observing, that the city of St. Salvador, or Bahia, is the great mart of commerce. It is situated on the bay of All-Saints, nearly midway between the two extremities of the coast that acknowledges the sway of the Brazilian monarch. It is a large, well-built populous town, situated on a great eminence above the port, in a fine climate, and continually refreshed by the breezes from the sea; nearly impregnable if properly defended. It is a place of great trade, although the town is on an inconvenient eminence above the port. Rio de Janeiro, situated on a river of the same name, about two leagues from the main ocean, and to the southward of Bahia, is the residence of the royal family, and seat of government, and of great mercantile importance. It was formerly known more commonly by the name of St. Sebastian. It has an admirable port, well guarded, and is much resorted to on account of the gold and diamond mines being in its neighbourhood. The royal mint is here, as well as manufactories of sugar, rum, and cochineal. There is also a dock, magazines, and naval storehouses. Fernambuco is another great commercial town, about as much to the northward of Bahia, as Rio is to the south, and considered as even more inaccessible than the other two. There are many other towns of considerable size in the Brazils, as St. Vincent, Belem, and Merignano, but of little commercial importance compared with those which have been noticed. More sugar is exported from this country than from all parts of the world, beside cotton-wool of the finest quality, tobacco, maize, or Indian corn, all the fruits of the tropical climates, woods of various kinds, medicinal drugs in prodigious numbers, gold, and diamonds, with several other precious stones. Their imports are almost beyond numeration; light woollens and linens of all kinds and descriptions, thread, and lace of both thread and cotton, as well as silver and gold; hats, stockings of all sorts, ale, porter, wine, spirits, books, boots and shoes, fire arms, music and musical instruments of all sorts, wheat, barley, meal, biscuits, nails, cutlery, and, in short, almost every European commodity not inapplicable to a warm climate. The Brazil sugar is of a remarkably fine and white kind, and the tobacco admirable, indeed so superior, that the Africans will scarcely trade for any

other. There are prodigious numbers of cattle, which are slain for their hides and their tallow only, and make a great article of commerce. They also export bark, coffee cotton, indigo, rice, and several medicinal drugs.

The revenues of the government principally arise from a fifth part of all the produce of the diamond mines, and from the duties of customs on merchandize. The most strict and rigid precautions are therefore used respecting both, to prevent imposition.

The Portuguese and Spanish monies are current through the whole of the Brazils, the copper ones being received for an augmented value.

Accounts are kept in milrees and rees.

The *United States* are increasing in size, wealth, and importance, every day. It is beside our purpose, however, to notice the commerce of those additional territories which have only been recently admitted to a participation in the government as parts of the federal union, because districts newly inhabited, and imperfectly cultivated, have yet no determinate commercial character; and, however flourishing in promise, can be of little present importance beyond the limits of the government to which they are attached.

Maize or *Indian Corn*, is the growth of, and highly favoured by, the climate of the United States; its ordinary produce is about 25 bushels ℘ acre. It does not so quickly ripen in New England, as in other parts of the American continent, because the heats there are comparatively of short duration. The maize of Virginia is flat and white, yields very fair flour, and is of an excellent quality; that of New England is of a pale yellow, small and thick. It is well adapted as fodder for oxen, pigs and other beasts. In the American Islands, two crops of maize are annually reaped, the first is sown in May, and the second in September. On the continent there is but one annual crop, which is sown in the month of May.

The states where the culture of corn, and the manufacture of flour, are most considerable, are, New England, New York, Virginia, New Jersey, and Pennsylvania. The *wheat* of New England is heavier than maize; a bushel of the latter weighs about 45lb. and one of the former 55lb. The corn of Virginia is not sown thickly, because in springing up, it extends considerably; it is quite white. In New England it is generally of a pale yellow, yields fewer ears than that of Virginia, but grows more quickly. The corn of Virginia, when sown in New England, does not grow to such perfection, because it is a longer time in coming to maturity, than is consonant with the climate of the last-mentioned state. Immense quantities of corn, both of wheat and rye, are now exported from the American States, especially to Great Britain, and it is even an increasing trade.

The lands which produce *rice* are more numerous, and more fertile in North America, than in any other part of the world; upon the whole of the coast, from the bay of Delaware, as far as the Gulph of Mexico, there is one continued tract of rice-fields, unbroken only by a few patches of sterile sands. The rice-fields, or marshes of Virginia alone produce more rice than serves for the consumption of all Europe and America besides. Heretofore the lands of Carolina could not furnish a sufficient quantity of rice for the consumption of their own inhabitants, and for some time they remained uncultivated, (the same occurred in some parts of Georgia and Florida,) but now this grain thrives well, and supplies not only Carolina itself, but other parts of America, and even Europe.

The American beef is esteemed good in the islands, when it has had a quick passage; but as soon as the barrels are opened, it must be used without delay, otherwise it would putrify. The people of Massachusetts salt some beef for exportation, and for ships' use, but it is of a quality far inferior to that of Ireland, nor is it by any means so well cured as the latter. There is scarcely any in Virginia. The beef of the southern provinces of Pennsylvania is not good. Connecticut furnishes more of this article than all the other American states. The provinces to the southward consume very little salted beef; they have but few vessels to victual, and they feed their slaves with maize and rice; they however export a small quantity of the article. Large herds of thin and diminutive beasts are to be found in the back parts of the Carolinas and Georgia; they are wild, and live in the woods; the bringing of them up is attended with no expence, on account of the mildness of the winters. The inhabitants feed those beasts, which they intend for their own consumption, in inclosed pastures; those of the woods are generally fat about the month of October. Wild oxen, if they be lean, are sold at a guinea and a guinea and a half ℘ head to the Pennsylvanians, who fatten them for the Philadelphia market. The want of an opening for exportation trade may probably be the cause of the little improvement which has taken place in the race of oxen in the back settlements of Carolina and Georgia, the inhabitants of which turn their attention chiefly to the cultivation of rice, indigo, tobacco, and maize.

The *Burlington pork* is very good; the hams though lean are well-flavoured; great quantities are sent to the islands. The people of Carolina bring up so great a number of pigs, and feed them at so small an expence, that pork is to be had there on far better terms than either in England or Ire-

land, but it is not so good, neither does it keep so well.

Very little *butter* is sent from America to the Antilles; it is quickly tainted, when exposed to the air; and as the same may be said of the beef, it is probable that neither one or the other will become a considerable article of commerce. The states to the southward, even at the present day, draw small quantities of butter, soap and candles from England and Ireland.

Bees are to be seen in vast swarms in all the forests in the New World; their numbers experience a daily increase, and their honey is turned to different uses; many of the Indian nations use it as an article of food. Their wax becomes every day more and more valuable to the revenue of the colonies. At the present period it is an object of great commercial importance to the United States.

Not only the skins of beavers, otters, pole-cats, rats, foxes and martens, but likewise those of deer, rein-deer and elks, are the produce of America. The animals of the two last-mentioned species, which in our hemisphere are only found towards the polar circle, in the New World, are to be found in lower degrees of latitude, partly by reason of the cold being sharper in America, and partly because that part of the world is more thinly inhabited. The American skins, though strong, are soft, pliant, and light.

Of all the countries where the culture of *tobacco* has been attempted, there is not one in which that plant has thriven so well as in America, but particularly in Maryland and Virginia. The original colonists principally employed themselves in advancing the growth of tobacco, the plantations of which have spread in proportion to the sale of the article in Europe. The Virginian tobacco is chiefly consumed in England and France; that of Maryland, otherwise *Oroonoko*, is exported to Holland and Germany.

Cotton, of a very excellent quality, is grown in great abundance in all parts of the United States, from Maryland to South Carolina and Georgia, and some is even cultivated in the northern colonies. This cotton is somewhat similar to that of Smyrna; it keeps very well when housed, though not so well as that of the East Indies; it is, however, whiter, and preserves its hue better than the latter, which not unfrequently turns yellow.

Indigo is grown in small quantities, but is of a quality far inferior to that of the French, Spanish, and Portuguese colonies. What is cultivated upon the banks of the Missisippi, is from 20 to 25 per cent. superior in value to that of Carolina, and the produce of each acre of the latter is nearly double that of the former.

The *wool* of North America has not been in equal estimation to that of England, and has not been considered among the articles of export; beside that they have wished to encourage the manufacture of it at home. Of late, however, it has been discovered that the sheep of the northern provinces produce a wool very little inferior to the fine wools of this country, and the Americans have discovered also that they can import the clothes and stockings of England at less expense than they can manufacture them at home, since the return of peace. Mutton is a meat almost held in abhorrence by the Americans, which has doubtless been a principal occasion of the breed of sheep being little attended to; but it is probable that since the Europeans have discovered this value in some of the American wool, and its susceptibility of improvement, that it will become an article of attention, and of export.

The United States produce in great abundance every article which comes under the denomination of naval stores, of as good, and in some respects better qualities than those which are the produce of the northern countries of Europe; such are masts, yards, all sorts of wood fit for naval purposes, rosin, from which are made pitch and tar, but above all, hemp, &c. American wood is not durable; for the ships built with it do not last so long as those which are built of European oak.

Potash, which is made from the ashes of burnt wood, is an article of considerable commerce between America and England, which latter used formerly to import most of her potash from Russia to the amount, annually, of 120,000*l.* sterling.

By an act of Congress of March 1817, commonly known by the name of "the American Navigation Act," British vessels are prohibited from bringing to the United States any articles other than those the produce of some part of His Majesty's dominions, under pain of forfeiture of ship and cargo.

By other acts of the same session, the duties on almost all articles imported are augmented and regulated. By one of them, wines and spirits are allowed to be bonded for twelve months. The provisions of these acts are exceedingly numerous and very long, insomuch as to render it impossible to enter upon them more fully here. They are also very heavy in every instance wherein they look forward to the establishment of manufactories within their own territories. These prohibitory provisions, however, have been modified by an act passed in April 1818. See *Pope's Laws of Customs.*

The particular articles, which the above enumerated import duties are designed to protect, are principally distributed as follows.

In the state of *Massachusetts* there are manufactories of potash; iron founderies, in which bar and cast iron, cannons and musket barrels are fabricated; clock work, cutlery, inlaid work, linseed and train oil,

cotton and woollen stuffs, linen cloth, candles made from wax and spermaceti, stockings, hats, shoes, wool cards, tobacco, all sorts of hortulan and agricultural implements, tools of every description, pins, needles, &c. The town of Lynn is particularly famed for the manufacture of women's shoes, made from silk and other stuffs. Salt works are established at Yarmouth, a cotton manufactory at Beverley, and one of glass at Boston.

The manufactures of *Connecticut* hold the first rank amongst those of the United States. There is a woollen manufactory at Hertford; one of linen at Newhaven, forges at Norwich, Salisbury, and other parts of this state. At Stafford an iron mine furnishes the whole state with every needful article made from this metal. There are paper-mills at Norwich, Hertford, Newhaven, and in the county of Lichfield. Nails are made in almost all the towns and villages of the state; there are likewise in several parts of it, hat manufactories and tan yards. Sheffield is distinguished by its wooden works, and the manufacture of culinary and other utensils.

In the state of *New York*, and the city of that name, all sorts of carriage-wheels are made; there are likewise several sugar-houses, bake-houses, porter breweries, and brass founderies in New York; shoes, boots, saddles, cutlery, hats, watches, clocks, parasols, mathematical and musical instruments are also made here. Ships are built and completely fitted out for sea at the city of New York. There are several paper mills in this state.

In the *New Jerseys*, there are forges, tan yards, paper mills, and glass houses in the county of Gloster. In Morris' county there are iron mines; and at Morris-town a gun-powder mill.

In *Pennsylvania* there are iron mines, one of lead, and four of coal, besides manufactories of wool, cotton and silk; and upon the Potomac there is a glass house.

From what has been said of the productions and manufactures of the United States, a pretty accurate idea may be formed of their principal articles of commercial exports; nevertheless the extent of their territories, and the diversity of articles sent out of, and brought into them, render some statement of the commerce of each state desirable, in order that a just notion may be formed of the traffic of the whole.

New Hampshire. The principal exports of this state are wood, flax seed and salt provisions. The wood is conveyed to Portsmouth, through the rivers Kennebec, Penobscot, and Saco. This commerce usually employs 200 ships. The masts from the interior are very good, and far better than those of the northern parts of Europe. — *Imports.* Almost all the merchandises of Europe find a ready sale here.

Massachusetts. With the exception of wood, maize, vegetables, beasts and birds fit for the Antilles' market, Massachusetts produces few export articles; a great deal of flax is however exported hence for Ireland; its salted beef and pork are very good, and cheaper than those of the last-mentioned kingdom. Skins are furnished by the savages, but in small quantities. — *Imports.* All the merchandises of Europe, India, and the Antilles. Those of England become daily less valuable.

Connecticut. The grain, salt provisions, beasts, birds, and timber of this state are shipped to the Antilles, in a great number of small vessels, which bring back molasses, dollars, and, in contraband trade, sugars and coffee. The industry and frugality of the inhabitants do not offer much inducement to European nations to carry their commodities thither. Ireland draws some flax-seed and masts thence.

New York. Its principal exports consist of corn, flour, peas, rye, maize, salt, flax-seed, biscuits, salt provisions, pot and pearl ash, iron, wood, ship-timber, shingles, pipe-staves, planks, cheese, horses, beasts, wax, and some skins. The flax-seed is principally sent to the Irish market. The other articles are exported to the Antilles, to the southern parts of Europe, to Africa, and even to China. Wax goes hence to Madeira. — *Imports.* Almost the whole of this commerce is carried on from England, which, in addition to a vast number of merchant ships, dispatches a packet boat for the port of New York monthly. The commerce to this port is greater in time of peace than to any other in the United States.

Pennsylvania sends to the Antilles, flour, biscuits, salt beef, pork, maize, wood, barrels, tons, &c. Its flour is also exported in great quantities to Lisbon, Cadiz, Barcelona, Madeira, the Canaries, the Azores, and not unfrequently to England and France. — *Imports.* Philadelphia, as being the staple market of all the commodities of the United States, and above all, of the tobacco of Maryland and Virginia, is a place of considerable importance. It imports all sorts of European merchandise, as well as those of India and the Antilles, which are sold to the neighbouring states, and some of which are even exported with considerable success to New Orleans.

Maryland. The exportations are the same as those of Philadelphia, to which the former is, in some respects, a rival. The principal article of export is tobacco, which is inferior to that of Virginia, because in Maryland the laws with regard to the destruction of bad tobacco, are not so rigorously put in force, as in the other states. The exportation of corn has of late years become considerable. The flour is inferior to that of Philadelphia. — *Imports.* All the European merchandises, as well neces-

saries as luxuries, find a good market in Maryland. The wines and brandy of France are much esteemed and sought after. It is from Baltimore and Philadelphia, that supplies, composed of the merchandises of Europe and the Antilles, are sent to the American settlements, on the other side of the Allegany mountains. They are conveyed to Pittsburgh, whence they are carried down the Ohio.

Virginia. Its exports consist of tobacco, wheat and grain of every description, beasts, birds, vegetables, pork and other salt provisions for the Antilles; wood, pipe staves, shingles, naval stores, gingseng, wax, cotton, potash, and an infinite number of other commodities brought down the country, by means of the rivers which fall into the Chesapeake, whence they are exported to Europe. — *Imports.* Virginia being the richest of the United States, and affording Europe desirable articles for barter, consequently consumes vast quantities of European commodities. England engrosses much of this trade.

Carolina and *Georgia* export rice, indigo, maize, potash, tobacco, pease, skins, hides, wood, turpentine, tar, pitch, madder, &c. &c. In the latter of these two provinces, every one on the sea-coast is now turning his attention to the cultivation of the sugar-cane, which grows luxuriously, even as far north as Charlestown, in South Carolina; so that it will not be long, probably, before these states will export considerable quantities of this article at a cheaper rate than it can be obtained from our West Indian colonies. This must produce a prodigious revolution in the commerce of Great Britain. In 1812 the United States imported, of sugar, 72,437,56 lb. and exported 13,927,277 lb. For 12 years, ending in 1812, their average *consumption* was 50,279,249 lb.

Population increases in a more accelerated ratio in the United States of America, than in any other part of the globe, especially in the newly cultivated provinces. Kentucky, which was first settled in 1773, had, in 1792, a population of 100,000, and by the census of 1810, one of 406,511. The whole population of the western territory was, in 1790, reckoned at 6000, and in 1810, the census already mentioned makes that of the Ohio alone 227,843, Tenessee, 261,227, and the remaining parts about 118,000; an increase of 100-fold in 20 years.

Before we conclude this article, it is right to observe, that, under these circumstances of rapid increase in the population of the newly cultivated Western States, it is reasonable to suppose they will, ere long, be much influenced by their local position, and look less to the interests of the Union, than to their personal ones, presented to their view by the vicinity of the Mexican Gulph as an outlet of their commerce. To them the Atlantic States of the Union are the *Back Country,* arrived nearly at their *acme* of cultivation, as well as population, and too far removed from them to stand in any competition in a commercial point of view, with the prospects which open to them from other quarters. What influence these considerations may have, and within what period they may operate, it is impossible to decide, and not within the design of this work to discuss. But sooner or later, it is according to the common course of nature, to look for a total separation of interests, as well as of governments, between the original States of the Union, and those which have been recently admitted. The artificial wants, and the enterprise required to gratify them, in an advanced state of society, are always reciprocal. On the subject we are now considering, an accelerated impetus appears to be given to the progress of demand and gratification, by an unparalleled concurrence of circumstances, as well of fortune as of nature. An independent government and its consequence, an expanded commerce, are fast rising on the ruins of Spanish monopoly, round the principal portion of the Mexican Gulph; and the river Missisipi, flowing through these recently settled provinces into that gulph, promises to realize to the inhabitants of its banks all the fables of the ancient Pactolus.

The coins of the United States are eagles of gold, worth ten dollars; the dollar of silver; and accounts are kept in dollars, or otherwise in pounds of 20 shillings each.

British America. Canada produces trees and fruits of various kinds: the southern parts beech and red oak. Here are also a species of maple-trees, not, however, in any particular like those of Europe: they yield an excellent and wholesome liquor, more palatable than lemonade, or *eau de cerise.* The other trees, and the fruits peculiar to the southern parts, are ash, elms, linden, nut trees, of two sorts, but whose fruit is worth nothing, chesnut, apple, pear, plumb, wild cherry, vines, (which run up the sides of large trees, even to the top, and from which is made a sort of wine, which, when permitted to ferment for a considerable space of time, partakes of the flavour of Canary;) lemon-trees (which produce no fruit), water-melons, limes, wild gooseberries, and pine-apples. Tobacco, also, is among the produce of this southern division. The northern parts have white and red oaks, birch (from whose bark are made canoes), pines (from which runs a sort of odoriferous gum equal to frankincense), firs of every sort, white and red cedar, alder-trees, maidenhair, strawberries and raspberries in abundance. Here are likewise found gooseberries, from which a sort of strong vinegar is made.

The *bluets*, or blue bottles, are small grains, like very small cherries, but black and round; the plant which produces them is about the size of a raspberry bush. There is found in Canada a sort of mastic, or turpentine, which possesses some balsamic qualities.

The southern parts furnish wild beeves, bucks, stags, wolves, lynxes, a species of small tiger, ferrets, rams, ash-coloured squirrels, hares, rabbits, badgers, and beavers, in abundance; white, red, and black bears, musk-rats, crocodiles, and *ossas*, which last are similar in appearance to our hares. The beasts of the northern parts are elks, white foxes, porcupines, martens, pole-cats, black and white bears, flying squirrels, white hares, beavers, otters, musk-rats, squirrels, large stags, and sea-calves or seals.

The birds of the southern parts are chiefly vultures, swans, black geese, black ducks, turkeys, pheasants, red-headed partridges, eagles, cranes, wood-pigeons, parrots, ravens, nightingales, several birds of prey unknown in Europe, as also many small birds, amongst which is that called the fly-catcher. Those of the northern parts are bustards, geese, ducks, of ten or twelve species, magpies, moyaques, which are as large as geese, cormorants, woodcocks, snipes, divers, plovers, herons, partridges, white, black, and red-headed; white ortolans, ravens, vultures, sparrow-hawks, merlins, and wild ducks. The Canadian seas abound in all sorts of fish from the whale to the smelt. The banks of the rivers, of the lakes, and the rivers themselves, abound in all kinds of fresh-water fish and amphibious animals. Shell-fish are to be met with on every part of the shore, particularly muscles, which are of a surprising size. The cod-fishery is chiefly carried on in the bay of Canada, at Saint Peter and Sable island. The fishermen erect frames along the shores upon which they cure the cod. In that part of the river Saint Laurence, where the water is salt and brackish, is caught every kind of fish, but particularly salmon, tunny, shad, trout, lamprey, smelt, conger, mackrel, sole, herring, anchovies, sardines, turbot, and others unknown in Europe. The banks of Newfoundland, Cape Breton, &c. abound in cod-fish, whales, porpoises, and seals. The skins of the seals are exceedingly valuable, being used by hatters as a substitute for beaver; the oil and bone drawn from the whales are also valuable articles, and hence the English employ numberless ships in the Newfoundland fishery.

There are very capital iron mines in Canada, which are situated in the neighbourhood of the three rivers. About 1000 lb. of ore are daily drawn from them. Near Lake Superior are copper mines, and on the road leading to Quebec a very fine quarry of slate. On the banks of the River Saint Laurence are found lead mines.

The commerce of Canada has experienced a wonderful increase. The forts which the English have there, are made the *depôts* of those merchandises that are used in the traffic with the savages. The iron, wood, and various kinds of furs which the English draw from Canada, serve as a payment for the wines, stuffs of all sorts, and oils, which they carry thither. Rum, sugar, molasses, and tobacco, come from the English West Indies, for which the Canadians pay principally in furs, which latter they draw from the savages; and in return give them tobacco, rugs, muskets, gunpowder, balls, kettles, hatchets, hardware in general, and those small shells (cowries) which pass current amongst the Indians as money. *See post* FUR TRADE. The chief port of Canada is Quebec.

Nova Scotia is situated to the northward of the United States. This country belonged to the French, who called it Acadia. The colony extends from Cape Sable to the 47° of northern latitude.

After various revolutions, in the course of which the French and English were alternately possessors of the region in question, it finally became the property of the English, to whom it was ceded by the treaty of Utrecht in 1713.

The territory is extremely fertile in corn, pease, fruits, vegetables, and wood, and abounds in beasts and birds of various kinds. The trees which are to be met with in almost every part of the country, consist of birch, beech, maple, and several species of fir. Among the plants we find sarsaparilla, a species of rhubarb, mountain-tea, maidenhair, &c. There are shrubs of various kinds, producing raspberries, strawberries, and small cherries, which latter grow in clusters like our grapes. There is abundance of sassafras; but the most valuable tree in the whole territory is that species of beech known under the appellation of the *sugar-tree*, which yields a substance very similar to the precious commodity wherefrom its title is borrowed.

Among the natural productions of Nova Scotia, we find iron, which is supposed to be as abundant and as good here, as in any other part of the American continent. Lime and chalk are also found in large quantities, and are used both in the construction of buildings, and as manure for the lands; but for the last-mentioned purpose not within reach of the sea breeze, having been found of no use. *See post* LIME.

The oxen of Nova Scotia are remarkably large, and the sheep are far preferable to those of New England; their flesh, as well as that of the pigs, is indeed excellent. In this country are to be seen the finest dogs in the world, and so wonderful are the strength

and sagacity of these animals, that they are trained by the inhabitants to carry provisions, fire-wood, &c. to their houses, and to do many offices for which servants are employed in other parts of the globe.

The maize of this country is very indifferent, but tobacco thrives exceedingly well.

Among the skins, which constitute a large branch of commerce, the beavers' hold the first rank; the others are those of otters, wolves, lynxes, foxes, &c. &c.

Cod-fish is found upon banks of greater or less extent, adjacent to the coast, at all seasons of the year; and when salted forms an article of first-rate importance. From the middle of April, when the rain dissolves the ice, there is a constant succession of every species of fish in the creeks and bays, till the return of winter. The herring commonly makes its appearance first, the salmon next, and finally the mackerel, whereof vast quantities are exported to the West Indies.

Above 10,000 men are employed in the fisheries. More than 120,000 quintals of fish are taken annually, about 40,000 quintals whereof are exported. Estimating these exports at only 13*s.* 6*d.* per quintal, their amount will be 27,000*l.* sterling.

The manufactures consist of a species of home-spun cloth, some stockings, linen, principally manufactured by some Irish settlers; ropes and cordage, loaf-sugar, and iron utensils.

The commerce of Nova Scotia is confined to the exportation of wood, tar, turpentine, fish, some salted meat, a little iron, &c. &c. And in return we send thither much the same description of manufactures as we supply other parts of America with.

Hudson's Bay. The productions of the country adjacent to Hudson's Bay are, of trees, poplars, birch, alders, willows, and all sorts of shrubs. Upon the borders of the lakes and rivers grows much wild rice. In this country are mines of copper, lead and iron, also different species of talc and rock-crystal of divers colours, particularly red and white. Asbestos, which is an incombustible kind of flax, is very common here; also a species of black stone, which separates into thin and polished pieces, and likewise marble, some of which is perfectly white, and some streaked with red, green, and blue. Shell-fish is rare, the fish, instructed by a certain instinct, quitting the shores, upon which they might otherwise be frozen. — The merchandises sent from England to Hudson's Bay, are coarse woollens, leather, cottons, linen, hunting-utensils, fowling-pieces, flints, gunpowder, bullets, shot, cutlasses, salt, flour, oats, rye, peas, beans, malt, salted and dried beef and pork, butter, cheese, biscuits, molasses, steel, manufactured iron, brass, copper, pewter, pipes, tobacco, hosiery, hats, candles, rigging, &c. for ships, mercery, spices, oil, spirits, and wine. The returns are beaver-skins, martens, otters, foxes, wolves, hares, black bears, white bears, seals, elks, and antelopes. Also bed-feathers, whale-fins, some tons of whale-oil, goose-feathers, beaver-wool, elks' hair, and fallow-deers' hair.

In 1670, a charter was granted to a company, for the exclusive trade of this bay. They possess three forts on the southern coast of James' Bay, (by which name the southern part of Hudson's Bay is distinguished,) namely, Rupert, Moose and Albany. On the western side of Hudson's Bay, up the river, is a factory called Flamborough; and to the northward of this are York, and Prince of Wales's forts.

American Islands (or *West Indies*). Between the two continents of America lie an almost innumerable multitude of islands, commonly denominated the West Indies. Some of them are small and uncultivated, and others of so little importance in the scale of commerce, as scarcely to claim any notice within the design of this work. Those, which from their size, situation, or importance in a commercial point of view, merit insertion at all, are as follow:

Hayti, (formerly *Hispaniola*,) as an independent sovereignty, claims precedence. This island lies about 13 leagues to the east of Cuba, and the passage between them is known to mariners by the name of the *Windward Passage*. The length of this island is about 400 miles, and the breadth about 100. Although the climate is hot, it is by no means unhealthy, and is certainly the most fruitful, as well as the pleasantest of all the West Indian islands, being diversified with hills and vallies, woods and rivers. It has mines of gold, talc, and crystal, and abounds in all the tropical fruits in great perfection, as well as most kinds of timber. It exports sugar, cotton, coffee, rum, wax, honey, ambergris, and various drugs and dyeing woods. It was discovered by Columbus in 1492, and was for a considerable time under the dominion of the Spaniards exclusively, then was divided between the Spaniards and the French, and now has thrown off the yoke of both, and become an independent sovereignty under the dominion of a sable chief. Almost every article which is consumed in Europe is imported into this island, and particular encouragement is given to commerce, especially to that of British subjects. Indeed an agent, a sort of unaccredited ambassador, has resided some time in London, who not only gives every facility to an intercourse with the island, for commercial purposes, but every encouragement to men of science and literature to settle in Hayti.

Cuba, in point of size and importance,

claims the next place among these islands. This island extends 700 miles in length from east to west, but is not more than 70 in breadth. It lies 60 miles to the west of Hispaniola, or Hayti, and commands the entrance of the gulphs of Mexico and Florida, and what is called the Windward Passage. On these accounts, independent of its great fertility, it has always been of the greatest importance to the Spaniards, who emphatically call it the "*key of the West Indies.*" The Havannah is the capital, is situated on the north-west coast of the island, and is one of the finest ports in the world, though very difficult of access. It is here that, in September, a Spanish fleet has always met the galleons, and other ships from the continent of South America, and the other islands, for the convenience of returning to Spain in a body. Another town, by name St. Jago, was formerly the capital; it stands on the south-east side of the island, at the bottom of a large bay. Santa Cruz, and Porto del Principa, are two other towns and ports, of some consequence and commerce. The copper-mines here supply the Spaniards almost entirely, and considerable quantities of gold-dust are found in the rivers. All the tropical fruits and trees flourish extremely, and cattle of most sorts, imported originally from Spain, are abundant, insomuch that they are often killed for their hides and fat only, though much of the meat is also salted to victual ships.

Jamaica, the principal of these islands, which is under the dominion of Great Britain, was taken from the Spaniards during the Protectorate of Oliver Cromwell. It lies 30 leagues west of Hayti, or Hispaniola, nearly the same distance south of Cuba, is 170 miles long, and about 70 broad. It is divided into three counties, Middlesex, Surry, and Cornwall; and contains 4,000,000 acres of land. It has many mountains covered with mahogany, and other trees of beauty and value, and several rivers, though none of these navigable for vessels of any size. There are several salt springs in the island, but the fresh water is inferior, and sometimes not plentiful. The climate is fine, but in the autumn subject to violent hurricanes, much lightning, and heavy rains.

St. Jago is the seat of government, but Kingston is the principal town, and the general mart of the island. The port is spacious and fine, for it will admit 1000 ships at a time. No sort of European grain is grown here, and, in fact, maize, and Guinea corn, constitute the whole of the grain raised in Jamaica; large quantities of pease are, however, annually gathered. The fruits are, China and Seville oranges in abundance, lemons, limes, pomegranates, sorb-apples, shaddocks, papas, gustard-apples, guavas, alicada pears, thorny pears, melons, pine apples, &c. &c.

The sugar, cotton, and rum, of Jamaica, are held in the highest estimation, as well as the pimento, commonly known by the name of Jamaica pepper, which is a principal article of culture and of exportation. It produces tobacco, but of a coarse kind. The lignum-vitæ is of great importance, both for its wood in cabinet-work, and for its gum, called guiacum, a celebrated medicine.

The principal commerce of Jamaica is carried on with Great Britain; very little with other nations, unless clandestinely. The merchandises which England sends thither are linens, bone lace, cambrics, hats, shoes, stockings, cloths, silken stuffs, stationery, soap, candles, butter, cheese, salted provisions, herrings, stock-fish, biscuits, beer, oil, cider, &c. &c.

Barbadoes. The productions of this island are oranges and lemons, from the rinds of which is made citron, and whence is extracted the delicious *liqueur*, "*eau de Barbade.*" With regard to the fruit itself, several thousand boxes are annually exported to the English colonies on the continent. The limes which grow here are in excellent repute in England. The other productions are sugar, some indigo, ginger and cotton, in abundance, aloes, &c. &c. which, indeed, form the chief articles of export from Barbadoes. The sugar which is sent hence to England, is finer, but much inferior in quality to that of Jamaica and other islands. Its colour is bluish, probably on account of its being long exposed to the sun. The rum here is far better, and of a less fiery flavour than that of the other islands, on which account, not only in Europe, but in America, it receives a decided preference. The various kinds of wood grown in this island, particularly cedar, are very good. Brigs, shallops, and other small-sized vessels, are built here, and form no inconsiderable branch of the island's commerce. The whole is engrossed by the English, who send thither stuffs, from which are made clothes for the negroes, linens of all sorts, broad cloths, kerseys, raw and manufactured silk, red caps for the slaves, stockings, shoes, gloves, hats, mercery, wigs, pease, beans, oats, biscuit, wines of all sorts, beer, salted provisions, candles, butter, cheese, iron implements for the sugar-trade, lead, powder, balls, brass, &c. &c.

Antigua. The *productions* of this island are sugar, rum, and tobacco, the export of which articles constitute the whole of its *commerce.*

Saint Christopher's, commonly called St. Kitt's. The soil of this island is sandy, and therefore well adapted for the culture of tobacco, sugar, cotton, ginger, and all sorts of fruits; the annual produce of the sugar-canes is about 12 or 13,000 hogsheads, and as for every three hogsheads of sugar a puncheon of rum is made, the annual exports of the last article amount to 3 or

4000 puncheons. The valleys and the sides of the mountains are very fertile: they abound in maize, pine-apples, rosemary, plantains, cotton, lignum-vitæ, and various other species of plants, which are totally unknown to us. All sorts of vegetables thrive here, such as musk-melons, water-melons, lettuce, parsley, purslain, cabbages, reddishes, potatoes, &c. &c. There are some salt works in this island.

The imports are wines, spirits, beer, light silken stuffs, linens, hats, stockings, shoes, salted provisions from Ireland, flour, spices, &c. &c. The exports are sugar, tobacco, cotton, ginger, and rum.

Nevis. This island, both as to soil and produce, much resembles St. Kitt's; the culture of sugar is much attended to. It is flourishing, considering the losses which it has sustained by plague, war, earthquakes, and tornadoes. All that has been heretofore said respecting the commerce of Barbadoes, Antigua, &c. may apply to that of Nevis, with this sole difference, that in the last-mentioned island sugar holds the place of money in every instance.

Montserrat produces the same articles of commerce as the other Antilles, such as sugar, rum, indigo, ginger, and cotton. Indigo forms a very considerable branch of its export trade. The island is extremely well cultivated, and many ships annually resort hither, although there is neither haven nor road in which they can ride with safety; however, when a storm is dreaded, the vessels betake themselves, without delay, to the ports of the islands of St. Kitt's and Antigua.

Anguilla. This island is fertile in wood, grain, and tobacco, the latter of a very excellent quality. The inhabitants are extremely indolent, and its commerce very inconsiderable.

Virgin Isles. The number of these islands is 60: the soil, for the most part, is, barren and dry. Some English families are established here, who cultivate the land to as great an extent as it will admit of, and feed cattle, which they send to Porto Rico and the neighbouring Carribbee islands.

Saint Vincent. Cotton, cocoa, coffee, and the sugar-cane thrive in this island. Great Britain has not, however, reaped any considerable advantages by its commerce with it. It is inhabited by nearly 600 whites, and from 7 to 8,000 blacks. Rum forms one of its export articles.

Dominica. The soil of this island is very good; the chief exports are sugar, coffee, cotton, rum, cocoa, and syrup.

Tobago produces cocoa, sugar, indigo, ginger, cotton, &c. Great quantities of excellent fish, and turtles, are likewise to be found here. The most considerable export article is sugar.

Grenada. Sugar, cotton, coffee, rum, cocoa, and all sorts of fruit, are the produce of this island, and constitute its exports. The imports are the same as those of Barbadoes, Antigua, &c.

Guadaloupe. Its productions are chiefly cotton, sugar, coffee and cocoa, and although the trade is nominally carried on *in toto* with France, great quantities of these articles are exported to St. Martin and to America.

Martinique. The productions are similar to those of he two foregoing islands; tobacco, in large quantities, is grown here.

Mariegalante. What has been said of Martinique will also apply to this island.

Saint Bartholomew. The middle of this island is mountainous, consequently the soil is but indifferent. Some lignum vitæ and iron wood is, however, found here.

Saint Lucia. The soil is not bad, and in many parts of the island the sugar-cane is cultivated with no inconsiderable success. There are about fifty-five sugar-plantations in the island. The commerce is rather languid, and is almost entirely carried on with England.

Trinidad, formerly belonging to Spain, but now a British possession, lies between Tobago and the Spanish Main. It is about 90 miles long, and 60 broad: is a very fruitful country. It grows sugar, fine tobacco, indigo, ginger, all the fruits of the West Indies in great perfection, Indian corn or maize, and cotton. It was principally supported by smuggling in the hands of the Spaniards, but is rising much in value and produce since it was surrendered to Great Britain,

Saint Eustatia. Sugar, coffee, and tobacco are the chief productions and exports of this island. Its cotton is tolerably good.

Saba may be properly called the garden of St. Eustatia, to which it is adjacent. The frequent rains which fall upon its soil cause it to produce vegetables and fruits of an exquisite flavour, and cabbages of a singular size. They raise cotton and flax, from which they make stockings, and sell them to the other colonies.

Saint Martin. Beasts, birds, cotton, tobacco, and some coffee, constitute the riches and productions of this island, in return for which it receives the commodities of Holland and France. There are some salt-works in part of the island.

Saint Thomas, Saint Croix, and *Saint John,* produce sugar, cotton, coffee, rum, and cocoa, which they export to Denmark, Norway, and Holstein, and in return for which they receive various merchandises from the aforesaid countries.

Bahama Island. The soil of these islands is very thin and poor, but the climate favours every sort of territorial production; nevertheless, there is no settlement of the English less valuable than this. Formerly,

the island called Bahama furnished guiacum, sassafras, sarsaparilla, red-wood, and drugs of various kinds; at present it only produces maize and game, and that called Providence, only Brazil-wood and salt. It is at Acana that the last-named article is manufactured, whence it is sent to the Antilles, and to the American continent. Many other productions of the West Indies have been tried, but the land is soon worn out, and they have failed after one or two crops. The produce does not pay the expense of the possession; but, in time of war, these islands are useful in annoying the Spanish trade.

The Bermuda Islands. There are four of these islands which are habitable, besides several uninhabited ones; viz. St. George's, St. David, Long-bird islands, &c.

Maize thrives very well; there are two harvests of this grain annually, the one sown in March and reaped in July, and the other sown in August and reaped in December. The oranges and lemons have a delicious flavour, and are of a surprising size. The beasts of these islands thrive well, and their flesh is excellent. There is a vast quantity of land and water fowl likewise. The cedar-tree grows here to the height of 25 feet; it yields a kind of sweet-scented rosin: great quantities of this wood are brought to England, where it is well known and much esteemed. Fish, in abundance, is caught upon the coasts; amongst the rest turtle of a most delicious flavour. The whale fishery is carried on at the north-eastern extremity of Bermuda, from March till May, with very great success. Ambergris is thrown upon the coasts by the sea, and many pearls are found in the oysters attached to the rocks.

The merchandises of Europe which are brought hither are wines, brandy, corn, Irish provisions, stuffs, linens, iron-ware, and light mercery. These islands are very convenient for the American ships which trade to the Antilles, and which make it a practice to put into their ports, in order to take in fresh provisions. This is the principal advantage which accrues to England from the possession of the Bermudas; for the amount of their productions makes but a scanty appearance in the balance sheet of English traffic; nevertheless, if the inhabitants would but attend to the gathering of silk and cochineal, they might soon render the Bermudas of very high commercial importance.

Azores. The *productions* of the Azores are grain, wine, flax, various kinds of fruit, as oranges, lemons, &c. potatoes, beasts, game, and fish.

The commerce is carried on with Portugal, whither are sent large quantities of white and muscovado sugars, wood of different kinds, corn, rye, &c. &c.

AMETHYST, (Ger. *Amethyst.* Du. *Amathiststeen.* Da. *Ametist.* Sw. *Ametist.* Fr. *Amethyste.* It. *Amatista.* Sp. *Ametisto.* Port. *Ametista, Ametisto.* Lat. *Amethystus,*) a gem of a purple colour, which seems composed of a strong blue and a deep red, and according as either of these prevails, affording different tinges of purple, sometimes approaching to violet, and sometimes even fading to a pale rose colour. Although amethysts are generally of a purple colour, yet they are found materially colourless, and may at any time be easily made so, by putting them into the fire, in which pellucid or colourless state they only want the hardness not to be distinguished from diamonds. The amethyst is scarcely inferior to any of the gems in the beauty of its colour; and in its purest state is of the same hardness and at least of equal value with the ruby or sapphire. It is found of various sizes, from the bigness of a small vetch to an inch and an half in diameter, and often much more than that in length.

This precious stone is found in the East and West Indies, and in several parts of Europe; some of the first specimens of the oriental ones being so hard and bright as to equal any of the coloured gems in value. However, by far the greater number of amethysts fall infinitely short of these, as all the European ones, and not a few of those brought from the East and West Indies, are very little harder than common crystal.

AMEAS SEED, (Ger. *Ammysamen.* Du. *Amyzaad.* Da. *Ammyfio.* Sw. *Ameos, Ammi.* Fr. *Semence d'ammi.* It. *Ameos, Ammi.* Sp. *Ameos, Ammi.* Port. *Ameos Ammio.* Lat. *Amomum verum*) *true amomum.* This seed comes from a round fruit, the size of a grape, of a pungent taste, approaching to Camphor; it is an elegant aromatic. — *Kauffman.*

AMIANTHUS, or Earth-Flax; a fibrous flexile, elastic mineral substance; consisting of short, abrupt, and interwoven filaments. It is found in Germany in the strata of iron ore, sometimes forming veins of an inch diameter; also in Crete and Cyprus, in Tartary, Namur in the Low Countries, in Old Noricum, in Egypt, in the mountains of Arcadia, at Puteoli, in Corsica, Anglesea in Wales, Aberdeenshire in Scotland, at Montauban in France, and in Siberia. The amianthus may be split into threads and filaments, from one to ten inches in length, very fine, brittle, yet somewhat tractable, silky, and of a greyish colour.

The industry of mankind has found the method of employing this untoward mineral for the manufacture of a kind of cloth called *asbestos:* it has the wonderful quality of being inconsumable in fire, which only serves to whiten it. The shorter filaments of the amianthus that separate in the washing of the stone, are used for making paper. The method of making *asbestos* is now lost: but

Bapt. Porta assures us, that in his time the spinning of the asbestos was a thing known to every one at Venice. This kind of cloth was chiefly esteemed among the ancients, being held equally precious with the richest pearls. — *Kauffman.*

AMMONIA. This alkaline substance, when in a state of purity, is in form of a gas, of a very pungent smell, extremely volatile; lighter than atmospheric air in the proportion of 6 to 10. It readily combines with water; forming a highly pungent, volatile liquor, of an acid taste, usually termed *liquid ammonia.* With carbonic acid it forms a concrete salt, possessing the volatile and pungent qualities of the fluid. Ammonia may be obtained in abundance from all animal bodies in a state of putrefaction: it is generally procured in England by a dry distillation of bones, horns, and other animal substances. It is found native, in combination with muriatic acid, in crystallized masses, called *sal ammoniac,* in the neighbourhood of volcanoes, in some of the mountains of Tartary and Thibet, and in the waters of some of the lakes in Tuscany. Formerly sal ammoniac was brought from Egypt in large quantities; it is said to have been made near the temple of Jupiter Ammon (whence it obtained its name), where there were large inns, in which pilgrims lodged, who usually travelled on camels. The proprietors had some method of collecting the urine of these beasts, which contains it in considerable proportion; and it was thence obtained by distillation.

Sal ammonia is employed by dyers to give a brightness to certain colours; and in what they call composition, to prevent the tin from being precipitated. It is also used by braziers, tin-plate workers, &c. In tinning metals, it is of use to cleanse the surfaces, and prevent them from oxidizing by the heat which is given them in the operation.

AMMONIACUM, (Ger. Du. Da. Sw. *Ammoniak.* Fr. *Gomme ammoniaque.* It. *Gomma armoniace.* Sp. *Goma armoniaca.* Port. *Goma armoniaca.* Rub. *Ammoniak.* Pol. *Amoniak.* Lat. *Ammoniacum gummi.*) *See title* GUM.

AMMUNITION, a general term for powder, ball, and other implements of war.

Ammunition, arms, utensils of war, or gunpowder, imported by way of merchandize, without licence from his majesty, are forfeited, and treble the value, 1 Jac. 2. c. 8. s. 3. Arms, gunpowder, or saltpetre, may be prohibited to be exported by his majesty, when he shall see cause, by proclamationor order in council. 12 Car. 2. c. 4. s. 13. If shipped (after such prohibition) on board any vessel in the United Kingdoms of Great Britain and Ireland, to be exported contrary to such proclamation or order, are forfeited, and may be seized by warrant from any magistrate, or any custom-house, impost, or excise officer; and every owner forfeits 100*l.* for every hundred of saltpetre and gunpowder, and 100*l.* for every twenty-five arms, and 100*l.* for every two hundred weight of any species of ammunition; and so in proportion for a greater or less quantity. And every person aiding or assisting in shipping them, forfeits 100*l.* and treble the value of the goods. Also any master of a ship who takes them, or suffers them to be taken on board, forfeits 100*l.* 29 Geo. 2. c. 16. This act, and every clause, matter, and thing therein contained, shall extend to impower his majesty in like manner to prohibit the shipping the same in order to be carried coastwise, and these several provisions, as well respecting the articles, as their destination, are further extended by 33 Geo. 3. c. 2. Certain exceptions respecting military cloathing, are made by 54 Geo. 3. c. 107. *See further* GUNPOWDER.

AMNESTY, an act or edict, whereby a prince promises his subjects a general pardon for all that is past.

AMOMI SEED, (Ger. *Amömlein.* Du. *Amomizaad.* Da. *Amomfrö.* Sw. *Amomfrö.* Fr. *Amomes.* It. *Amomo.* Sp. *Amomo.* Port. *Amomo.* Lat. *Amomum vulgare.*) These are brown grains brought from the East Indies, of a hot aromatic smell and taste, somewhat resembling that of cinnamon, cloves, and pepper. They are of the size of a chick pea, and grow on a tree, which has a red odoriferous wood, and bears a kind of berries or pods in the shape of grapes. These berries contain the seeds; which ought to be light-coloured, heavy, and well filled. If the berries are light, with black seeds and shrivelled, they are of no value. These seeds are only used in medicine. — *Kauffman.*

AMORPHA, *bastard indigo,* the seed of which was sent to England from Carolina about the beginning of the last century; it is a flowering shrub, propagated in the gardens about London.

AMOUNT, a term in arithmetic and book-keeping. It is said of the total, which several sums added together produce.

AMPHORA, the largest measure used at Venice for liquids, and is equal to about four English gallons.

ANA, in physic, a Greek preposition much used in prescriptions, to signify equal parts of the ingredients preceding it. *See it explained under the article* A.

ANACOSTE, or Anascote, a sort of woollen-diaper stuff, manufactured at Leyden in Holland, and in the Austrian Netherlands; it is like serge, but not so woolly, about a French ell broad and twenty ells long. It is sent into Spain, where it is in great demand.

ANAGROS, a measure for grain used in some cities of Spain, particularly at Seville: Forty-six anagros make about 10¼ quarters of London.

ANALYSIS, in chemistry, the reduction of a mixed body into its principles. This is one of the chief objects of chemistry, and is effected by heat and mixture.

Analysis of powers, is the operation of resolving them into their roots, otherwise called evolution.

ANATA, or ANNOTTO, (GER. RUS. and POL. *Orlean*. DU. *Orleaan*, *Rokoe*. DA. *Orleans*. SW. *Orleana*. FR. *Roucou*. IT. *Oriana*. SP. *Achiote*. PORT. *Urucu*. LAT. *Orellana*, *Orleana*, *Bixa*) a kind of buff-coloured dye, which has acquired with *us* the name of *Nankeen*, from *Nangking*, in China, whence the callico so coloured first came. It is procured from the pulp of the seed capsules of a tree called Bixa, in South America, being prepared by the Spaniards; the mode is as follows: the contents of the fruit or capsule are thrown into a wooden bowl, where as much hot water is poured on them as is necessary to suspend the pulp. The seeds are taken out, and the wash is left to settle. The water is then poured off, and the sediment dried in the shade, after which it is made into balls or cakes for exportation.

ANATOCISM, signifies the taking of interest upon interest for the loan of money.

ANCHOR, in maritime affairs, is a very large and heavy iron instrument, with a double hook at one end, and a ring at the other, by which it is fastened to a cable. It is cast into the bottom of the sea, or rivers, where taking its hold, it keeps ships from being drawn away by the wind, tide, or current.

There are several kinds of anchors: 1. The sheet anchor, which is the largest, and is never used but in violent storms, to hinder the ship from being driven ashore. 2. The two bowers, which are used for ships to ride in a harbour. 3. The stream anchor. 4. The grapnel. The iron of which anchors are made, ought neither to be too soft nor too brittle. In order to give them a proper temper, it is the practice to join brittle with soft iron, and for this reason the Spanish and Swedish iron ought to be preferred.

The shank of an anchor is to be three times the length of one of its flukes, and a ship of 500 tons has her sheet anchor of 2000 weight; and so proportionably for others smaller or greater.

The anchor is said to be *a-peak*, when the cable is perpendicular between the hawse and the anchor. An anchor is said *to come home* when it cannot hold the ship. An anchor is *foul*, when by the turning of the ship, the cable is hitched about the fluke. To shoe an anchor, is to fit boards upon the flukes, that it may hold the better in soft ground. When the anchor hangs right up and down by the ship's side, it is said to be *a cock bell*, upon the ship's coming to an anchor.

By 53 Geo. 3. c. 87. pilots and others taking possession of anchors and other ship materials (belonging to wrecks,) shall give notice of the same to a deputy vice-admiral, or his agent, within 48 hours, on pain of being considered as a receiver of stolen goods. And if any person shall purchase any such anchor, &c. that shall have been so obtained, he shall be guilty of felony, and be transported for seven years. And any master of a vessel outward bound, finding, or taking on board, any anchor, &c. shall report the same to the Trinity House, and on his return shall deliver the same to a deputy vice-admiral, or his agent, nearest to the port where he shall arrive, under a penalty of not more than 200*l*. nor less than 50*l*., on conviction before a magistrate on the oath of one witness; one half to go to the informer, the other half to the Merchant Seamen's Society, established by 20 Geo. 3. c. 38., and shall also forfeit double the value of the article to the owner. And every master of a vessel, pilot, &c. who shall convey any anchor, &c. to any foreign harbour, port, creek, or bay, and sell and dispose of the same, shall be guilty of felony, and be transported for 7 years.

Riding at anchor, is the state of a vessel moored and fixed by her anchors. *Dropping an anchor*, imports the letting it down into the sea. In some cases it is necessary to drop two anchors opposite to each other; one to keep the ship firm against the tide or flow, the other against the ebb. *Weighing anchor*, is the recovering it into the vessel in order for sailing. The anchor is ordinarily weighed by means of a windlass.

An Anchor is also a measure of brandy, &c. containing ten gallons, more commonly written *Anker*.

ANCHORAGE, or anchoring-ground, a place where a ship may cast anchor. The best anchoring-ground is stiff clay or hard sand; and the best place for riding at anchor, is where a ship is land-locked, and out of the tide.

The anchorage for ships, especially ships of war, being a subject of great importance to the naval and commercial interests of the kingdom, several statutes have been enacted for the protection of harbours. The first which it is necessary to notice here is 19 Geo. 2. c. 22. It prohibits masters of ships from casting out ballast, or rubbish of any kind, into any harbour or channel, except on the land where the tide never comes, on pain of forfeiting not more than 5*l*. nor less than 50*s*., on conviction before a justice on view, or on the oath of one witness, or of being committed to prison for two months, which penalty is increased to 10*l*. over and above the expence of removing the same, by 54 Geo. 3. c. 159. In pursuance of the same object, 54 Geo. 3. c. 159. enables the lords of the admiralty to establish regula-

tions for the preservation of the king's moorings or anchorage, as well as for those of merchant ships, in all the ports, harbours, channels, &c. &c. of the United Kingdom, as far as the tide flows, where, or near to which, his majesty has, or may hereafter have, any docks, dock-yards, arsenals, wharfs, or moorings. It prohibits all descriptions of private ships from being moored or anchored, or placed in any of his majesty's moorings, &c. without special licence obtained from the admiralty, or other persons appointed to grant such licences, on pain of forfeiting not exceeding 10*l.*, one moiety to his majesty, the other to the informer, on conviction before any justice of the peace or commissioner of the navy.

It further prohibits the beaming of private vessels in such places, otherwise than appointed by the said authority of the admiralty; and the receiving or having gunpowder beyond a certain limited quantity, under a penalty of 5*l.* for every five pounds weight of such powder beyond the quantity allowed. It prohibits, likewise, all such private vessels, in any such places, having any guns on board shotted or loaded with ball, as well as firing and discharging any such before sunrising and after sun-setting, under a penalty of 5*l.* for every gun so shotted, and 10*l.* for every gun so fired. It further gives to every officer of vessels of war, to harbour-masters, and others in their aid, a right of search in all private vessels so moored in such places, and inflicts a penalty of 10*l.* on resistance.

Anchorage also means a duty taken of ships for the use of the port or harbour.

ANCHOVIES, (Ger. *Anschovis.* Du. and Sw. *Ansjovis.* Da. *Ansios.* Fr. *Anchois.* It. *Acciughe.* Sp. and Port. *Anchovas.* Rus. *Antshofischi.* Lat. *Encrasicoli,*) the name of a small sea-fish common in the Mediterranean. The fishing for anchovies is carried on chiefly in the night-time; when a light being put on the stern of the vessels, the fish flock round, and are caught in the nets. The anchovy is much used in sauces from the excellency of its taste. The importation of anchovies is especially provided for by sect. 14. of 10 & 11 W. 3. c. 24., by an exception to the prohibitions contained in the navigation act of Car. 2.

ANCIENTS, flags set in the stern of a ship.

ANCKER, a liquid measure used for wine and brandy in France and Holland, containing about sixteen gallons wine measure.

ANCONY, in iron works, signifies a bloom, wrought into the figure of a flat iron bar of about three feet long, with two square rough knobs, one at each end, which are afterwards to be wrought at the chafery.

ANEE, a measure for grain used in some provinces in France. At *Lyons* it signifies a certain quantity of wine, which is the load an ass can carry at once. That load is fixed at 80 English quarts wine measure.

ANEGRAS, a measure for corn used at Seville and Cadiz in Spain: four *anegras* make a *cahis*; four cahis make a *fanega*; and fifty fanegas the *last* of Amsterdam. — *See* WEIGHTS AND MEASURES.

ANEMOSCOPE, according to Vitruvius's description, a machine shewing from what point of the compass the wind blows. This is done by means of an index moving about an upright circular plate, the index being turned by an horizontal axis, and the axis by an upright staff, at the top of which is the fane moved about by the wind. It is, according to modern acceptation, an instrument to *foretel* the changes of the wind. See *Philos. Transact.* v. 43. part 2. page 9.

ANGEL, the name of an ancient gold coin in England. It takes its name from the figure of an angel represented on it. It was $23\frac{3}{4}$ carats fine, and weighed four pennyweights. Its value differed in different reigns. In the reign of Henry VI. it was 6*s.* 8*d.*; in the 1st Henry VIII. 8*s.*; in the 6th Edward VI., and in the succeeding reigns of Mary and Elizabeth, it was 10*s.*

ANGELICA, (Ger. *Angelika.* Du. *Engelwortel.* Da. *Angelik.* Sw. *Angelika.* Fr. *Angelique.* It. and Port. *Angelica.* Sp. *Angelika.* Rus. *Djugil.* Pol. *Dziegiel.* Lat. *Angelicæ radix*) is a plant of some virtues, being stomachic, cordial, and alexipharmic; it causes perspiration, and is said to drive out humours through the pores of the skin. The root, stalk, leaves, and seed, are used. —*Miller.*

ANIL, so called by the inhabitants of all the different countries where it grows, is the plant from which indigo is made. *See* INDIGO.

ANIME, or Gum Animæ. *See title* GUM.

ANINGA, a root which grows in the Antilles islands, and is pretty much like the China plant. It is used by sugar-bakers for refining the sugar, and is more effectual and less dangerous than the sublimate of mercury and arsenic.

ANISE, or Anisum, (Ger. Du. Sw. Fr. Sp. Port. and Rus. *Anis.* Da. *Anys.* It. *Anice.* Pol. *Anyz.* Lat. *Anisum*) a small seed of an oblong shape. It is cultivated in Germany, but the best comes from Spain. It should be chosen fresh, large, plump, newly dried, of a good smell, and a biting aromatic taste, without any bitterness. There is extracted from anise-seed a kind of white oil, called essence of *anise.* *Anise-seed* is noted among the drugs and spices to be garbled, in *stat.* 1 *Jac.* 1. c. 19.

ANKER, a liquid measure at Amsterdam. It contains about thirty-two gallons English measure.

ANNABASSES, a coarse blanketting, made in France for their Guinea trade, and in particular for that on the coast of *Angola.*

ANNEALING, or Nealing, as it is called by the workmen, is a process particularly employed in the glass-houses, and consists in putting the glass vessels, as soon as they are formed, and while they are yet hot, into a furnace or oven, not so hot as to remelt them, and in which they are suffered to cool gradually. This is found to prevent their breaking easily, particularly on exposure to heat. There can be little doubt but it is to this process of perfecting glass, that Shakspeare alludes in the celebrated passage "unanointed, unannealed," with their unnatural explanations of which, commentators have puzzled both themselves and their readers.

A similar process is used for rendering cast-iron vessels less brittle, and the effect depends on the same principles.

A. D. or ANNO DOMINI, the computation of time from the incarnation of Jesus Christ, which is generally inserted in the dates of all public instruments. The year of the reign of the existing sovereign is frequently added, especially in criminal proceedings, as all such are generally issued or promulgated in the name of the king for the time being. The mode of computing has been in all countries from some remarkable event. The Romans reckoned from the building of Rome. The Jews (according to the Mosaic accounts) from the creation of the world. The Greeks from the commencement of their Olympiads. The Mahometans reckon from the Hegira, or flight of their prophet from Mecca. The Christian world, from the event which occasions the introduction of this article.

ANNOTTO. *See* ANATA.

ANNUITANT, a person who has an annuity.

ANNUITIES, from the Latin word *annus*, a year; periodical payments of money, amounting to a fixed sum in each year, and continuing for a certain period, as for 10, 50, or 100 years, or for a certain period, to be determined by a particular event, as on the failure of a life, or for an indefinite term; which latter are called perpetual annuities. The times of payment are either yearly, half-yearly, quarterly, weekly, or at any other intervals that may be determined on previously to the commencement of the annuity, or regulated during its continuance.

The definition of the term has been already given, but it is necessary to guard against a misconception not uncommon respecting the application of that definition. An annuity is correctly an annual payment, *chargeable only upon the person* of the grantor; but it is frequently confounded in common parlance with a *rent charge*, which is a burthen imposed upon, and issuing out of, *lands*.

All calculations relating to annuitants are made on the principle of improving money at compound interest, and are generally for an annuity of 1*l.* from which the value of any other annuity is easily derived.

Let r represent the amount of 1*l.* in one year; that is, one pound increased by a year's interest, then r^n, or r, raised to the power whose exponent is any given number of years, will be the amount of 1*l.* in three years; its increase in the same time is $r^n - 1$; now the interest for a single year, or the annuity answering to the increase, is $r - 1$; therefore, as $r - 1$ is to $r^n - 1$, so is *u* (any given annuity) to *a* its amount. Hence we have

$$\frac{u \times \overline{r^n - 1}}{r - 1} = a$$

by which the amount of an annuity for any number of years, at any given rate of interest, is found. In the same manner the present value of annuities is obtained; for as 1*l.* is the present value of r^n, its amount in *n* years, and as the present value of any other amount, and consequently of $\frac{u \times \overline{r^n - 1}}{r - 1}$ must bear the same proportion to that amount, we have

$$\frac{u \times \overline{1 - \frac{1}{r^n}}}{r - 1}, \text{ or } \frac{u - \frac{u}{r^n}}{r - 1} = p.$$

From these theorems, the other cases relating to annuities may be easily deduced; but as the involution of high powers is a tedious operation by common arithmetic, most questions relative to annuities may be more conveniently answered by the help of logarithms. It is, however, seldom necessary to have recourse to either of these methods, as tables of the amount and present worth of annuities are inserted in most books that treat of compound interest or annuities.

TABLE I.

Shewing the Amount of an Annuity of 1*l.* in any Number of Years, not exceeding 100*l.* when improved at 5 per Cent. per Ann. Compound Interest.

Yrs.	Amount.	Yrs.	Amount.
1	1,0000	17	25,8404
2	2,0500	18	28,1328
3	3,1525	19	30,5390
4	4,3101	20	33,0659
5	5,5256	21	35,7192
6	6,8019	22	38,5652
7	8,1420	23	41,4305
8	9,5491	24	44,5020
9	11,0266	25	47,7271
10	12,5779	26	51,1135
11	14,2063	27	54,6691
12	15,9171	28	58,5426
13	17,7130	29	62,3227
14	19,5986	30	66,4388
15	21,5786	31	70,7608
16	23,6575	32	75,2988

TABLE — *continued.*

Yrs.	Amount.	Yrs.	Amount.
33	80,0638	67	505,6698
34	85,0670	68	531,9533
35	90,3203	69	559,5510
36	95,8363	70	588,5285
37	101,6281	71	618,9549
38	107,7095	72	660,9027
39	114,0950	73	684,4478
40	120,7998	74	719,6702
41	127,8398	75	756,6547
42	135,2317	76	795,4869
43	142,9933	77	836,2607
44	151,1430	78	879,0738
45	159,7002	79	924,0274
46	168,6852	80	971,2288
47	178,1194	81	1020,7903
48	188,0254	82	1072,8298
49	198,4267	83	1127,4713
50	209,3480	84	1184,8448
51	220,8154	85	1245,0871
52	232,8562	86	1308,3414
53	245,4990	87	1374,7585
54	258,7739	88	1444,4964
55	272,7126	89	1517,7212
56	287,3482	90	1594,6073
57	302,7157	91	1675,3377
58	318,8514	92	1760,1045
59	335,7940	93	1849,1098
60	353,5837	94	1942,5653
61	372,2629	95	2040,6935
62	391,8760	96	2143,7282
63	412,4698	97	2251,9146
64	434,0933	98	2365,5103
65	456,7980	99	2484,7859
66	480,6379	100	2610,0252

EXAMPLE.

To what sum will an annuity of 42*l.* amount in 30 years, at 5 per cent. compound interest? The amount in the Table against 30 years is 66,4388, which, multiplied by 42, gives the answer 2,790*l.* 8*s.* 7*d.*

TABLE II.

Shewing the present Value of an Annuity of 1*l.* for any Number of Years, not exceeding 100*l.* at 5 per Cent. per Annum, Compound Interest. By the help of these Tables many practical Problems, which are daily occurring, may be worked by any Person versed in common Arithmetic.

Yrs.	Value.	Yrs.	Value.
1	952381	8	6,463213
2	1,859410	9	7,107822
3	2,723248	10	7,721735
4	3,545950	11	8,306414
5	4,329477	12	8,863252
6	5,075692	13	9,393573
7	5,786373	14	9,898641

TABLE — *continued.*

Yrs.	Value.	Yrs.	Value.
15	10,379658	58	18,819542
16	10,837770	59	18,875754
17	11,274066	60	18,929290
18	11,689587	61	18,980276
19	12,085321	62	19,028834
20	12,462210	63	19,075080
21	12,821153	64	19,119124
22	13,163003	65	19,161070
23	13,488574	66	19,201019
24	13,798642	67	19,239066
25	14,093945	68	19,275301
26	14,375185	69	19,309810
27	14,643034	70	19,342677
28	14,898127	71	19,373978
29	15,141074	72	19,403788
30	15,372451	73	19,432179
31	15,592810	74	19,459218
32	15,802677	75	19,484970
33	16,002549	76	19,509495
34	16,192904	77	19,532853
35	16,374194	78	19,555098
36	16,546852	79	19,576284
37	16,711287	80	19,596460
38	16,867893	81	19,615677
39	17,017041	82	19,633978
40	17,159086	83	19,651407
41	17,294368	84	19,668007
42	17,423208	85	19,683816
43	17,545912	86	19,698873
44	17,662773	87	19,713212
45	17,774070	88	19,726869
46	17,880066	89	19,739875
47	17,981016	90	19,752262
48	18,077158	91	19,764059
49	18,168722	92	19,775294
50	18,255925	93	19,785994
51	18,338977	94	19,796185
52	18,418073	95	19,805891
53	18,493403	96	19,815134
54	18,565146	97	19,823937
55	18,633472	98	19,832321
56	18,698545	99	19,840306
57	18,760519	100	19,817910

EXAMPLE.

What is the present worth of an annuity of 30*l.* to continue for 16 years, at 5 per cent. compound interest? The value in the Table against 16 years is 10,837770, which multiplied by 30, gives the answer 325*l.* 2*s.* 7*d.*

Reversionary Annuities are those which do not commence till after a certain number of years, or till the decease of a person, or some other future event has happened.

The present value of an annuity which is not to commence till the expiration of a certain period, may be found by Table II. by deducting from the value of an annuity, for the whole period, the value of an annuity to the time at which the reversionary annuity is to commence.

Example. — What is the present value, at 5 per cent. compound interest, of 50*l.* per annum for 20 years, commencing at the end of seven years from the present time? The value of an annuity for 27 years is 14,643034, and the value of an annuity for seven years is 5,786373; the latter, deducted from the former, leaves 8,856661, which, multiplied by 50, gives 442*l.* 16*s.* 7*d.* the value of the reversionary annuity.

ANNUITIES, *Life*, annual payments to continue during any given life or lives. The present value of a life annuity is the sum which would be sufficient (allowing for the chance of the life failing) to pay the annuity without loss; and supposing money to pay no interest, the value of an annuity of 1*l.* is equal to the expectation of the life. Thus the expectation of a life aged 40 is 23 years; or in other words, that a set of lives of this age will, one with another, enjoy 23 years each of existence; some of them enjoying a duration as much longer as others fall short of it. Therefore, supposing money to bear no interest, 23*l.* in hand for each life would be sufficient to pay to every number of such lives 1*l.* per annum for their whole duration, or in other words, 23*l.* is on this supposition the value of a life aged 40. But if any improvement is made of money by putting it out to interest, the sum just mentioned will be more than the value, because it will be more than sufficient to pay the annuity, by as much as the improvement or interest is greater. Thus, if money may be so improved by being put out to interest at 5 per cent. as to double itself in 14 years, the seller of such an annuity on putting out half the purchase money to interest, will at the end of 14 years find himself in possession of 20*l.* 10*s.* being 11*l.* 10*s.* more than is sufficient to pay the remainder of the annuities, though he should make no further improvement of the purchase money. At whatever rate of interest the money is improved, there must be a surplus; and if it is *fully* improved at 5 per cent., it will be found that 11*l.* 16*s.* 8*d.* for each annuity will be sufficient (instead of 23*l.*) to make all the annual payments; or if money can be improved at 6*l.* per cent., 10*l.* 14*s.* 1*d.* will be sufficient. Many persons have fallen into an error respecting the value of life annuities, by considering it the same as the value of an annuity certain for a term of years equal to the expectation of the life. The inaccuracy of this mode of computation arises from the difference between the value of a certain number of payments to be made every year regularly till the term is completed, and the value of the same number of payments to be made at greater distances of time from one another, and not to be all made till many years after the expiration of the term equal to the expectation.

The true method of computing the values of life annuities cannot be more clearly expressed than as it is given in "The Doctrine of Annuities and Assurances on Lives and Survivorships," by William Morgan. "Was it *certain* that a person of a given age would live to the end of a year, the value of an annuity of 1*l.* on such a life would be the present sum that would increase in a year to the value of a life one year older, together with the value of the single payment of 1*l.* to be made at the end of a year; that is, it would be 1*l.* together with the value of a life aged one year older than the given life, multiplied by the value of 1*l.* payable at the end of a year. Call the value of a life one year older than the given life N, and the value of 1*l.* payable at the end of a year $\frac{1}{r}$; then will the value of an annuity on the given life, on the supposition of a *certainty*, be $\frac{1}{r} + \frac{1}{r} \times N = \frac{1}{r} \times \overline{1 + N}$. But the fact is, that it is *uncertain* whether the given life will exist to the end of the year or not. This last value, therefore, must be diminished in the proportion of this uncertainty; that is, it must be multiplied by the probability that the given life will survive one year, or supposing $\frac{b}{a}$ to express this probability, it will be $\frac{b}{a\,r} \times \overline{1 + N}$. In the same manner the values of annuities on the *joint continuance* of lives may be found: Call the value of any two joint lives M, the probability that two lives one year younger will exist a year $\frac{b\,d}{a\,c}$, and $\frac{1}{r}$ as above, the value of 1*l.* payable at the end of the year. Then, by reasoning as before, the value of the joint continuance of two lives one year younger will be expressed by $\frac{b\,d}{a\,c\,r} \times \overline{1 + M}$."

By these theorems tables may be calculated of the values of single or joint lives, according to any table of the probabilities of life, and by the use of logarithms, and computing upwards from the oldest to the youngest life, the labour of forming such tables is not very great; few persons, however, have occasion to undertake it, as the tables published by Dr. Price, Mr. Morgan, and Mr. Maseres, shew the values of life annuities as accurately as the present knowledge of the decrements and duration of human life will admit, and are sufficient for almost every useful purpose.

TABLE I.

Shewing the Value of an Annuity of 1*l.* on a Single Life, at every Age, according to the Probabilities of the Duration of Human Life at Northampton, reckoning Interest at 5 per Cent.

Age.	Value.	Age.	Value.
Birth.	8.863	49	10.443
1 year	11.563	50	10.269
2	13.420	51	10.097
3	14.135	52	9.925
4	14.613	53	9.748
5	14.827	54	9.567
6	15.041	55	9.382
7	15.166	56	9.193
8	15.226	57	8.999
9	15.210	58	8.801
10	15.139	59	8.599
11	15.043	60	8.392
12	14.937	61	8.181
13	14.826	62	7.966
14	14.710	63	7.742
15	14.588	64	7.514
16	14.460	65	7.276
17	14.334	66	7.034
18	14.217	67	6.787
19	14.108	68	6.536
20	14.007	69	6.281
21	13.917	70	6.023
22	13.833	71	5.764
23	13.746	72	5.504
24	13.658	73	5.245
25	13.567	74	4.990
26	13.473	75	4.744
27	13.377	76	4.511
28	13.278	77	4.277
29	13.177	78	4.035
30	13.072	79	3.776
31	12.965	80	3.515
32	12.854	81	3.263
33	12.740	82	3.020
34	12.623	83	2.797
35	12.502	84	2.627
36	12.377	85	2.471
37	12.249	86	2.328
38	12.116	87	2.193
39	11.979	88	2.080
40	11.837	89	1.924
41	11.695	90	1.723
42	11.551	91	1.447
43	11.407	92	1.153
44	11.258	93	0.816
45	11.105	94	0.524
46	10.947	95	0.238
47	10.784	96	0.000
48	10.616		

These values suppose the payments to be made *yearly*, and to begin at the end of the first year; if the payments are to be made *half-yearly*, the value in the table will be increased about one-fifth of a year's purchase.

In order to find the present value of an annuity during any given life, it is only necessary to multiply the value in the table corresponding with the age, by the given annuity.

Example. What should a person aged 45 give, to purchase an annuity of 50*l.* during his life?

The value in the table against 45 years is 11.105, which multiplied by 50, gives the answer 555*l.* 5*s.*

TABLE II.

Shewing the value of an Annuity during the joint continuance of Two Lives, according to the probabilities of life at Northampton, reckoning interest at 5 per cent.

Ages.	Value.	Ages.	Value.
5—5	11.984	20—25	10.989
5—10	12.315	20—30	10.707
5—15	11.954	20—35	10.363
5—20	11.561	20—40	9.937
5—25	11.281	20—45	9.448
5—30	10.959	20—50	8.861
5—35	10.572	20—55	8.216
5—40	10.102	20—60	7.463
5—45	9.571	20—65	6.576
5—50	8.941	20—70	5.532
5—55	8.256	20—75	4.424
5—60	7.466	20—80	3.325
5—65	6.546	25—25	10.764
5—70	5.472	25—30	10.499
5—75	4.362	25—35	10.175
5—80	3.238	25—40	9.771
10—10	12.665	25—45	9.304
10—15	12.302	25—50	8.739
10—20	11.906	25—55	8.116
10—25	11.627	25—60	7.383
10—30	11.304	25—65	6.515
10—35	10.916	25—70	5.489
10—40	10.442	25—75	4.396
10—45	9.900	25—80	3.308
10—50	9.260	30—30	10.255
10—55	8.560	30—35	9.954
10—60	7.750	30—40	9.576
10—65	6.803	30—45	8.135
10—70	5.700	30—50	8.596
10—75	4.522	30—55	7.999
10—80	3.395	30—60	7.292
15—15	11.960	30—65	6.447
15—20	11.585	30—70	5.442
15—25	11.324	30—75	4.365
15—30	11.021	30—80	3.290
15—35	10.655	35—35	9.680
15—40	10.205	35—40	9.331
15—45	9.690	35—45	8.921
15—50	9.076	35—50	8.415
15—55	8.403	35—55	7.849
15—60	7.622	35—60	7.174
15—65	6.705	35—65	6.360
15—70	5.631	35—70	5.382
15—75	4.495	35—75	4.327
15—80	3.372	35—80	3.268
20—20	11.232	40—40	9.016

TABLE — *continued.*

Ages.	Value.	Ages.	Value.
40—45	8.643	55—55	6.735
40—50	8.177	55—60	6.272
40—55	7.651	55—65	5.671
40—60	7.051	55—70	4.893
40—65	6.240	55—75	4.006
40—70	5.298	55—80	3.076
40—75	4.272	60—60	5.888
40—80	3.236	60—65	5.372
45—45	8.312	60—70	4.680
45—50	7.891	60—75	3.866
45—55	7.411	60—80	2.992
45—60	6.822	65—65	4.960
45—65	6.094	65—70	4.378
45—70	5.195	65—75	3.665
45—75	4.206	65—80	2.873
45—80	3.197	70—70	3.930
50—50	7.522	70—75	3.347
50—55	7.098	70—80	2.675
50—60	6.568	75—75	2.917
50—65	5.897	75—80	2.381
50—70	5.054	80—80	2.018
50—75	4.112	85—85	1.256
50—80	3.140	90—90	0.909

It is unnecessary to insert a Table of the values of the longest of two lives, as it may be easily found in the values given in the above tables by the following general rules:

"From the sum of the values of the single lives subtract the value of an annuity on the joint lives, and the remainder will give the value of an annuity on the continuance of the longest of two such lives."

Example. What is the value of an annuity on the longest of two lives whose ages are 30 and 40?

By table I. the value of a single life of 30 is 13.072, and by the same Table the value of a single life of 40 is 11.837. Their sum therefore is 24.909, from which 9.576 (the value of the joint lives of 30 and 40 by Table II.) being subtracted gives 15.333 for the number of years' purchase required.

The value of an annuity on three joint lives, may be found from the preceding tables, by the following rule:

"Let A be the youngest, and C the oldest of the three proposed lives. Take the value of the two joint lives B and C, and find the age of a single life D of the same value. Then find the value of the joint lives A and D, which will be the answer."

Example. Let the three given lives be 20, 30, and 40. The value of the two oldest joint lives B and C will (by Table II.) be 9.576, answering in Table I. to a single life D of 54 years; and the value of the joint lives A and D, or the ages in the Table which come nearest to them, gives 8.216 for the value sought.

The value of three joint lives being known, the value of the longest of any three lives may be computed by the following rule:

"From the sum of the values of all the single lives, subtract the sum of the values of all the joint lives combined two and two. Then to the remainder add the value of the three joint lives; and this last sum will be the value of the longest of the three lives."

Example. The sum of the values of three single lives, whose ages are 20, 30, and 40, is (by Table I.) 38.916. The value of two joint lives whose ages are 20 and 30, is (by Table II.) 10.707; of two joint lives whose ages are 20 and 40, is 9.937, and two joint lives, whose ages are 30 and 40, is 9.576; the sum of these three values is 30.220. This sum subtracted from 38.916, leaves 8.696, which remainder added to 8.216 (the value of the three joint lives in the last example), gives 16.912, the value of the longest of the three lives. The answers in this and the preceding example are not quite exact, in consequence of the table of joint lives being confined to the combinations of every fifth year of age; those who have occasion to make such computations, will find more extensive tables of the values of joint lives in Dr. Price's excellent Treatise on Reversionary Payments; but a general table of the values of two joint lives for every possible difference of age, at different rates of interest, has long been very desirable.

The solutions of the following Problems, in addition to the rules already given, will comprehend all the cases which most commonly occur, relating to the values of annuities on lives or survivorship.

PROB. I. To determine the value of an annuity on a given life for any number of years.

Solution. Find the value of a life as many years older than the given life as are equal to the term for which the annuity is proposed. Multiply this value by 1*l.* payable at the end of this term, and also by the probability that the life will continue so long. Subtract the product from the present value of the given life, and the remainder multiplied by the annuity will be the answer.

Example. Let the annuity be 20*l.* the age of the given life 35 years, and the term proposed 14 years. The value of a life aged 49 years (or 14 years older than the given life), appears by Table I, to be 10.443. The value of 1*l.* payable at the end of 14 years is .505068, and the probability that the life will exist so long, is $\frac{2916}{4010}$. These three values multiplied into each other are equal to 3.861, which being subtracted from 12.502 (the present value of the given life by Table I.) we have 8.641, and this remainder multiplied by 20, gives 162*l.* 16*s.* 4*d.* for the value required.

In a similar manner the value of an annuity for any given term, upon two joint lives may be determined.

PROB. II. To find the value of an annuity certain for a given term after the extinction of any given life or lives.

Solution. Subtract the value of the life or lives from the perpetuity, and reserve the remainder. Then say, as the perpetuity is to the present value of the annuity certain, so is the said reserved remainder, to a fourth proportional, which will be the number of years' purchase required.

Example. A and his heirs are entitled to an annuity certain for 14 years, to commence at the death of B, aged 35. What is the present value of A's interest in this annuity?

By Table I. the value of the life of B is 12.502, which subtracted from 20, the perpetuity, leaves 7.498 for the remainder to be reserved. Then, as 20 is to 9.898 (the value of an annuity certain for 14 years), so is 7.498 (the reserved remainder), to 3.7107, the number of years' purchase required.

Prob. III. To find the value of an annuity for a term certain, and also for what may happen to remain of a given life or lives after the expiration of this term.

Solution. Find the value of a life or lives as many years older than the given life or lives as are equal to the term for which the annuity certain is proposed. Multiply this value by 1*l.* payable at the end of the given term, and also by the probability that the given life or lives will continue so long. Add the product to the value of the annuity certain for the given term, and the sum will be the answer.

Example. Let the value be required of an annuity certain for 14 years, and also for the remainder of a life now aged 35 after the expiration of this term. By Table I. the value of a life aged 49 (or 14 years older than the given life) is 10.443. The value of 1*l.* payable at the end of 14 years, is .505068, and the probability that the life will exist so long is $\frac{296}{4310}$. These three numbers multiplied into each other, produce 3.861, which being added to 9.898, the value of an annuity certain for 14 years, becomes equal to 13.759, the number of years' purchase required.

Prob. IV. To determine what annuity any given sum will purchase during the joint lives of two persons of given ages, and also during the life of the survivor, on condition that the annuity shall be reduced one-half at the extinction of the joint lives.

Solution. Let twice the given sum be divided by the sum of the two single lives, and the quotient will give the annuity to be paid during the joint lives; one half of which is therefore the annuity to be paid during the remainder of the surviving life.

Example. A aged 27, and B aged 35, are desirous of sinking 1000*l.* in order to receive an annuity during their joint lives, and also another annuity of half the value during the remainder of the surviving life. It is required to determine what annuities should be granted them under those circumstances. By Table I. the value of a life of 27 is 13.377, and the value of a life of 35 is 12.502. 2000*l.* (or twice the given sum) being divided by 25.879 (the sum of the values of the two lives), gives 77.282*l.* for the annuity to be granted during the joint continuance of the lives; and its half, or 38.641*l.* is the annuity to be paid during the life of the survivor.

Prob. V. B, who is of a given age, will, if he lives till the decease of A, whose age is also given, become possessed of a perpetual annuity, or of an estate of a given yearly value; to find the worth of his expectation in present money.

Solution. Find the value of an annuity on two equal joint lives, whose common age is equal to the age of the oldest of the two proposed lives, which value subtract from the perpetuity, and take half the remainder: then say, as the expectation of duration of the younger of the two lives, is to that of the older, so is the said half remainder, to a fourth proportional; which will be the number of years' purchase required when the life of B in expectation is the older of the two: but if B be the younger, then add the value so found to that of the joint lives A and B, and let the sum be subtracted from the perpetuity, and you will also have the answer in this case.

Example. Suppose the age of B to be 30, and that of A 20 years, and the value of the estate 50*l.* per annum. Then the value of two equal joint lives, aged 30, is by Table II. 10.255, and the perpetuity being 20, the difference will be 9.745, the half of which is 4.872. Therefore as 33.43, the expectation of A, is to 28.27, the expectation of B, so is 4.872, to 4.119, which, being multiplied by 50, the given annuity, we have 205.95*l.* for the required value of B's expectation.

If the age of B had been 20, and that of A 30 years, then to 4.119, the value just found, add the value of the joint lives, which, by Table II., is 10.707, and the sum is 14.826, which subtracted from 20, the perpetuity, and the remainder multiplied by 50, gives 258.7*l.* for the required value in this case.

Having given this illustration of life annuities, it is necessary to show how far they are protected, or prohibited, by law.

The practice of purchasing annuities for lives at a certain price or premium, instead of advancing the money on an ordinary loan, generally arises from the inability of the borrower to give the lender a permanent security, for the return of the money borrowed at any one period of time: he therefore stipulates (in effect) to repay annually, during his life, some part of the money borrowed, together with legal interest, for so much of the principal as annually remains unpaid, and an additional compensation for the extraordinary hazard run, by the contingency of the borrower's death; all which considerations taken together constitute the

just proportions or quantum of annuity to be granted. 2 *Black.* 461.

The real value of the contingency, then, as has been explained, depending on the age, constitution, situation, and conduct of the borrower, the price of annuities (each case depending on its own particular circumstances,) cannot be reduced to any general rules. It is sufficient, therefore, with reference to this particular view of the subject, to observe, that if the lender's principal be really and *bonâ fide* put into jeopardy, no inequality of price alone will make the transaction usurious, although in cases of great enormity relief may sometimes be obtained in equity. *Carth. Rep.* 67.

The legislature has, by different statutes, endeavoured to throw some checks in the way of improvident transactions of this kind. The first of these was 17 Geo. 3. c. 17.; but this statute was so fraught with formalities to be observed, and *these* were expressed in such indistinct terms, that it not only became the fruitful source of endless litigation, but actually subjected the fairest transactions to insuperable difficulties, and the most unwarranted imputations. Wherefore it was repealed, as to all prospective operation, by 53 Geo. 3. c. 141. By the last-mentioned statute, it is enacted, that within 30 days after the execution of every deed or instrument, whereby *any annuity or rent charge* shall be granted for one or more lives, or for term of years determinable on a life or lives, a memorial of the date of every such deed or instrument, with the names of all the parties and all the witnesses, and of the persons for whose lives such annuity, &c. shall be granted, and of the person by whom the same is to be beneficially received, with the consideration and annual sum to be paid, shall be enrolled in the Court of Chancery, or be void to all intents and purposes.

By sect 8. all contracts for the purchase of annuities by persons under age are declared to be void, notwithstanding *any attempt to confirm the same after such person shall have attained the age of* 21. Moreover, every person who shall by *any means* solicit or ask any person under the age of 21 years *to grant, or attempt to grant,* any such annuity or rent charge, or to execute any deed, &c. for such purpose, shall be guilty of a misdemeanor, and on conviction before any court of assize, oyer and terminer, or general gaol delivery, shall be punished by fine, imprisonment, or other corporal punishment, at the discretion of the court.

By sect. 9. all attornies, agents, and brokers, soliciting or procuring any loan, actually paid for any such annuity, over and above 10*s.* in the hundred, shall be in like manner guilty of a misdemeanor, and be punished on conviction as aforesaid, by fine and imprisonment, *or one of them;* and the parties paying the gratuity or reward shall be competent witnesses to convict.

Exceptions, as to Scotland and Ireland, and other parts beyond the seas; to annuities granted by will, marriage settlement, and bodies corporate, and to voluntary annuities, granted without regard to pecuniary consideration, are introduced in the last section of the statute.

ANNUL, in book-keeping, signifies to render an article null by making it of no import in the account. Instead of erasing a sum that has been carried by mistake to the credit side of an account, the account is debited for the same sum; and, on the contrary, if a sum has been placed to the debtor side of an account, the same sum is placed to the credit of the account, and it is customary to mark the article thus *annulled* with the same letters, as A A. or B B. after which the said sum is carried to account, as it ought to have been if no error had happened.

ANTEDATE, a spurious or false date, prior to the true date of a bond, bill, &c. Antedates are of a very dangerous consequence in matters of trade. *See* BILLS OF EXCHANGE, on this subject.

ANTI-ATTRITION, a word of modern introduction, as a denomination for an unctuous mixture; for the preparation of which a patent was obtained in 1813. According to the specification, the mixture consists of one hundred weight of plumbago, to four hundreds of hogs-lard, or other grease, the two to be well incorporated. The application is to prevent the effects of friction in all descriptions of engines or machines; and a sufficient quantity must be rubbed over the surface of the axle, spindle, or other part where the bearing is.

ANTIMONY, (Ger. & Du. *Spiesglas.* Da. *Spidseglas.* Sw. *Spitsglas.* Fr. *Antimoine.* It. Sp. & Port. *Antimonio.* Rus. *Antimonia.* Pol. *Spiszglas.* Lat. *Antimonium,*) one of the semi-metals, separated by fusion from a very hard and heavy lead-coloured substance, called ore of antimony: this ore is composed of a number of extremely small sparkling granules, which give it the appearance of a lump of the purest steel, when fresh broken. Antimony is of a greyish white colour, and has a good deal of brilliancy. Its texture is laminated, and exhibits plates crossing each other in every direction, and sometimes assuming the appearance of imperfect crystals. When rubbed upon the fingers it communicates to them a peculiar taste and smell. The mines, whence antimony is taken, are situated in Hungary, Transylvania, Bohemia, Saxony, and many parts of France. Founders, pewterers, and clock-work makers, all make use of antimony. It is also much used in pharmacy.

ANVILS, (Ger. *Ambosse.* Du. *Aanbeelden.* Da. *Ambolder.* Sw. *Ambultar.* Fr. *Enclumes.* It. *Ancudini.* Sp. *Yunques.* Port. *Bigornias.* Rus. *Nakowalniii.* Pol.

Kowadla,) large masses of iron, used by several handicraftsmen, who work and forge, or hammer metals, particularly by silversmiths, blacksmiths, locksmiths, farriers, armourers, &c. There are two sorts of *Anvils:* some are forged, and others cast; the former are made by the blacksmiths, and the latter are cast in the founderies.

The best are those which are hammered, and the upper part of which is steel.

APOTHECARY, one who practises the art of pharmacy, which is that part of physic consisting in the choice, the due preparation, and mixture, of medicines. In London, the apothecaries are one of the City Companies, and by an act, which was made perpetual in the 9th year of Geo. 1. are exempted from serving upon juries, or in ward, and parish, offices.

The faculty of Apothecaries was incorporated by a charter of King James I.; but the provisions therein made for the regulation of the fraternity having proved inadequate, they are further regulated by 55 Geo. 3. c. 194. This statute repeals such of the provisions of the charter of James, as refer to certain powers given to the masters and wardens of the company to enter shops, examine medicines, and impose penalties. In lieu thereof, it gives authority to certain persons to be appointed, not being fewer in number than two, to enter the shops of all apothecaries, and examine the medicines and other things sold by them, and to burn and destroy all which they shall find to be false, unlawful, stale, corrupt, pernicious, or hurtful; as also to report the same to the master and society, who shall have power to levy a fine of 5*l.* for the first, 10*l.* for a second, and 20*l.* for every subsequent offence. It further imposes a penalty on all apothecaries who shall refuse to compound or sell, as well as who shall negligently or unfaithfully compound or sell, any medicine directed by any prescription of any physician *lawfully licensed* to practise physic, by complaint before a justice of the peace, within 21 days, by such physician. It prohibits any person from beginning to practise as an apothecary in England and Wales, after August 1. 1815, without having previously obtained a certificate, on pain of forfeiting 5*l.* and of being disabled from recovering any charges claimed by him in any court of law.

Penalties not exceeding 5*l.* to be recovered by information before justices of the peace; all above 5*l.* by action in the name of the master and wardens. Chymists and druggists are exempted from the operation of this statute, and all actions under it are limited to six months.

APPAREL. *See* WEARING APPAREL.

APPEAL, in its general acceptation, signifies a reference of some question in dispute from the determination of an inferior, to that of a superior, authority. In this sense it is used when the order or conviction of one or more individual magistrates is carried by *appeal* to the Court of Quarter Session. But it has also another *legal* interpretation; for in early times, when a pecuniary compensation to parties injured by the commission of any public offence, made part, at least, of the punishment of offenders, the civil suit which was allowed to be prosecuted by the person injured, or his relatives, for the recovery of this compensation, was denominated an Appeal. Of these there were several kinds formerly, but, except in the single case of murder, they have long become obsolete, and even in *that* the difficulties are such that it is seldom resorted to. 1 *Bac. Ab.* 190.

APPLES. *See* CYDER.

APPRAISEMENT, the valuing or setting a price on goods. If a sworn-appraiser value goods too high, he is obliged to take them at the price appraised. 13 Edw. I. Persons appraising estates or effects, for hire or reward, not being licensed auctioneers, must take out a licence, under penalty of 50*l.* 46 Geo. 3. c. 43. Appraisers neglecting to set down appraisements on paper duly stamped, forfeit 50*l.*; and persons employing them, and receiving such appraisement without stamp, forfeit 20*l.* Id.

The stamp duties are as follow: —

		£.	s.	d.
Amount, not exceeding	50*l.* duty	0	2	6
-	100	0	5	0
-	200	0	10	0
-	500	0	15	0
Exceeding	500	1	0	0

Exemptions. — Appraisements in admiralty, and for ascertaining legacy duties. *See further, title* AUCTIONEER.

APPRENTICE, a youth of either sex, bound by indenture to some person, in order to be instructed in a certain science, mystery, or trade. The 5 Eliz. c. 4. is the statute on which the foundation of all apprenticeships rests. The different provisions of its various sections have been extended, restricted, modified, or repealed, respectively, as the successive alterations in the circumstances of the times suggested; but still it remains the corner-stone of the fabric. It directs the means, and the manner, of binding, the time for which apprentices shall be bound, and the consequences of disobedience to its injunctions. It is *general*, and applies to apprentices of all descriptions and denominations. The 43 Eliz. c. 2. regulates the binding of the poor by the instrumentality of the parochial officers, in *particular*.

The 2 & 3 Ann. c. 6. applies especially to the binding of the children of paupers and vagrants to the sea service.

The 20 Geo. 2. c. 19. (amended by 32 Geo. 3. c. 57. and 33 Geo. 3. c. 55.) provides for the settlement of disputes between masters and apprentices.

The 48 Geo. 3. c. 98. is the most recent, which imposes the duties to be paid on all indentures of apprenticeship (those of paupers excepted), according to a certain progressive augmentation, in proportion to the amount of the consideration inserted in the indenture.

On so comprehensive a subject, and on which such an unusual number of statutes have been enacted, any attempt to compress, within the necessary limit here, any thing like an epitome of the whole law, is impracticable. The best books to apply to for technical and particular information, are, *Chitty on Apprentices*, and *Dickinson's Practical Exposition*. Suffice it here, therefore, to submit only some such general information as may be subservient to daily use, with such of the most recent provisions of the legislature as are not yet, perhaps, universally known.

The deed by which an apprenticeship is created must be indented, for otherwise it does not satisfy the words of the 5 Eliz. which mentions an "*indenture*." And if a deed-poll were to be indented afterward, it would be a forgery.

The 5 Eliz. directs all indentures of apprenticeship to be for 7 years *at least*; but it has been repeatedly determined, that if the apprentice arrive at the age of 21 before the expiration of the term, he may elect to avoid them, and *that*, though he be himself a party to the instrument.

The 5 Eliz. also says, that all indentures for a term less than 7 years shall be void. But the interpretation put on the word *void*, by the courts of law, has also been "*voidable*" at the option of the parties.

A counterpart of an indenture is generally made; but it is not necessary, except in the case of an apprentice to the sea service, and in *that* it is specially made so by statute.

An apprentice cannot, however, avoid his indentures by the commission of an offence, as absconding; for though he might when of age declare his dissent legally, he cannot take advantage of a crime, committed for the purpose of dissolving them, inferentially.

Parish apprentices, by the 43 Eliz., must be bound by the major part of the churchwardens and overseers, with the consent of two justices. And by 56 Geo. 3. c. 139. it is directed that the indenture shall be allowed by two justices of the county *into* which the apprentice is to be bound, as well as by two of the county *from* which he is bound. By this statute also it is prohibited to bind poor children till they shall have respectively attained the age of nine years, nor to any person living at a greater distance than 40 miles from the place to which every such child shall belong (except in certain cases), under a penalty on the overseers binding, and also on the master receiving, of 10*l.* respectively. Nor shall any master be at liberty to discharge, or dismiss, or assign any such apprentice, without the consent in like manner of two justices, under a similar penalty of 10*l.*

There was in the 5 Eliz. a restraining clause, prohibiting all persons from setting up and exercising any trade or mystery, except they had served an apprenticeship for seven years. This clause operated as an impolitic restraint upon genius, upon industry, and upon the use of capital. On the interpretation of the clause itself there were many conflicting determinations, and at last it was repealed by 54 Geo. 3. c. 96. (except so far as the bye laws of any city, corporation, &c. are concerned.) This last-mentioned statute further repeats the prohibitions contained in the 5 Eliz. against the taking apprentices in any other manner, and for any other periods, than those specified in that statute, as also the penalties imposed by it for such contravention of its provisions; and enacts that all indentures, deeds, and agreements in writing, relating to such apprenticeships, which would be otherwise valid and effectual, shall be valid and effectual.

The 56 Geo. 3. c. 67., in reference to the bye laws of many cities and corporations, which might prevent the advantage held out by the foregoing statute of 54 Geo. 3. from being communicated to many persons who had not served out the full time of their apprenticeships, but who meritoriously served in the late wars, enacts that *all such persons (notwithstanding any such bye law of any such city, corporation, &c.)* who shall have served in the king's service since June 22. 1802, and not have deserted, shall be enabled, as also their wives and children, without let, suit, or molestation, to set up and exercise any trade in any city, town, or other place within the kingdom, and shall not be liable to be removed from such city, town, &c. to their last legal place of settlement, unless actually chargeable; and further, if any such person, or his wife or child, shall be sued, indicted, or impleaded for setting up, &c. any such trade, and be found not guilty, in consequence of having proved that he had so served his majesty, he shall have double costs.

The consequences of serving an apprenticeship, so far as respects the settlement of the person who has served, belongs more properly to title *Settlement*.

Such is the *general* outline of the provisions respecting apprentices which come within the design of this work. *Local* regulations it is impracticable to notice, at least beyond a few prominent ones that affect the metropolis. The chamberlain of London has particular cognizance of every thing relating to apprenticeships within the jurisdiction of the city. Disorderly apprentices may be committed by him to Bridewell. If a master refuse to make the apprentice free after the expiration of his service, upon complaint to the chamberlain, he will summon the master; and if the judgment be in favour

of the apprentice, he shall have his freedom. If the master refuse to appear to the chamberlain's summons, the lord mayor or recorder may compel his appearance by warrant. If an apprentice wilfully omit to take up his freedom within a reasonable time, it is said the chamberlain may impose a fine upon him.

It is laid down by many authorities that apprentices cannot be the subjects of assignment; and in strictness they could not be assigned *generally;* but in case of the decease of the master, or his insolvency, and in some other events, modern statutes have obliquely, at least, permitted such transfers. However, by the custom of London, an apprentice might be assigned or turned over by his master *being a freeman* of the city, to any other master being *also a freeman.* It is said an apprentice may be discharged from his apprenticeship in the city of London for the following causes. 1. For unmerciful correction, or the withholding of necessaries in food, cloathing, &c. 2dly. For turning him away and refusing to receive him. 3dly. In case of his relinquishing his trade and refusing to provide his apprentice with some other master. 4thly. If the master remove out of the freedom. 5thly. If he neglect or refuse instruction to his apprentice. 6thly. If the apprentice be under the age of 14 when bound. 7thly. If the indenture be for less than seven years. 8thly. If the indenture be not enrolled before the chamberlain within the first year.

APPRONITRE, a kind of natural saltpetre, gathering, like an efflorescence, on old walls, now called salt-petre of the rock. *See* SALT-PETRE.

AQUA FORTIS, (Ger. *Scheidewasser.* Du. *Sterkwater.* Da. *Skedevand.* Sw. *Skedvatten.* Fr. *Eau-forte.* It. *Acqua-forte.* Sp. *Agua-fuerte.* Port. *Aqua-forte.* Rus. *Wodka Krepkaja.* Pol. *Stychwaser.* Lat. *Aqua fortis*). *See* ACID, *Nitric.*

AQUA MARINA, or Aqua Marine, a name by which the jewellers call the beryl, on account of its sea-green colour.

AQUA REGIA, (Ger. *Konigswasser.* Du. *Koningswater.* Dan. *Kongevand.* Sw. *Kungswatten.* Fr. *Eau Regale.* It. *Acqua regia.* Sp. *Aqua rejia ó real.* Port. *Aqua regia ou regal.* Lat. *Aqua regia*). *See* ACID, *Muriatic.*

AQUA SECUNDA, aquafortis diluted with water and employed in the arts.

AQUA SIMPLEX, or *Simple Water,* is aqua fortis that has been distilled, and has nothing left but phlegm. It is used in the mint, and by silversmiths, in order to begin to soften the grains of silver.

AQUATINTA, a method of engraving which very much resembles drawing in Indian ink. This process consists in corroding the copper with aqua fortis, in such a manner, that an impression from it has the appearance of a tint laid on the paper. This is effected by covering the copper with a substance, which takes a granulated form, so as to prevent the aqua fortis from acting where the particles adhere, and by this means cause it to corrode the copper partially, and in interstices only. When these particles are extremely minute, and near to each other, the impression from the plate appears to the naked eye like a wash of Indian ink. But when they are larger, the granulation is more distinct; and as this may be varied at pleasure, it is capable of being adapted to a variety of purposes and subjects.

The matter generally used for this purpose, is composed of equal parts of asphaltum, and transparent rosin, reduced to powder and sifted on the plate, (which has been previously greased,) through a fine sieve. The plate is then heated so as to make the powder adhere, and the artist scrapes it away when a very strong shade is wanted, and covers those parts with varnish where he wishes a very strong light to appear. The aqua fortis, properly diluted with water, is then put on within a fence of wax, as in common etching for engraving, and by repeated applications, covering the light parts still with varnish, the effect is produced.

AQUA VITÆ, (Ger. Du. Da. and Sw. *Aquavit.* Fr. *Eau-de-vie.* It. *Acqua vite.* Sp. and Port. *Agua de vida.* Rus. *Wodka.* Pol. *Gorzalka.* Lat. *Aqua vitæ*) answers to the *eau de vie* of the French, and *whiskey* of the Scotch, and is a name familiarly applied to all native distilled spirits. In this way it is used in the excise laws relating to the regulation of the distilleries.

AQUIFOLIUM, the *holly-tree.* From the bark of the *holly* is made a bird-lime, and the wood is used by turners, being very hard and white, and taking a smooth polish.

ARAINES, striped or checked armorines or taffeties, which come from the East Indies.

ARANEA, a silver ore found only in Potosi, and in the single mine there of Catamito. It owes its name to some resemblance it bears to a *cobweb,* (a spider being called *aranea* in Latin,) being composed of threads of pure silver, which to the sight appear like a silver lace, when burned to separate the silk from it. It is the richest of all kinds of silver ore.

ARATE, a weight in Portugal. *See* AROBE.

ARBITRAMENT, or Arbitration, is a power given by two, or more, contending parties, to some person or persons to determine the dispute between them. Matters relating to a freehold, debts due on a bond, and criminal offences, may not be arbitrated. If the party injured by a criminal act, however, proceed by way of civil action, as in assault or libel, &c. the damages may be submitted to arbitration; also in case of a

breach of promise of marriage. The *submission* to arbitration must be an agreement, or bond, upon a stamp, and must not be construed strictly, but largely, according to the intent of the parties submitted. It not uncommonly contains a clause to protect the arbitrators from any suit in equity that might be brought against them in consequence of their award; also one to enable them in case they cannot agree, to call in a third arbitrator, by mutual agreement, who is called an umpire. An action of debt may be brought for money adjudged to be paid by arbitrators.

Form of a Bond of Arbitration.

Know all men by these presents that I, A. B. of the parish, &c. in the county, &c. merchant, am held and firmly obliged to C. D. of, &c. in the county aforesaid, in the sum of —— pounds, of good and lawful money of Great Britain, to be paid to the said C. D. or his certain attorney, his executors, administrators, or assigns, to which payment, well and truly to be made, I oblige myself, my heirs, executors, and administrators, firmly by these presents, sealed with my seal, dated at ——, on the —— day of ——, in the —— year of the reign of our sovereign Lord King George III. and in the year of our Lord God, one thousand eight hundred and ——. The condition of the obligation is such, that if the above bound A. B. his heirs, executors, and administrators, for his and their parts and behalfs, do in all things well and truly stand to, obey, abide by, perform, fulfil, and keep the award, order, arbitrament, final end and determination of E. F. and G. H. arbitrators, indifferently named, elected, and chosen, as well on the part and behalf of the above-bounden A. B. as of the above-named C. D. to arbitrate, award, order, judge, and determine of, and concerning all, and all manner of action and actions, cause and causes of actions, suits, bills, bonds, specialities, judgments, executions, extents, quarrels, controversies, trespasses, damages, and demand whatsoever at any time or times, heretofore had, made, moved, brought, commenced, sued, prosecuted, done, suffered, committed or depending, by or between the said parties, so as the said award be made, and given up in writing, under their hands and seals, ready to be delivered to the said parties, on or before the —— next ensuing the date above mentioned: but if the said arbitrators do not make such their award of, and concerning the premises, by the time aforesaid, that then if the said A. B. his heirs, executors, and administrators, for his and their part and behalf, do in all things well, and truly stand to, obey, abide by, perform, fulfil, and keep the award, order, arbitrament, umpirage, final end, and determination of J. K. umpire, indifferently chosen between the said parties, of, and concerning the premises, and deliver the same in writing under his hand and seal, to the said parties, on or before the —— next, ensuing the date aforesaid; then this obligation to be void, or otherwise to be, and remain in full force and virtue.

Signed, sealed, and delivered, A. B.
in the presence of L. M.
N. O.

NOTE.—If there be no umpire, the latter part must be omitted, viz. from "but if the said arbitrators, &c." Though it is now customary to choose three arbitrators, and have them nominated in the bonds.

The aforesaid bond must be mutual between the said parties; and the following clause may be added at the end of the condition, as the agreement mentioned in an act of parliament made in the year 1698, viz. "And the above-mentioned A. B. doth agree and desire, that this his submission to the award above-mentioned be made a rule of His Majesty's court of King's Bench, (or any other court of record,) pursuant to the act of parliament for this purpose made and provided, and the like for the other party submitting to such award. *See* AWARD.

ARBITRATION of *Exchanges*. *See* EXCHANGES.

ARBITRATOR, is an extraordinary private judge, between party and party, chosen by their mutual consent, to determine controversies between them.

ARBOR, in mechanics, the principal part of a machine which serves to sustain the rest; also the axis or spindle on which a machine turns, as the arbor of a crane, wind-mill, &c.

ARCH, prefixed to any official designation, is an addition of dignity; as Arch-Duke, Arch-Bishop, Arch-Deacon, &c. and means nothing more than *principal*, being derived from a Greek word, signifying a *chief*.

An Archbishop is that person who has supreme power, under the sovereign, in all *ecclesiastical* causes; he is a principal bishop; the chief of the clergy within his province. It is the right of the Archbishop of Canterbury to call the bishops and clergy to convocation, upon the king's writ: he has a jurisdiction in cases of appeal, where there is a supposed default of justice in the ordinary. He may confer degrees of all kinds, censure, excommunicate, suspend, and depose, for any just cause. He is the first peer of the realm, and has precedence, after the blood royal, before all the nobility of the realm.

ARCHES, the Court of, is the most ancient, and chief, consistory court, belonging to the Archbishop of Canterbury, for debating spiritual causes. The judge of the court is styled the Dean of the Arches. He has extraordinary jurisdiction in all ecclesiastical causes, except what belong to the prerogative court; also all appeals from bishops, chancellors, deans, archdeacons, &c. &c. Beside these he has a peculiar jurisdiction

over thirteen parishes in London, exempt from the authority of the Bishop of London.

ARCHETYPE, the original or model, whence any performance is taken. It also signifies the original weight or standard, which is kept at the mint, and by which all other weights ought to be adjusted and examined.

ARCHIL, ARCHILIA. *See* ORCHILLA.

ARCHIVES, the *Rolls*, or any place where ancient records are kept; also the *Chancery*, *Exchequer Office*, or the private repository in libraries.

ARCTIC *Pole*, in astronomy, the north pole, or that elevated above the horizon in north latitude.

ARCTIC *Circle*, a lesser circle of the sphere parallel to the equinoctial, and 66° 30′ distant from it towards the north pole.

ARDASSES, or ARDASSINE, the coarsest of all the silks in Persia.

AREB, a nominal money used in accounts in India, equal to five shillings sterling.

ARECA, *Indian nut*. *See* JAPAN EARTH.

ARGOL, or ARGAL, (GER. *Weinstein*. DU. *Wynsteen*. DA. *Vinsteen*. SW. *Vinsten*. FR. *Tartre*. IT. SP. and PORT. *Tartaro*. RUS. *Winniü kamen*. POL. *Waystin*. LAT. *Tartarus*) tartar, or the lees of wine, used by dyers. *See* DYEING.

ARGIL, (GER. *Töpfererde*. DU. *Potüarde*. DAN. *Potteleer*. SW. *Krukomakare-lera*. FR. *Terre à potier*. IT. *Terra da Stoviglie*. SP. *Tierra de alfareros*. PORT. *Barro*. RUS. *Glina*,) potters' clay. *See* POTTERY.

ARIDAS, a kind of taffeta, manufactured in the East Indies, from a shining thread, which is got from certain herbs, whence they are styled aridas of herbs.

ARISH, a measure of length in Persia, which Dr. Arbuthnot says is equal to 3197 English feet.

ARITHMETICK, the art of numbering. It consists of four fundamental rules, viz. addition, subtraction, multiplication, and division. Its origin may be a subject of curiosity to the learned, but can be of little use to the mercantile reader. Suffice it to say, that being essential to commerce, they were probably nearly coeval, so far at least as relates to *simple* arithmetick The credit of inventing the ten figures, by which the science is executed, is attributed to Arabic origin. Decimal arithmetick is of comparatively modern invention, being unknown to the Greeks and Romans, and attributed to the Moors of Spain, from whom pope Sylvester II. is said to have borrowed it, and brought it into general use.

ARLET, a kind of cummin, for which there is some trade at Surat.

ARM, in respect of the magnet. A loadstone is said to be armed when it is inclosed, capped, or set in iron or steel, in order to increase its magnetic virtue.

ARM, in sea language. A ship is said to be armed when fitted out and provided in all respects for war.

ARMADA, a Spanish word, which formerly signified a number of ships of war; but of late years, it not only comprehends a navy composed of ships of war, but also a flota of merchant-men under their convoy. There is a royal *armada*, or navy, to secure the navigation of the galleons from Old Spain to the Spanish West Indies.

ARMAMENT, a formidable body of forces, completely furnished with arms, &c. either for the sea or land service.

ARMOISIN, a silk stuff, or kind of taffeta, manufactured in the East Indies, at Lyons in France, and Lucca in Italy. That of the Indies is slighter than those made in Europe.

ARMORIAL BEARINGS, certain symbols used in heraldry, for marks of dignity and honour, and borne on banners, shields, coats, &c. for the distinction of persons, families, officers, corporations, cities, and states. The king, as the fountain of all honours, bestows these distinctions in these kingdoms; and the laws, regulations, and cognizance of all matters relating thereto, belong to the earl marshal and college of arms. This college was incorporated by charter of king Richard III. confirmed by king Edward VI. and enlarged by king Henry VII.

Armorial bearings were made a subject of taxation by 43 Geo. 3. c. 161., and are rendered liable to the duties thereby imposed, whether registered in the college of arms or not. They are as follows:

	£.	s.
By every person chargeable with any duty for a carriage -	2	8
By every person not chargeable for a carriage, but chargeable for those on houses or windows -	1	4
By every person not chargeable to the duties on carriages, houses, or windows - - -	0	12

ARMORINGS, *in a ship*, are the same as waste cloths, which are red cloths hung about the outside of a ship fore and aft; there are also some hung round the tops, called *top-armorings*.

ARMOUR, denotes all such habiliments as serve to defend the body from wounds, especially of darts, a sword, a lance, &c. A complete suit of armour formerly consisted of a helmet, a shield, a cuirasse, a coat of mail, a gauntlet, &c. all now laid aside.

ARMOURER, he that makes arms. The company of this name is united with that of the braziers.

ARMOURY, or ARMORY, a magazine or store-house, wherein arms and other warlike stores are deposited.

ARMS. Under the definition of arms, are comprehended not only all offensive and defensive weapons, but also all the warlike ammunition, which of all merchan-

dize that can be taken into a ship, are the most hazardous, being more generally contraband than any other article of commerce; for the exportation and clandestine importation are strictly forbidden in most countries; and in many the exportation is attended not only with confiscation of ships and cargo, but with heavy fines and imprisonment. Arms, ammunition, or gunpowder, may be prohibited to be exported at the king's pleasure. — 12 *Car.* 2. *c.* 4. *s.* 13. *See ante,* AMMUNITION.

AROBE, or ARROBE, (in Spanish *Arroba,* in Peru *Arroue,*) is a weight used in Spain, Portugal, Goa, and throughout all Spanish America. The arobe of Portugal is 32 Lisbon lbs.; of Spain, 25 Spanish lbs. *See* WEIGHTS and MEASURES.

AROUGHCAIN, an animal found in Virginia, which resembles the beaver, except that it feeds, and leaps, upon the trees like the squirrel. The English merchants value its fur, which forms a branch of their trade with the Indians.

AROURA, a Grecian measure of fifty feet. It was more frequently used for a square measure of half the plethron. The Egyptian aaroura was the square of 100 cubits. — *Arbuthnot.*

ARPENT, a term sometimes used to denote an acre, from the French *arpent.*

ARQUEBUSE, or HARQUEBUSE, a firearm, of the same length as a fusee or musket, which is commonly cocked with a spring-lock.

ARQUIFOUX, (GER. *Bleyglanz.* DU. *Lootglans.* DA. *Blyglands.* SW. *Blyglans.* FR. *Arquifou.* IT. *Archifoglio.* SP. *Alquifol.* PORT. *Arquifolho.* RUS. *Kubikowataia ruda.* LAT. *Galena,*) called also Alquifou, or Arquifou, a sort of lead ore, very heavy, easily reduced into powder, and hard to melt; when it is broken, it parts into shining scales, of a whitish colour. The potters use it to give their works a green varnish; and in England it is commonly called *potters' ore.* The *arquifoux* is exported from England in large lumps; it should be chosen heavy, the scales bright and resembling tin-glass. This article is found in Alais and Languedoc in France, also in Barbary and Sardinia.

ARRACK, or RACK, (GER. DU. and SW. *Arrak.* DA. *Arrack.* FR. *Arack.* IT. *Aracco.* SP. RUS. and POL. *Arak.* PORT. *Araca,*) a spirituous liquor imported from the East Indies, used as a dram and in punch. The word arrack, according to Lockyer, is an Indian name for strong waters of all kinds; for the Indians call our spirits and brandy English arrack. But what we understand by the name arrack, he affirms, is properly no other than a spirit produced by distillation from a vegetable juice called toddy, which flows by incisions out of the cocoa-nut tree, like the birch juice procured among us. The toddy is a pleasant drink by itself, when new, but purges those who are not used to it; when stale it is heady, and makes good vinegar. The English at Madras use it as leaven to raise their bread with.

There are, however, several kinds of arrack, distinguished by different names; such as Batavia arrack, which is a vinous spirit obtained by distillation from rice and sugar, fermented with the juice of cocoa-nuts. It is a strong spirit; but being made in copper stills, is not so agreeable as Goa arrack. Bitter, black, and Columbo arrack, are hot spirits, little valued, and seldom imported by Europeans. The manner of making the Goa arrack is this: The juice of the trees is not procured in the way of tapping as we do; but the operator provides himself with a parcel of earthen pots, climbs up the trunk of a cocoa-tree; and when he comes to the boughs, he cuts off one of the small knots or buttons, and applies the mouth of a bottle to the wound, fastening it to the bough with a bandage; in the same manner he cuts off others, and proceeds till the whole number is employed: this done, he leaves them until the next morning, when he takes off the bottles, which are mostly filled, and empties the juice into the proper receptacle. When a sufficient quantity is produced, the whole put together is left to ferment. When the fermentation is over, and the liquor or wash is become a little tart, it is put into the still, and fire being made, the still is suffered to work as long as that which comes off has any considerable taste of spirit. The liquor thus procured is the low wine of arrack; and is distilled again, to separate some of its watery parts, and rectify it to that very weak kind of proof-spirit, in which state we find it. The arrack we meet with, notwithstanding its being a proof test, according to the way of judging by the crown of bubbles, holds but a sixth, and sometimes but an eighth, part of pure spirit; whereas our other spirits, when they shew that proof, are generally esteemed to be one half pure spirits.

Arrack is subject to the same excise laws as all other kinds of foreign spirits.

Arrack, *tungusian,* is a spirituous liquor made by the Tartars of Tungusia, of mare's milk, left to sour, and afterwards distilled twice or thrice between two earthen pots closely stopped, whence the liquor runs through a small wooden pipe. It is more intoxicating than brandy.

ARRAIGNMENT. To *arraign,* is to call on a prisoner, who stands at the bar of a court of justice charged with some felonious offence, to answer the matter alleged against him. He is called upon to hold up his hand, but only in token of his acknowledging himself to be the person accused; and his identity may be *otherwise* proved if he refuse this acknowledgment. 2 *Hale. P. C.* 219.

When these preliminaries are gone

through, the indictment, or formal written accusation, is distinctly and deliberately read to him; and he stands mute, *or* he confesses the fact (both which are put on the same footing by 12 Geo. 3. c. 20.), *or* he pleads to the indictment that he is not guilty of the offence charged. The jury are then required, on their oaths, to try the question, and to find a verdict of condemnation or acquittal.

ARRANGOES, a kind of beads, formed from the rough cornelian, or some stone of that nature, chiefly in demand for the African trade.

ARREARS, or ARREARAGES, is taken for money unpaid at the due time, as rent behind. The remainder due on an account, or of a sum of money remaining in the hands of an accountant. It likewise signifies what remains unpaid of pensions, taxes, or any other money payable yearly, or at a fixed term.

ARREST, is the commencement of imprisonment, when a man is taken and restrained of his liberty by a warrant, in execution of the command of some court, or some officer of justice.

Arrests are of two kinds, *civil* and *criminal*. Arrest in any civil suit can only be by precept out of some court; but in criminal cases by the single authority of an officer of justice, of a superior, or inferior, degree, according to the nature and tendency of the crime.

Arrest in a Civil Suit. An arrest *should* be by corporal seizing or touching the body, because *after that* a bailiff may justify breaking open a house to take the person, but any acquiescence is *sufficient in civil process.* In *all* cases, however, the door of a mere *lodger* in the house of another may be broken open, having first gained peaceable entrance at the outer door of the house; but not if the whole house be let out into separate apartments, for they will then generally be considered as separate houses. *3 Black. Com.* 289.

There are many descriptions of persons privileged from arrest in civil suits. Peers of the realm, members of parliament, and corporations. *Ibid.* Peers of parliament, peeresses by birth; and also by marriage, not having forfeited their rank by having married a commoner. 1 *Inst.* 131. 2 *Inst.* 50. Scotch peers of parliament. 5 Anne. Irish ditto. 39 and 40 Geo. 3. Clergymen performing divine service, or attending convocation. 50 Edw. 3. 1 Rich. 2. 8 Hen. 6. Ambassadors and their servants. 7 Anne. *Hopkins* v. *De Roebuck.* 3 *Term R.* 79. All servants of the king, even though they carry on trade, and contract the debt in the course of that trade. *R.* v. *Forster.* 2 *Taunt. R.* 167. Barristers upon their circuits. *Markins* v. *Smith.* 1 *Black. Rep.* 636. Clerks, attornies, and others, actually practising, and virtually attending courts of justice. 3 *Black. Com. Archibald's Edit.* 289. 4 *Burr. R.* 2109. Suitors, witnesses, and other persons, *necessarily* attending a court of justice, as well during trial, as for a reasonable time before, and after. 3 *Black. Com.* 199. *Childerston* v. *Barrett.* 11 *East. R.* 439. Bail attending to justify. *Rimmer* v. *Green.* 1 *M. & S. Rep.* 638. Witnesses attending in arbitration under a rule of court. *Spence* v. *Stuart.* 3 *East. R.* 89. Soldiers attending courts martial as witnesses; as also soldiers for debts under 20*l.* *Ann. Mut. Act.* Bankrupts coming to surrender, and 42 days after; also for such longer time as the commissioners shall enlarge it to, for further examination. *Davies* v. *Trotter.* 8 *Term. R.* 475. No person may be arrested for any debt under 15*l.* except it be on a bill or note, by 57 Geo. 3. c. 101. Nor on a Sunday, except for treason, felony, or a breach of the peace, by 29 Car. 2. c. 7.

Such is the outline of the direct privilege from arrest in civil suits. There are other cases where an exemption or liberation from arrest may ensue indirectly from various causes, but they are foreign from the nature of a mere elementary book.

Arrest on Criminal Cases, may be by warrant, or without warrant, according to the nature of the crime, and the circumstances of the case.

A warrant may be granted in extraordinary cases by the privy council, and secretaries of state; but it is ordinarily granted by justices of the peace; and this authority extends to all treasons, felonies, and breaches of the peace. 2 *Hale. P. C.* 108. Also to all crimes of which justices in session have cognizance. *Dick. Pract. Exp.* v. 3. p. 89.

And an information on oath upon suspicion is sufficient to justify the issuing of a warrant, and all constables and others executing it within the jurisdiction are indemnified. 4 *Black. Com.* 290.

A warrant from the justices of the Court of King's Bench extends all over the kingdom, but the warrants of justices of the peace only extend over the jurisdiction for which they are appointed; but a warrant issued by a justice in one jurisdiction may be rendered valid in another, by the indorsement of a justice for the jurisdiction in which it is intended to be executed. 4 *Black. Com.* 292.

A warrant should be under hand and seal, should set forth the time and place, when and where issued, and also the substance of the information, sufficiently to give the offender due notice of the charge against which he is to make his defence; as also if it be a bailable offence, that he may be provided with sureties. *Dick. Pract. Expos.* v. 2.

But an arrest in many cases is lawful without warrant, *especially* by officers of justice of all degrees and denominations. Justices of the peace may apprehend, or *authorise and command any other persons* to apprehend, offenders committing any kind

of felony, or breach of the peace, *in their presence*. Constables, also, of their own authority may apprehend persons committing felony, *or on strong suspicion thereof*; persons breaking the peace; night-walkers of suspicious appearance; and persons committing acts of vagrancy, in order to their being carried before a justice of the peace. 2 *Hale. P. C.* 96.

Private persons, without any official authority, may lawfully apprehend, for the purpose of carrying before a justice, all persons committing felonies, or breaches of the peace, in their view; and even on *very strong* suspicion, without view, they will be justified in apprehending them, but cannot justify breaking open doors, so to do, on suspicion only. *Cald. Ca.* 291.

ARROBA. *See* AROBE.

ARSCHIN, a long measure used in China to measure stuffs. Four *arschins* make three yards of London.

ARSENAL, a place where all kinds of warlike stores are kept in fortified towns.

ARSENIC, (Ger. Du. Da. Sw. and Pol. *Arsenik*. Fr. *Arsenic*. It. Sp. and Port. *Arsenico*. Rus. *Müschjak*. Lat. *Arsenicum*,) a metal of a light lead-blue colour; by exposure to the air it readily tarnishes, the later as it is the purer, and becomes first yellow, and then black and pulverulent: this change takes place in consequence of its great affinity for oxygen. Its hardness is about equal to that of copper, but it is quite brittle, and very easily pulverizable. Slowly sublimed in close vessels, it crystallizes in octohedrons. Its specific gravity is 8.310. Of all metals it is the most volatile by heat, for it begins to rise in fumes at about 356° Fahrenheit; that is, long before it melts, so that it can hardly ever be seen in a state of fusion.

Arsenic is a substance of very frequent occurrence, being found in combination with almost every other metal, as well as with sulphur and lime: the four following species, however, are the only ones that, by the common consent of mineralogists, are ranked as ores of this metal, the rest being considered as arsenicated ores of silver, copper, cobalt, &c.

Sp. 1. *Native Arsenic*. The colour of this mineral, when newly broken, is a light lead grey. It occurs generally in mass: it does not form crystals. Its surface is rough, or granular: it acquires a polish by friction. Specific gravity 5.724 — 5.763.

This mineral is found only in the veins of primitive mountains, accompanied by red silver, realgar, galena, specular cobalt, pyrites, &c. It occurs in the mines of Freyberg, in Saxony; at Geisberg, in Carinthia; at Nagyag, in Transylvania; and at St. Marie aux Mines, in France.

Sp. 2. *Arsenical Pyrites, Marcasite, or Mispickel*. The colour of this mineral is silvery white. It is met with in masses, disseminated, and not unfrequently crystallized: it is hard and brittle. Specific gravity 6.52.

It is found in almost all metalliferous primitive mountains; but the variety containing silver has hitherto been met with only at Freyberg and Braunsdorf, in Saxony.

Sp. 3. *Sulphuret of Arsenic*. There are two varieties of this, called realgar and orpiment.

Realgar is of a bright aurora red colour, passing on one side into scarlet, on the other to light orange. It is found rarely in mass, more frequently disseminated, or investing, but most commmonly crystallized. Its primitive crystals are long octohedrons, with scalene triangular faces. It is very tender and brittle, and may be easily broken by the nail. Specific gravity from 3.2 to 3.3. Realgar occurs native in the vicinity of Ætna and other volcanoes, and in the primitive mountains of Germany, Switzerland, and Hungary. The substances by which it is usually accompanied are, native arsenic, red silver, and galena.

Orpiment differs from realgar in the following particulars. Its colour is a bright lemon yellow, passing into gold yellow and aurora red. It is found disseminated or in mass: its internal lustre is very brilliant. Its specific gravity 3.4.

It is always found in stratified mountains, accompanied by clay, quartz, &c. and appears to be a mineral of late formation. It is procured from the Bannah, from Servia, from Nagyag in Transylvania, and Felsobanga in Hungary. The Romans procured this beautiful bright gold-coloured orpiment from Syria, and esteemed it highly as a pigment.

Sp. 4. *Native White Arsenic*. Its colour is snow-white, or slightly red and yellow white, or smoke-grey. It is commonly found in the state of a friable earthy crust, on the surface of other minerals; it is also occasionally met with stalactitic, clustered, or in minute bundled capillary crystals. In the earthy state it is opaque, but when crystallized it is translucid. It is friable and very brittle. Specific gravity 3.7.

This mineral is of rare occurrence, having hitherto been met with only in the cobalt mines of Bohemia and Saxony, and on the surface of native arsenic in Transylvania and Hungary.

Arsenic has no smell when cold, but when heated it exhales a very strong odour, resembling that of garlic.

Arsenic is sometimes used as a medicine, and when judiciously employed, is capable of producing the most powerful and beneficial effects. It forms the basis of the *tasteless ague drops*, a medicine well known for its efficacy as a remedy for intermittent fever. It is, however, a substance frequently used intentionally for the destruction of life, which a very small quantity is able to effect: it is therefore important in a juridical point of view, that the presence of

it in minute quantities should be ascertainable with certainty and precision. The most accurate test is the ammoniaco-nitrate of silver; a preparation which may be obtained from any chemist. It is to be applied in the following manner.

The liquor supposed to contain arsenic is to be made as clear as possible by straining, &c. and a small quantity of the ammoniaco-nitrate of silver added to it; a *yellow* precipitate is instantly produced, which on exposure to the air becomes a little darker in colour, and assumes a *curdled* appearance. The same preparation produces a yellowish precipitate from a solution of phosphate of soda; but this becomes nearly black after being exposed to the air for some hours, and it has the appearance of a *powder*. Were the similarity between the products in this process even greater, it is not probable that any difficulty would thence arise, as phosphate of soda is not likely to be contained in the fluids of the stomach under the circumstances in which the test is to be employed. It will, however, be proper to employ one, or more, of the following tests, in support of the one above described. To the suspected liquor, add a very small proportion of carbonate of potash; after this has stood a few minutes, drop in a small quantity of sulphate of copper; if it contain arsenic, a bright yellowish green precipitate, termed *Scheele's green*, will be immediately produced. A stream of sulphurated hydrogen gas, passed through the liquor containing arsenic, produces a golden yellow precipitate. The following, proposed by Brugnatelli, appears to be a very delicate one. To a mixture of fresh wheat starch and water, add a sufficient quantity of *iodine* to give the liquid a lively blue colour: a solution of white arsenic (the preparation usually employed as a poison) added to this, turns it to a reddish colour; the same change is also effected by a solution of sublimate of mercury, but where the change has been produced by arsenic, the blue colour will be restored by the addition of a few drops of sulphuric acid; but this will not happen where it has been produced by sublimate of mercury.

Arsenic is much employed in the arts; it is used as an alloy with copper, which forms a malleable and flexible metal that takes a fine polish. On account of these properties, this mixed metal is frequently employed for making sundry articles which are designed to be heated with silver. It enters into most compositions for the specula of reflecting telescopes, and for other optical purposes. It is employed in the manufacturing of small shot to make it more brittle and granulate better. Its oxides are used in many processes of the dyer, and in the manufacture of glass. Sulphuret of arsenic is much used in calico-printing, on account of its property of de-oxydizing indigo, and thus rendering it soluble in an alkaline solution. The same preparation of arsenic is also employed in the composition of several valuable pigments.

ARSON is, technically, the wilfully, maliciously, and *actually*, burning of the *house* or *outhouse* of another man; and was always a felony by the common law of the land. The word, however, has *outgrown* its original interpretation, having been extended by divers statutes to other offences of burning, and attempting to burn, beyond mere houses and outhouses.

By 23 Hen. 8. c. 1. and 32 Hen. 8. c. 3. wilfully burning *houses or barns wherein corn shall be*, was declared to be felony without benefit of clergy. The provisions of this statute were extended by 4 & 5 Phil. & M. c. 4. to such as should maliciously command, hire, or counsel, any other person to commit any of the offences enumerated in the former statute. The punishment of arson was extended to the burning, or causing to be burned, any *stacks of corn* or grain in any of the counties of Cumberland, Northumberland, Westmoreland, or Durham, by 43 Eliz. c. 13. By 22 and 23 Car. 2. the punishment was extended to offences in *all parts* of the kingdom, if the attempt were made in the night-time; and *kilns* were also by it placed under the protection of the law.

The 9 Geo. 1. c. 22. made perpetual by 31 Geo. 2. c. 42. extends the punishment of felony without benefit of clergy to all who shall *set fire to* any house, barn, outhouse, hovel, cock, mow, or stack of corn, straw, hay, or wood, or procure any person so to do, or shall forcibly rescue any person in custody for the same.

Mills are placed under similar protection by 9 Geo. 3. c. 29.

Vessels and docks, by various statutes, 12 Geo. 3. c. 24., 33 Geo. 3. c. 67., 39 Geo. 3. c. 69., and 39 and 40 Geo. 3. c. 47.

But the most important statute, because made to meet an increasing evil, (viz. that of persons insuring houses and other premises and then burning them in order to defraud the insurers,) is 43 Geo. 3. c. 58. by which it is enacted that "if any person shall wilfully, maliciously, and unlawfully set fire to any house, barn, granary, hop-vat, malt-house, stable, coach-house, outhouse, mill, warehouse, or shop, (whether in the possession of the offender or any other person,) with intent thereby to defraud his majesty, or any of his subjects, or any body corporate, then the person so offending, his counsellors, aiders, &c. shall be felons and suffer without benefit of clergy.

ARSURE, the trial of money by fire after it was coined. In doomsday we read, "*reddit 50l. ad arsuram*," which is meant of lawful and approved money, whose alloy was tried by fire. — *Cowell, ed.* 1727.

ARTICLE, a small particle of an ac-

count contained in the journal, invoice, &c. Thus it is said "such an account contains so many articles of debtor, and so many of creditor. The bill of parcels or invoice sent, contains so many articles, amount, so much," &c.

Article is also said of the clauses, terms, and conditions, agreed upon in partnerships, bargains, and treaties, and also of the things adjudged by arbitrators. In this sense, they say, "in the bargain we have made together there is an article, by which you are bound to such a thing. This is according to an article of our treaty. Our arbitrators have determined such an article in my favour," &c.

ARTICLES OF THE PEACE, an accusation written on parchment, and exhibited to the judges of the court of King's Bench, or to the justices assembled in session, requiring sureties to be produced before them, by some person whom the complainant charges with a design to break the peace, and to do some bodily injury to him the complainant, &c. *See further, title* PEACE.

ARTICLES OF WAR. The codes of law also by which the forces of the kingdom, by land and by sea, are governed, are denominated *articles*. The articles of war for the regulation of the army, are framed from time to time at the pleasure of the crown. The articles for the government of the navy are by statutes of parliament. It is unnecessary to enter further into the subject here, but *see* 1 *Black. Com.* 420.

ARTIFICER, a person whose employment it is to manufacture any kind of commodity, as in iron, brass, woollen, &c.; such are smiths, weavers, carpenters, &c. Persons that contract with artificers in wool or metals to go out of the kingdom, shall be fined in any sum not exceeding 100*l.* and imprisoned for three months. If artificers that are abroad do not return in six months after warning, they shall be deemed aliens, and be incapable of inheriting lands by descent. By several acts passed during the present reign, several penalties are inflicted on masters of ships assisting to seduce artificers to leave these realms *See* 21 Geo. 3. c. 37., and 22 Geo. 3. c. 60.

Artificer, in a military sense, he who prepares bombs, grenades, &c.

ARTILLERY, signifies all sorts of great guns or cannon, mortars, howitzers, petards, and the like, together with all the apparatus and stores thereto belonging, which are not only taken into the field, but likewise to sieges, and made use of, both to attack, and defend, fortified places. It signifies also the Science of Artillery or Gunnery. *See* FOUNDERY. As artillery comes under the articles of arms and utensils of war, &c. they cannot be imported without licence from his majesty; and if otherwise, the whole is not only forfeited, but treble the value. 1 *Jac.* 2. *c.* 8. *sect.* 2.

ARTS, MANUFACTURES, AND COMMERCE, a society for the encouragement of, was instituted in London, A. D. 1754, and continues to be of the greatest service, through the encouragement given by it to the exertions of genius and the perseverance of industry, in premiums of different descriptions.

ASBESTUS, ASBESTOS, or AMIANTHUS, in Natural History, is a kind of fossil stone or mineral substance, of a whitish colour, and woolly texture, consisting of small filaments, and endued with the wonderful property of resisting fire, and remaining unconsumed in the most intense heat. This mineral is not only found in several parts of Italy, but also in India, Tartary, Siberia, Egypt, Greece, France, the Netherlands, the Isle of Anglesea in Wales, Scotland, and many other parts of the world. It is sometimes called in English, *earth-flax*, and *salamander's wool.*

The industry of mankind has discovered a method of working this fibrous mineral, and employing it in divers manufactures, chiefly cloth and paper. The cloth made of this incombustible matter was in great esteem among the ancients, and better known, and more common than at present. Pliny says, he himself had seen napkins of it, which being taken foul from the table, and thrown into the fire, were by that means rendered as clean as if washed in water. But the principal use of it, according to the same author, was to make shrouds to wrap up the corpses of kings, &c. in order to preserve their ashes distinct from those of the fuel, which composed the funeral pile; and it is said the Tartars still use it in burning their dead.

ASH, a timber tree, which in a strong soil grows to a prodigious height and bulk. It is improper for beams or rafters, or for any architectural purposes, because it sways or bends with its own weight; but is extremely useful in agriculture. Almost all the implements of husbandry are made of it, from carts and waggons to fork shafts. It is also much used by coachmakers, for poles and shafts of carriages, as well as for the fellies of wheels, being light and tough. But the principal purpose to which it is applied, and in which it is an article of considerable commerce, is for hoops to barrels, tubs, and vessels of every description. Indeed, except where iron is used, they are almost exclusively manufactured of ash.

Plantations of underwood, for poles, are chiefly of ash, and are extremely profitable, as they will bear cutting down about every ten years, and are in high estimation for hop-poles, hedge-stakes, and other purposes of husbandry.

ASHES, (Fr. *Vedasse.* Ger. *Waidasche.* Du. *Weedas.* Da. *Veedaske.* Sw. *Drägaska.* It. *Feccia bruciata.* Sp. *Alumbre*

de hez. Port. *Cinza de tartaro.* Rus. *Weidasch.* Pol. *Smelcuga.* Lat. *Cineres infectorii,*) the earthy part of wood and other combustibles, remaining after they are consumed by fire. These, if produced from a vegetable, are of a white colour and saltish taste, a few instances excepted, and contain more or less vegetable alkali, which is for the most part potash. Iron may also be obtained from them.

Ashes of all kinds contain an alkaline salt, and are an excellent manure for cold and wet ground. *See* ALKALI.

ASHLAR, a term used by builders, by which they mean common free-stones, as they come out of the quarry, of different lengths and thickness. Nine inches is the common thickness.

ASHERING, with builders, quartering to tuck to in garrets, about two feet and a half or three feet high, perpendicular to the floor, up to the under-side of the rafters.

ASIA. This division of the globe, which in extent exceeds Europe and Africa, and which is famous in history for having been governed by the Assyrians, the Medes, the Persians, and the Greeks, comprehends now four vast empires, viz. those of China, Japan, Persia, and Indostan or India; beside other countries, possessed by the Turks and European powers, and several islands.

This continent is bounded on the north by the Frozen Ocean; on the west by the Red Sea, the Mediterranean, the Black Sea, &c. &c.; on the east by the Pacific Ocean; and on the south by the Indian Ocean.

Asia is certainly more favoured by nature than any other quarter of the terrestrial globe in many of her productions; for here she has lavished to excess, what are either not to be found at all, or, at most, sparingly, in the three other divisions. Its air is serene, its soil most fertile, and every luxury of life is abundantly enjoyed. Precious stones of every description, the precious metals, copper, iron, brimstone, salt-petre, alum, mercury, silk, cotton, gums, spices, sugars, the most fragrant herbs, and the most delicious fruits. Tobacco is universally cultivated, and universally used.

The principal regions into which this continent may be divided, are China, Japan, Tartary (Chinese, Russian, and Independent), India *beyond*, and on *this side*, the Ganges, Persia, Asiatic Turkey, distinguished into Eastern and Western. Except in such parts of this continent as are subject to European powers, Christianity is not professed. The Chinese worship Confucius, the Persians the Sun, the Turks and Arabians Mahomet: there are great numbers of Pagans, and Jews every where abound. As to the language of Asia, almost every country has its own. There is the Turkish, the Arabic, modern Greek, the Chinese, Japanese, Russian, Tartarian, Persian, Malayan, &c. &c.

The eastern side of this continent, in which are comprehended the Chinese and Japanese empires, eminently abounds in all the productions of nature which have been enumerated, but there are a few which merit peculiar distinction above the rest. First, the tree which bears a name signifying the *iron wood.* This tree grows to the size of an English oak: its wood is so *heavy*, that, if put into water, it sinks; so *hard*, that the anchors of the Chinese vessels are made of it; and so *durable*, that it is used for columns instead of stone. Secondly, the bamboo cane, which grows to an immense size. The large ones are bored, and made into pipes for the conveyance of water, while the small ones are converted into articles of furniture and ornament in various ways. Thirdly, the tea tree. This is more correctly a shrub than a tree, seldom exceeding eight feet, even when not restrained by artificial means to that height. This shrub is an evergreen, is in its greatest beauty from October to January, bearing a flower not unlike our wild white rose. There are only two kinds, the green and the dark coloured; and beyond this, all the varieties which we have in England are only produced by separations of the younger from the older leaves, the periods of gathering them, and the care with which they are dried and prepared. The small leaves gathered the beginning of March, being young and small, make the finest article; those in April, the second sort; and those in May, the coarsest. These are all again separated even in the gathering; for each leaf, tedious as the process may appear, is plucked from the branch by itself.

Of manufactures in this part of the continent, porcelain, lackered cabinet work, ink, paper, and silk, and fine matting of various descriptions, seem to be pre-eminent. Their paper is nothing more than the inner bark of trees, especially the cotton tree, laboriously prepared by soaking in water, bleaching, boiling, steeping in an infusion of alum, and then drying in moulds of an extraordinary size.

The extent of the empire of China is said to be in square miles 1,297,999; in English acres, 830,719,360: its number of inhabitants to be 333,000,000; and its revenues to be 12,140,625*l.* annually.

In a commercial point of view, we have little to do with any part of China but the city of Canton, capital of the province of Quang-ton, situated on one of the finest rivers of this immense empire, and the only port which Europeans are permitted to enter. It consists of three towns, divided by high walls, but so conjoined as to form nearly a square. The streets are regular, and terminated by barriers which are closed every evening. The number of inhabitants is said to exceed a million and a half; a very large proportion of whom live in

habitations constructed upon rafts, and moored in the river. All the foreign trade of the empire being conducted here, it draws together merchants and merchandize from all parts, and the influx of wealth is therefore incalculable. The exports are chiefly as follow: — Silks, stuffs, manufactured and unmanufactured cotton, muslins, tea, camphor, musk, flax, sugar, salt, preserved ginger, quicksilver, vermilion, lapis lazuli, vitriol, ambergris, toutenaque, rhubarb, plums, China root, mirabolans, Indian ink, porcelain, lackered and japanned wares, camlets, hemp, fine gold, pewter, iron, steel, several implements made from the aforesaid metals, precious stones, pearls, very beautiful marble, eagle, and Brazil wood, ebony, Jesuits' bark, yellow and reddish amber, and horses.

The commodities sent from Petersburgh to China, are jewels of several sorts, sables, white and common fox, lynx, beaver, ermine, minever, badger, seal skins, and some teeth of the last-mentioned animal. The other imports of China are silver, which is brought from Mexico by the South Sea to the Manillas, in piastres and bars, and thence hither; the Chinese, who have none of this precious metal produced in their own country, esteem it very highly, and willingly exchange for it gold and other valuable merchandises. The English East India Company, and the Americans, send them tin, lead, bullion, and dollars. There are also imported linens of various descriptions, cloths, serges, sandal wood, elephants' teeth, red coral of a pale cast, spice, pepper, &c. &c.

There is but one piece of coin in China, which is made of base metal, and called *cash*: it is made for paying labourers, and small payments in the bazaar. 10 *cash* make a *candarine*, and 10 candarines make a *tale*, 3 of which are equal to a pound sterling.

The *cash* are composed of 6 parts of copper and 4 of lead, are round and stamped on one side, with holes in the middle, so as to string them.

Gold is not considered in China as money, but as merchandize. Silver is used, but not in coin, only in separate pieces of bullion, which are estimated in value by weight and quality.

The centre of this continent to the south is washed by the waters of the Bay of Bengal and the Arabian Sea, and generally known by the common appellation of *Indeé*. These regions are separated from China, Tartary, and Persia, by a chain of immense mountains. The coasts of Coromandel to the east, and Malabar to the west, form two sides of a triangle, within which the Indian empire commences southward, and stretches northward to the confines of Tartary.

Madras, or *Fort St. George*, is the principal settlement of the East India Company on the east side of Indostan, or the Coromandel coast. It is a fortified place, and of considerable strength, surrounded by a wall, defended with batteries, bastions, &c. well supplied with cannon. There are two towns, the White and the Black: the former consisting of Europeans, chiefly British; the latter of Gentoos, Mahometans, Armenians, and Jews. Here are barracks for soldiers, an hospital, and a mint; but no port for shipping. It was settled by the English in 1640; afterwards was in the hands of the French; but has been part of the English East India Company's territory ever since 1748.

The goods of the country, and those collected from their other factories on this coast, or what their trade in India has brought hither, are, silk stuffs, silk and cotton handkerchiefs, cotton in thread and wool, indigo, all sorts of muslins and calicoes, Masulipatnam chintz, reckoned the most beautiful made in the Indies, diamonds and other precious stones from the mines of Golcondo, &c. &c. The chief imports of Madras are, camlets, cloths, serges, hats, worsted stockings, crystals, Flanders' lace, perpetuanas, silver, Japan copper, fine gold, Malacca pewter, quicksilver, lead, vermilion, camphire, elephants' teeth, &c. &c.

Accounts are here kept in star pagodas, fanams, and cash: 80 cash make one fanam, and 42 fanams the star pagoda.

Bengal is bounded by the bay of that name to the south, is situated in a vast plain of the most fertile soil, bearing two, and even three crops per year; the Ganges, like the Nile, dividing into several streams, and overflowing the plain. The great articles of indigenous produce consist of sugar, fruit, pepper, opium, rice, salt-petre, silk, lac, and civet. Bengal has been subject ever since 1765 to the English East India Company.

Calcutta is the capital, where are a garrison of soldiers, an hospital, magazines, and storehouses. It is situated on one of the branches of the Ganges. The water about Calcutta is brackish, and the climate unhealthy, but, nevertheless, many of the wealthiest merchants reside here. A bank is established here, and great commercial speculations are carried on. There are many beautiful villages about Calcutta, where the merchants have country houses for the benefit of a better air. The exports from this part of the continent are diamonds, crystals, raw silks, cotton, wool, and thread, wax, indigo, various perfumes, and medicinal drugs, rice, salt-petre, sugar, embroidered stuffs, carpets, and counterpanes, calicoes, and muslins, sweetmeats, precious stones, &c. &c. and they import all the valuable commodities of the other parts of Asia and of Europe, and, strange to say, among the rest, the muslins of Britain,

which they can import upon more reasonable terms than they can manufacture them.

Accounts are kept in Bengal in current rupees, each rupee consisting of 16 current annas, and each anna of 12 current price. All specie must be reduced into this currency before any sum can be entered into books of accounts.

Cowries, a species of sea-shells, are used for paying labourers, and other small accounts.

	Cur. Rup.
100 Sicca rupees of Calcutta, make	116
100 Arcot rupees - -	108
100 Bombay rupees - -	110
100 Sonaut rupees - -	111

A lack is composed of 100,000 rupees.

Bombay (an island) is situated at the north-western extremity of the Malabar coast, and is the only place of importance on it (except *Goa*, belonging to the Portuguese). It was the dowry of Catherine of Portugal, who married our king Charles II., and is one of the three Presidencies of the English East India Company, by which their oriental territories are governed. It has a harbour which will contain a thousand ships, and the city is surrounded by a wall and ditch, and has a pretty good castle, a dock-yard, and a marine arsenal. The finest ships, constructed of the famous teak wood, are constructed here. The land is principally occupied by groves of cocoa trees, rice fields, and onion grounds. The town itself is about a mile in length, divided into three parishes, and the inhabitants are of all countries and all religions.

The exports of the coast of *Malabar* are sandal-wood, Indian saffron, cardamoms, pepper, ginger, cinnamon, muslins, betel, white areca (red for dyeing), &c. The black and white rice, which make a very considerable part of its trade, is gathered here twice a year, besides a quantity of excellent fruits, which serve for the shipping's refreshment. The cardamoms are gathered at Cananor, which was ceded by the Dutch to the English in 1792, and is supposed to be the only spot in the world where they are found. The cinnamon is not near so good as that of Ceylon. The imports are the merchandises of Europe in general.

Accounts are kept at *Bombay* in rupees, each rupee consisting of 4 quarters, and each quarter of 100 reis. At *Goa* in pardoes of 240 reis.

At the western extremity of this continent, the two *Arabias* (distinguished by the names of Felix, and Desert) are separated from the kingdom of *Persia* by the Persian Gulph, and bounded on the contrary side by the Red Sea; the approach to which is by the Streight of Babelmandel, on which stand the two towns of *Aden* and *Mocha;* both places celebrated in former times for their traffic, which, indeed, is even still not inconsiderable, as they open an easy communication with Egypt, Ethiopia, India, and Persia. Aden is the only good seaport in Arabia Felix, being the only one within the Streights that can be quitted at all seasons; but the trade of it was removed to Mocha by a king of the country in the 16th century. Mocha is situated on a small bay bearing its name, at the very entrance of the Red Sea, and is protected by two forts. Gum arabic, myrrh, and frankincense, brought from the opposite coast of Africa, and coffee, particularly compose the traffic of this place.

The Red Sea was the great channel of commercial intercourse between Asia and Europe, before the Cape of Good Hope had been doubled; it was, previously to that event, the centre of a prodigious traffic, which, although since much decreased, is still very considerable. Europe receives by this route a great deal of Indian and Chinese merchandises. Calicoes, rich silken stuffs, spices, drugs, diamonds, and vast quantities of pearls are conveyed to Aleppo, whence they are exported to England, France, Holland, &c. and also to Trebisonde upon the Black Sea, and to Constantinople. The land commerce of Asia is principally engrossed by the Armenians, an industrious and honest people, who pass their commodities into Turkey in Europe, and Russia, by the Black, and Caspian, Seas. The commerce, which is carried on by way of the Cape of Good Hope, includes all the countries from the Gulf of Mocha to China, and all the islands from Madagascar to the Philippines. The commerce of Asia is mostly confined to the coasts of that continent, whither the merchants from the interior bring their merchandises for the purposes of traffic. The commerce of the coasts which is carried on between Asia and Europe and the Indian nations is very extensive, and may be classed under the following heads:

1. The commerce of Aden and Mocha, which the Turks carry on by the Streights of Babelmandel, and along the Red Sea as far as Suez, whence their coffee and other merchandises are conveyed to Egypt, and thence by sea or land to Constantinople, Aleppo, Smyrna, and other places.

2. The commerce of the Arabians and Persians, through the Persian Gulf to Bassora, by which they furnish the great caravans with all sorts of Persian and Indian commodities, which are afterwards transported by the Euphrates and the Tigris to Bagdad, and thence on camels through the desert to Aleppo and Trebisonde.

3. The commerce with the European and Indian merchants jointly, upon the southern coasts of India, namely, upon the coasts of Guzerat and Malabar; and the commerce with the European nations upon the other coasts of India, namely, upon those of Coromandel, Golconda, and Bengal.

The English now almost exclusively engross this portion of the trade of Mocha.

Accounts are kept here in piastres of 80 cavears, or carats.

Persia lies to the north-east of Arabia, being, as has been observed, separated from it by the Persian Gulf, and to the north is bounded by the Caspian Sea. Prolific as this country is in natural productions, and celebrated as it is in history, after what has been already advanced, little remains to be noticed respecting it, which comes within the scope of a work of this kind. On the canal, formed by the junction of the rivers Euphrates and Tigris, at the northern extremity of the Persian Gulph (on the Arabian side), stands the city of *Bassora*, the great depôt of commodities both of import and export connected with Persia. Here reside merchants from various nations, who form the medium of commerce and communication with all the different parts of the world. Through them the linens, stuffs, silks, muslins, rice, spices, indigo, steel, and other European commodities, in general come from the different coasts of India, and are introduced into Persia; and through them are exported the camels, horses, and fruits of this country, with the pearls, for the fishery, of which the shores of the great Gulf, and the mouths of the rivers connected with it, are celebrated.

We now enter upon the last division of this continent which it is proposed to notice in this place, viz. *Turkey;* for those more northern provinces, which form part of the Russian dominions, will be more usefully and intelligibly comprehended under the description and considerations belonging to that empire, which, though extending far into the northern regions of Asia, is more correctly reckoned among the European powers, as well from the situation of her capital, as from the preponderancy of power, and wealth, and influence, which centres there.

Turkey in Asia is divided into eastern and western. The former contiguous to the countries of which we have been treating, and comprehending the provinces of Diarbec, Turcomania, and Georgia: the latter stretching north-westerly, and comprising Syria, Palestine, and Anatolia, commonly called the Levant. The seas which border on it are the Euxine, or Black Sea; the Bosphorus, or sea of Constantinople; the Propontis, or sea of Marmora; the Hellespont; and the Ægean Sea, or Archipelago, which divide Asia from Europe; the Levant, or White Sea, and the Persian Gulph. Its mountains are among the most famous of the world, Olympus, Ida, Mount Ararat, where the ark is said to have rested, Mounts Hermon and Lebanon. Its rivers too are the Euphrates, the Tigris, the Meander, Jordan, and others celebrated in history profane, and sacred. Turkey depends on no other countries for its subsistence, producing within itself every thing necessary both for use and enjoyment. The corn, maize, and rice, are all of superior quality; the wine and oil, though deprived of half their excellence by the want of skill and diligence in preparation, are sufficient not only for the demands of an extensive consumption, but for the supply of several foreign markets. The silk, cotton, wool, flax, drugs, coffee, sugar, wax, honey, fruits, hides, tobacco, and other commodities, are distributed over the continents of either hemisphere. The capital, Constantinople, is situated upon the neck of land which divides the continents of Europe and Asia, and on that very account is the termination of the subject which employs our present enquiry. It stands in the most unproductive part of the empire, and is supplied from the surrounding coasts with what it stands in need of. The satins and silk stuffs, the velvets of Bursa and Aleppo, the serges of Angora, the crapes and gauzes of Salonica, the carpets of Smyrna, and the silk, the linen, and the cotton stuffs of its other dependencies, proclaim its superiority. Notwithstanding this variety of produce, however, it imports from many European nations, through the Levant, a great quantity of merchandize, especially from the English, French, and Dutch. The principal articles are woollen cloths of excessive fine texture without any nap, and of the most vivid colours. Silk stuffs are also imported from France and Italy, as well as papers of all sorts, principally from the same countries; tin, brass, and other metals from the north of Europe; sugar, spices, camphor, lead, quicksilver, cochineal, dye-woods, &c. from Great Britain. The fur trade is a considerable one, but entirely carried on by the Greeks directly or indirectly with Russia, through Smyrna.

Smyrna is the principal place in the Levant, and has a large and commodious harbour. Through this place all the principal part of the trade with the whole western side of the continent of Asia is executed. More than 15,000 Armenians are established in this city, and the caravans from Persia are composed of them. These caravans arrive and depart at fixed periods, by which the Europeans regulate their shipping, in order that the Asiatics may carry with them the western merchandize, and the Europeans reload with that of Asia. The greatest number of British ships trade with Smyrna, and are held in the highest esteem. Leghorn and Marseilles are the ports of Italy and France respectively, from which the trade, which is not carried on in British bottoms, chiefly comes to the port of Smyrna. The principal exports from the Greek provinces are honey and oil, and cloth, under the appellation of English, though it is inferior and brought from all parts of Eu-

rope, is in great demand. Accounts are kept all through western Asia in aspars and piastres.

The Islands of Asia alone remain to be considered. They are extremely numerous, but not all of them sufficiently interesting to commerce to be described individually. Those which constitute the empire of Japan, as well as that of Bombay, because it composed a constituent portion of the territory of the English East India Company, have been already brought under review.

The Marian or Ladrone Islands are numerous, but most of them small and unimportant. They were discovered by the Spaniards in 1521, and obtained the name of the Marian Islands in compliment to Marianne the wife of Philip XIV., and then queen of Spain. They have no anchorage for ships, and are therefore seldom visited. Cattle and fruit, especially the rhyma or bread fruit tree, abound.

The Philippine Islands were discovered by the same navigator, Magellan, at the same period as the Ladrones, and obtained their appellation from a like design of complimenting the monarch. The principal of these is Manilla or Luconia, rendered famous by the siege it maintained against the English in 1762, though ultimately surrendered. These islands abound in horses, sheep, civet cats, and numerous wild beasts valuable for their skins, beside rice and other vegetables.

The Sunda Islands consist of Borneo, Java, and Sumatra.

Borneo is one of the largest of Asia, and produces great profusion of several commodities, among which are to be reckoned rice, frankincense, musk, aloes, pepper, cinnamon, gums, wax, cassia, honey, cotton, and camphire. It has excellent timber, cotton trees, and canes. There are also diamonds and gold dust. There are most Asiatic animals to be found here, from the elephant to the monkey. There are many Chinese merchants resident here, and no inconsiderable trade is carried on by the English, Dutch, and Portuguese, who import glass, woollen cloths, and iron.

Java, the most distinguished city of which, as indeed it is one of the most important of all the European settlements in Asia, is Batavia. This opulent place is situated on a fine bay of the sea, and has a port in which a thousand ships may ride at anchor; it is divided into two parts by a river, is of a square form, has four handsome gates, being encompassed with a strong rampart, fortified with bastions, and planted with cannon. The country abounds in rice, pepper, coffee, cotton, sugar-canes, and indigo. The Dutch get diamonds and gold from Borneo in exchange for some of the commodities before enumerated, and transmit the whole produce of both islands to Europe in prodigious quantities. Indeed it is the great depôt and mart of all the produce of India, in which the Dutch traffic with the rest of the world. The climate however is unhealthy.

Accounts are kept in rixdollars, each rixdollar consisting of 60 light stivers.

Sumatra, the last in the enumeration of these islands and the most considerable, is about 900 miles in length, and near 150 in breadth. It abounds in elephants, tigers, bears, buffaloes, and many tame animals. Rice is the only *grain* that grows in the island, but they have sugar-canes, indigo, pepper, coffee, cotton, cassia, and camphire, with many species of woods, especially ebony, iron-wood, teak, and sandal. Gold, tin, and copper, sulphur, arsenic, and saltpetre, are also found. Bees' wax is an article of great abundance and of equal importance here. Bencoolen, one of the principal towns of the island, is the great English factory, as Palambang is of the Dutch. Acheen is the capital of the island, and the native inhabitants are principally Mahometans; but merchants of almost all countries of the world are resident among them, English, Dutch, Danish, Portuguese, Chinese, &c.

The Moluccas, commonly known by the name of the Spice Islands. These islands are numerous but small, and it is scarcely necessary to observe further than what is imported by their names, that their chief produce is spice of different kinds. This was known to the Europeans before the passage to the East Indies by the Cape of Good Hope had been discovered; and spices were brought from them by the way of the Red Sea to the Mediterranean. They were in the possession of the Portuguese, but are now in that of the Dutch. The nutmeg resembles a peach tree, as the clove does a laurel, but the leaves are smaller. Mace is produced from the former, it being only the husk of which the nutmeg is the kernel. The cloves grow in clusters, and are the blossoms of the tree, which are dried, and prepared to be, what we use under that denomination.

Ceylon is a large island bordering upon the southern extremity of the Coromandel coast, pleasant and fruitful. It produces all the fruits known on the continent of Asia, or in the islands; but is particularly celebrated for its cinnamon. The English have long had large settlements here, and we now hold a sort of disputed sovereignty, having deposed the king of Candy, the native monarch. Elephants are numerous here, and the ivory is thought superior in its whiteness, and the retention of it, under all circumstances, than in any other country. That rare plant, cardamom, as also the betel, is plentiful here. The country is said to abound with mines of gold, silver, and other metals, but those of iron alone have been commonly worked, the others having been monopolized by the former sovereigns of the island.

The Maldives are a cluster of small islands south-west of Ceylon. Their exports consist of cowrie-shells, dried fish, cordage, and sails made of the fibres of the cocoa, and a particularly beautiful kind of the tortoise-shell. They import iron, steel, spices, rice, and some few other commodities from China. Cowries are their usual medium of barter, except so far as they exchange one commodity for another.

Socatra, or Socatora, is the last island to be noticed under the article of Asia; it lies at the western extremity of the Arabian sea, at the mouth of the Straits of Babelmandel, is 24 leagues in length and 16 in breadth, remarkable for fine aloes, frankincense, ambergris, and dragons' blood.

ASLANI, or Asselani, is the Dutch dollar or piastre, which is current in all the ports of the Levant. There are two sorts of *Aslani*, that of Holland, and that which is struck at Inspruck in the Tyrol. The latter is esteemed superior in point of fineness to that of Holland. The value of the Aslani is generally about four shillings sterling.

ASP, or Aspen, a tree of the poplar kind, one of, what are called, the *white woods*, soft and light, and used chiefly in the manufacture of articles called Tunbridge ware; and as such, a valuable item in commerce of small ornamental matters for the use of the ladies.

ASPARAGUS, vulgarly known by the name of sparrow-grass, an esculent plant, the heads of which are useful for the table and the roots in medicine. It was known in both capacities to the Greeks, and has maintained its celebrity ever since in most countries. It is used medicinally to cleanse the viscera, to carry off jaundice and dropsies, and other complaints arising from obstructions. It grows best in rich unctuous earth, generally called loam, and makes a great article of consumption for the London markets in the spring months. It was formerly an *item* of considerable external commerce, but its roots, as a medicine, having been superseded by more powerful, or more fashionable, ingredients, it is now principally confined to the table, and its consumption to the markets of the metropolis.

ASPEE, a corn measure in Lyonnois and Maconois, in France; at Lyons it is expressed for a certain quantity of wine, which is an ass's load.

ASPER, or Aspre, an imaginary money of Turkey, equivalent to eight shillings and five-pence.

ASPHALTOS, or Bitumen Judiacum, *Jews' pitch*, is a solid, brittle, ponderous substance, of a red, blackish, or dark colour, easily inflammable, and of a strong bituminous smell. The best comes from Judæa, where it is gathered on the Dead Sea. At first it is so soft, viscid, and glutinous, that it cannot, without difficulty, be separated from any part which it touches, but in time it grows harder than pitch. It is used among the Egyptians, in embalming and preserving dead bodies. It is of a discutient, emollient, and agglutinating quality. It dissolves coagulated blood, and promotes the menstrual discharge. It is an ingredient in the Venice treacle, and in the embalming powder of Charas.

ASPHALTUM, a bituminous stone, found generally near the ancient Babylon, and used in the composition of cement, for joining stone or brick-work under water, being impenetrable by that fluid. A mine of this was found long since, in the mountain called Val-Travers, in Neufchatel, Switzerland. Its qualities are, 1st, it makes an excellent cement, which neither the air can corrupt, nor water penetrate; 2d, with the oil of it, which it is easy to extract, is made a sort of pitch, famous for caulking ships and vessels; 3d, its oil is said to be a cure for several cutaneous diseases; 4th, it makes a perfume, by sprinkling it on live coals: excellent for the cure of rheumatic pains, and for purifying stables, &c. from bad air, occasioned by the distempers of cattle. Several experiments have been made of this, which saved the lives of many cattle during a contagious distemper, that had begun to rage in France.

ASPIC is an oil drawn from a plant, which C. Bauhine calls *lavendula latifolia*, but to which J. Bauhine gives the name of *pseudo-nardus*, and the French that of *aspic*. This plant is found in all parts of Provence. The flowers of it, when almost dry, are put into a large still, with a great deal of water. After a maceration for some days, the whole is distilled, upon which there comes off along with the water an oil of a yellowish or amber colour; and this is the oil of *aspic*, pure and unadulterated. The flowers contain a large quantity of essential oil, and are to be chosen for this purpose, in preference to any other part of the plant. *Mem. de l'Acad.* 1715.

The oil of *aspic* is used by painters in the mixing of colours, also by farriers, and other artificers; it is likewise of use in medicine. It is very inflammable, and when once on fire, it is almost impossible to extinguish it.

ASPORTATION is a legal term for the *removal of any chattel stolen*. Although there may have been an actual furtive seizure, unless there be also some removal of the article seized from the situation where it was placed, the offence, called larceny, is not complete by the law of England. But it is not necessary to constitute this offence that there should be an actual carrying away, for any removal from the place of deposit, however small, is an asportation in law. 4 *Black. Com.* 231.

ASS, a quadruped of the horse kind, which copulating with a mare, produces one of

the most useful beasts of burthen, the mule. The Ass is said to be originally a native of Arabia, and its size and spirit degenerate as it advances into the colder regions, which accounts for the race being so diminutive, as well as proverbially dull, in this kingdom. They are more cherished in Spain than in any other European country, where they are chiefly used for the purpose of propagating mules; but the exportation of either is wholly prohibited. A few, which have been occasionally brought over by stealth, are sufficient to shew the great advantage which would accrue from their introduction.

ASSA-FŒTIDA, (Ger. *Teufelsdreck.* Du. *Duivelsdrek.* Da. *Dyvelsdræk.* Sw. *Dufvelsträck.* Fr. It. & Port. *Assa-fœtida.* Sp. *Asa-fœtida.* Pol. *Smrodzeniec.* Lat. *Asa-fœtida,*) the concrete juice of the root of the *hingiséh,* or the *assa-fœtida* plant. *Kæmpf. Amœnit. Exot.* It is brought in large masses from Persia and the East Indies. It is a compact, gummy, resinous substance, soft and pliable like wax while new, composed of various little shining lumps or grains, which are partly of a whitish colour, partly reddish, and partly of a violet hue. It smells like garlic, but much stronger, and has a bitter, acrid, biting taste. Those masses are best which are clear, of a palish red, and variegated with a great number of elegant white tears. When it first exudes from the wounded root, it is liquid and white, like milk; but upon being exposed to the air, it becomes of a brownish colour, and gradually acquires different degrees of consistency. *See further, title* GUM.

ASSARON, or Omer, a measure of capacity, in use among the Hebrews, containing five pints. It was the measure of manna, which God appointed for every Israelite.

ASSAULT is, in law, a blow, or an attempt to give a blow, to the person of another. Assault does not necessarily imply an actual striking, nor is it material that the offence be committed in any particular manner, as with a hand, or a foot; for to spit at a man, or to throw dirt at him, or even to hold up a fist in a threatening manner, or to level a gun at another, is an assault. 3 *Black. Com.* 121.

Assaulting persons with an offensive weapon, with intent to rob, although no robbery be committed, is punishable with transportation for seven years. 7 Geo. 2. c. 21.

Assaulting in the highway, with intent to spoil the wearing apparel of any person, is felony, and subject to transportation. 6 Geo. 1. c. 23.

And assaulting a privy counsellor in the execution of his office, is felony without benefit of clergy. 9 Ann. c. 16.

ASSAY. This term, in chemistry, in a general sense, implies the analysis, or examination, of a sample of any substance, whose chemical composition is to be ascertained; but the term is also technically restricted to the analysis of gold and silver mixtures, with the express purpose of determining the proportion of these metals to that with which they are alloyed, in any individual mass. In this application of the term, the business of the assayer becomes of great importance; for few operations in chemistry require so nice and minute attention, and such practical experience, as one which, from the sample of a few grains, is to decide the standard of large masses of the most valuable metals.

The assaying of gold or silver is divided into two operations; by the first they are separated from the other metals, or those easily oxyded, which we shall, for the sake of convenience, term *imperfect* metals; but when speaking of metals expressly, we shall adopt the more scientific mode of designating them, which is now generally followed; by the second process they are parted from the metals which resist oxydation by simple exposure to the air, and which have hitherto been generally called the *perfect* metals. This process generally consists in separating gold and silver from each other, as the third perfect metal, platina, is but seldom found united to them.

The principle of the method of separating gold or silver from the imperfect metals, is founded on the facility with which the latter imbibe oxygen; and the process is calculated to facilitate this process as much as possible; hence the oxyde of lead, or litharge, is generally considered as the most powerful purifier of the perfect metals, from the ease with which it parts with its oxygen to the imperfect metals united with them. Oxyde of manganese has of late been employed for the same purpose. In chemical analyses of metals, the oxyde of lead is generally preferred; but in the assays performed by authority, metallic lead is always used, probably from the ease it is supposed to afford in determining the weight of the different ingredients by calculation. The lead in the process first becomes oxyded, then yields some of its oxygen to the other imperfect metals, afterwards becomes vitrified in conjunction with them, and carries them off by sublimation, leaving the gold or silver behind in the vessel, called a cupel, in which the operation is performed. This forms the process termed *cupellation.*

Cupels are cakes of earth with a little depression on the upper surface, made with bone ashes, finely powdered, and formed into a paste with water, and thoroughly dried. The cores of ox-horns are preferred at the Tower Assay-office. The cupel is placed in a vessel called a muffle, which is an earthen pot of an oven-form, vaulted at top, open at one end, and close every where else except a few narrow slits, to afford a passage for air. The open end comes in

contact with a door at the side of a furnace, to which it is luted. This protects the cupels from the contact of the fuel. The body of the muffle is surrounded with burning coals; and, before cupellation, is gradually heated to a glowing redness: a little powdered chalk, or sand, is sprinkled on the floor of the muffle, to prevent the adhesion of the cupels by the litharge soaking through them; they are then ready to receive the metal to be cupelled. Cupels should be of a size proportionate to the quantity of lead that may be necessary to be used, as they cannot absorb a weight of litharge more than equal to their own.

The assay of silver is performed on a piece of metal, not weighing more than thirty-six grains, and less if the alloy appears to be considerable: this is accurately weighed, laminated, and then wrapped up in the requisite quantity of lead, rolled out into a sheet. The lead employed should be revived from litharge, as native lead sometimes contains a portion of silver, which would prevent accuracy of calculation in the product.

The silver and the lead are put on the cupel, when it and the muffle are red hot. They immediately melt, and the mass gives out dense fumes, which consist of lead in vapour; and a stream of red matter flows from the top of the globule down its sides, carrying with it the copper or other alloy of the silver into the cupel. As the cupellation advances, the melted button becomes rounder, its surface becomes streaky, nidescent, opake, and then white and brilliant, and at length perfectly pure. The cupel is then allowed to cool gradually, till the globule of silver is fixed, when it is taken out while still hot, and when cold accurately weighed. If the globule be cooled too quickly, the outward surface contracts so suddenly, as to force out the fluid metal at the centre in arborescent shoots, by which some portion is lost, and the assay spoiled.

In the delicate assays for the Mint, two assays are always made of the same mass of metal; and no sensible difference between the weights of the buttons is allowed to pass in scales that turn with the $\frac{1}{1200}$ part of a grain troy.

In the common assays of plate, either gold or silver, copper is the alloy usually met with: if the fine metal be nearly pure, the cupel round the bottom is only stained yellow by the litharge; if copper is contained, it leaves a brown stain. The other metals, except bismuth, scarcely penetrate the substance of the cupel, but remain on the edges of its cavity, in form of coloured scoriæ, of which iron is black, tin grey, and zinc a dull yellow.

As the cupellation requires a free access of air as well as an high degree of heat, the stopper of the muffle is always removed as soon as the metal is put into the hot cupel; but to prevent the current of air from cooling the metal too fast, several pieces of charcoal are heaped up in front of the muffle, which burn with sufficient force to heat the air as it passes to the cupels. The furnace should be made so that the heat of the fuel within may be readily increased or diminished, but, at the same time, so that it can be kept up with steadiness. If the heat be too great, the silver would become in part volatilized: the heat is known to be such when the cupel can scarcely be distinguished from the muffle, and the ascending fume can scarcely be seen for the dazzling heat.

The time required in making this assay is generally from 15 to 25 minutes. The proportioning of the lead to the supposed alloy in the silver to be assayed, is of great importance: if too little be employed, some of the alloy will remain in the mass; but if too much is used, some of the silver will be wasted, as the lead carries a small proportion of the silver down with it into the cupel. Bismuth will serve the same purposes as lead in cupellation; but it is clearer, and carries more of the silver with it into the cupel.

To estimate the quantity of alloy in silver, assayers formerly used what were called *touch-needles*, or small slips of silver, alloyed with known proportions of copper, in a regularly increasing series, from the least to the greatest proportion ever used. The silver to be assayed was compared with these, and its alloy estimated by that of the needle to which it shewed the closest resemblance. But an experienced assayer is now able to judge of the alloy with sufficient exactness by the ease or difficulty with which the silver is cut, by the colour and grain of a fresh-cut surface, the malleability, the change of surface when made red-hot, and the general appearance.

The assay of gold is more complicated than that of silver. The baser metals may be separated from it by cupellation, in the same manner as from silver, except copper, which has so strong an affinity for gold, that it can scarcely be overcome by this method, unless silver is first combined with the mass; and this makes the second operation before mentioned necessary, that of parting the gold from the silver.

The process of parting is performed by *aqua-fortis*, which dissolves the silver, and leaves the gold untouched. But in this operation it is found, that when the gold exceeds a certain proportion in the mixture, it so much protects the silver from the acid, as more or less to prevent its action. Therefore, when the gold is in excess, it becomes necessary to add so much silver as to give this metal the predominance. The proportion of silver generally used is three parts to one of the gold, whence the process receives the name of quartation. Several

good assayers think two parts are sufficient.

Though copper as well as silver is present, the parting may be proceeded to, as this metal is likewise soluble in aqua-fortis; yet it is found to have some advantages to cupel the mixture first with lead; and likewise even when no copper is combined with the gold.

The cupellation of gold is thus conducted: the portion of the alloy of silver being estimated by touch-needles, as much silver is added as will make the entire quantity of this metal about thrice the weight of pure gold.

The proportion of lead to the alloy of copper, or other base metal, is nearly the same as for silver. The heat necessary in the process is greater than for silver, and may be used with freedom, as none of the gold is lost by volatilization. The button is cooled, taken out and weighed, then hammered flat and annealed, and afterwards laminated between steel rollers to a plate about the thickness of a wafer, again heated to redness, and then coiled up into a spiral roll. The button of gold, when it lightens, still retains a minute portion of lead: this may be got rid of by its being kept a little time in fusion in a clean vessel. The lead entirely disappears after parting.

The spiral roll is called a cornet, and, when prepared, is put into a glass matrass, shaped like a pear, in order to separate the silver from it, and about thrice its weight of pure nitric acid poured upon it, moderately diluted (so as to be about 1.25 specific gravity). The glass is set on a sand bath, or over charcoal, to boil. When warm, the acid dissolves the silver: as long as it continues to act, the cornet is studded with minute bubbles; when these discontinue, or are united in one large one, it is a sign that the acid has ceased to operate. About twenty minutes are required for this process.

The cornet is now corroded throughout, having lost its silver: it retains the same form, but is very slender and brittle. It is of importance to the accuracy of the assay, that it should not be broken. The hot acid solution of silver is then poured off with great care, and fresh acid, rather stronger, is added, to clear away all the remains of the silver, and boiled as before, but only for five or six minutes. It is then decanted, and added to the first solution, and the parting glass is filled with hot distilled water, to wash all remains of the solution. A small crucible is to be inverted over the glass while it is full of water; the latter is then nimbly turned, and the cornet falls gently into the crucible through the water, which being poured off, the crucible is heated to redness under a muffle, when the cornet shrinks extremely in every direction, becomes firm, and when cooled regains its metallic lustre, and is soft and flexible. It is then accurately weighed; and the process is finished.

The final weight of the gold cornet indicates the absolute quantity of this metal in the assayed sample. The difference between the weight of the button after cupellation (deducting the silver added) and the first sample, is the weight of the copper, or other base metal in the gold; and the difference between the gold cornet, together with the silver added, and the button after cupellation, is the quantity of silver with which the gold was alloyed.

The silver is usually recovered from the solution after parting, by immersing in it plates of bright copper, which dissolve and precipitate the silver in the metallic form.

Touch-needles for gold are formed in the same manner as for silver; but more of them are required, as the various combinations of three metals are to be examined by them in this case. In trials with these needles, nitric acid is of singular service: a drop of it is let fall on a streak of metal on the touchstone, which may be a bit of black basaltes, or black pottery; in eight or ten seconds it is washed off, and the effect observed. If the streak preserve its golden brilliance unaltered, the metal is judged to be of a certain degree of fineness; if it look red, dull, and coppery, it is less fine; if the streak be nearly almost entirely effaced, it contains very little gold.

A peculiar set of weights are used for assaying. In this country the quantity of metal taken for assay is very small; generally from 18 to 36 grains troy for silver, and from 6 to 12 grains for gold. This is the integer; and whatever be its real weight, it is denominated the assay pound. This imaginary pound is then subdivided into aliquot parts, but differing according to the metal. The silver assay pound is subdivided, as the real troy pound, into 12 ounces, each ounce into twenty pennyweights, and, for assaying, these again into halves.

It remains for us to give the proportions of lead to the estimated alloy of fine metal necessary to be added for cupellation.

Copper, when taken singly, is found to require from ten to fourteen times its weight of lead for complete scorification on the cupel. Now all admixtures of fine metal tend to protect the copper from the action of the lead, and the more powerfully the greater proportion of fine metal. The following table is a table of the proportions of lead required to different alloys of copper. In the three first columns is shewn the absolute increase of the quantity of lead in alloys of decreasing fineness. In the three last columns will be seen the gradual diminution of the protecting power of fine metal against scorification, in proportion to the increase of alloy, shown by the decreasing quantity of lead required for the same weight of copper, under different mixtures:

Silver.		Copper.		Lead.	Ratio of Inc.		Copper.		Silver.		Lead.
23	with	1	requires	96 =	4 × 24	and hence	1	with	23	requires	96
22		2		144 =	6 × 24		1		11		72
20		4		192 =	8 × 24		1		5		48
18		6		240 =	10 × 24		1		3		40
16		8		288 =	12 × 24		1		2		36
14		10		336 =	14 × 24		1		$1\frac{2}{5}$		33
12		12		384 =	16 × 24		1		1		32
10		14		432 =	18 × 24		1		$\frac{6}{7}$		30
8		16		480 =	20 × 24		1		$\frac{1}{2}$		30
6		18		528 =	22 × 24		1		$\frac{1}{3}$		29
4		20		576 =	24 × 24		1		$\frac{1}{5}$		28
2		22		624 =	26 × 24		1		$\frac{1}{4}$		28

The proportions of lead for gold assaying are nearly the same as for silver.

Assays of alloys with platina are conducted nearly in the same manner as for the mixtures of silver and gold. Silver is seldom alloyed with it, but gold more frequently; and is known by the much greater heat it requires in the fusion; by the edges of the button appearing thicker and rounder than in common assays of gold; by its being duller, and tending to yellow; and its being entirely crystallized on its surface.

The action of nitric acid on the alloys of platina is very remarkable. By itself, platina is as insoluble in this acid as gold, and a mixture of these two metals equally resists its action; but when silver enters into the mixture in the proportion of $2\frac{1}{2}$, or three times, the weight of the gold and platina, and when the platina is not above a tenth of the gold, the platina is totally soluble in nitric acid, together with the silver, and the gold alone remains untouched.

When the gold, mixed with platina, is to be freed from it in the above manner, it must be laminated very thin; a weak acid is first added, and boiled for some time. If the platina be above two per cent. of the gold, the acid assumes a straw colour, which deepens in proportion to the greater proportion of the platina, and at the same time the cornets assume a brownish green. A stronger acid is then added, and boiled three times successively, to detach the last portions of platina, which are separated with difficulty. Parting might be used even when the platina is more than a tenth of the gold; but then more silver must be added, which would render the cornet so very thin after the action of the acid, that it could hardly be annealed without breaking.

When alloys of silver alone with platina are treated with nitric acid, the silver dissolves as usual, but the liquor soon becomes muddy with a very fine bulky black precipitate, which continues increasing till all the silver is dissolved, and which is found to be entirely platina. A part of the platina, however, remains in the solution; for on adding muriatic acid to the liquor separated from the precipitate, white luna cornea falls down, after which carbonate of potash will throw down a green coagulum, which is oxyde of platina. The above effects of nitric acid will therefore detect an alloy of silver and platina.

According to the laws of England, all sorts of wrought plate, in general, ought to be made according to the standards of gold and silver; and the current prices of such standard gold and silver is the common rule whereby to value bullion, whether in mass, bars, dust, or in foreign coin: but the true value of bullion gold or silver cannot be known without being assayed; for the use of an assay, as we before observed, is to discover how much alloy there is in any bullion. If there be less alloy in it than in the standard, so much finer and more valuable is it than standard. If, on the other hand, there be more alloy than in the standard, such bullion will be coarse, and consequently so much less valuable than standard.

To get bullion assayed, you take a slip of paper and put into it a few grains (the usual quantity) cut off the bullion which is to be assayed, fold it up, and underneath write the owner's name.

This paper is carried to his majesty's assay-office, in the Tower, or to the company's office in Goldsmith's hall. After the same is assayed, if you ask for it in the owner's name, it will be returned to you again, with the gold or silver in it: for which you pay the customary fee.

When you come to open the paper, you will find the assay-master's name, and report written by him, much after the following form, viz.

A—— B——
Silver for an assay, January 8th, 1818.
W. 12 dwts. ob.

A—— B——
Gold for an assay, January 10th, 1818.
B. 2 gra. $\frac{3}{4}$.

The assay-master makes his reports of silver in ounces, pennyweights, and half pennyweights: and of gold in carats, carat-grains, and the fractions of a carat-grain. It must be observed, also, that B stands for better than standard; W for worse; *Ob.* for half pennyweight; *Sta.* for standard.

ASSAYING *of weights and measures*, is the examination of weights and measures by the clerk of the market.

ASSAYER *of the king*, an officer of the

king's mint for the trial of silver: he is indifferently appointed between the master of the mint and the merchants that bring silver for exchange. 2 Hen. 6. c. 12. Vessels of gold shall be assayed. 28 Edw. 1. c. 20. and 13 Car. 2. c. 5.

ASSAYERS *of plate made by goldsmiths, &c.* These are for assaying and marking thereof; of whom, with their fees, and how the assay offices are regulated by statute, *see* 12 Geo. 2. c. 26., and article GOLDSMITHS.

ASSEMBLY, *unlawful.* A succession of statutes have been enacted since the 36 of Geo. 3. for the protection of the person of the sovereign, and for the prevention of seditious meetings and unlawful assemblies. The last and most comprehensive of these is 57 Geo. 3. c. 19. It enacts that no meeting of more than 50 persons (except county meetings called by the lord lieutenant, sheriff, &c.) shall be holden for preparing any petition, &c. or other address to the king, regent, or houses of parliament, upon pretence of deliberating upon any grievance in church or state, unless notice of such meeting, &c. shall be given by seven housekeepers, five days before, in some public newspaper, &c. signed by them, &c. on pain of forfeiting 50*l.* by the person who inserts the same without such authority. And all persons assembling contrary to the provisions of this statute, or refusing to disperse after proclamation made for that purpose by any justice, magistrate, sheriff, or under-sheriff, in their respective jurisdictions, but remaining to the number of 12 or more persons by the space of an hour after such proclamation, shall be guilty of felony without benefit of clergy. And persons obstructing justices, &c. in the execution of their duty, shall be punished in like manner.

And all places wherein lectures shall be given, or debates holden, for admission to which money shall be taken, &c. shall be considered unlawful, unless previously licensed; and the persons opening the same shall be liable to a penalty of 100*l.*, and the persons who shall conduct the proceedings there to a penalty of 20*l.* And justices may demand admittance to all such assemblies, and a refusal to admit them shall subject the parties refusing to a penalty of 20*l.* Places licensed shall forfeit their licences in case of any seditious or immoral lectures, &c. being given. And all persons taking unlawful oaths, &c., or electing delegates or committees for seditious purposes, shall be proceeded against according to 39 Geo. 3. c. 79. Freemasons' lodges, meetings for charitable purposes, Quakers' meetings, &c. are exempted from the penalties of the statute. Penalties above 20*l.* are to be recovered by action; those not exceeding, by summary conviction before justices of the peace.

ASSESSED TAXES, certain direct imposts, so denominated in contradistinction to the indirect taxes on consumable articles. They are imposed by divers statutes on the following items: 1. Windows. 2. Houses. 3. Servants. 4. Carriages. 5. Horses kept for pleasure. 6. Other horses and mules. 7. Dogs. 8. Horse dealers. 9. Hair powder. 10. Armorial bearings. 11. Game certificates. These taxes are made payable by quarterly instalments; viz. on the 20th day of June, for the quarter commencing from the 5th day of the preceding April, and ending on the 5th day of July; the 20th day of September for the quarter commencing from the 5th of July and ending on the 10th of October; the 20th day of December for the quarter commencing from the 10th day of October and ending the 5th of January; and the 20th day of March for the quarter commencing from the 5th day of January and ending on the 5th day of April next. These duties, in the event of non-payment, are to be levied by distress and sale.

ASSETS, in law, goods or property in the hands of a person, with which he is enabled to discharge an obligation imposed upon him as executor, &c. Assets may be real, or personal. Lands, in general, are *real;* personal estate, or goods which come to the executor, are *personal.*

ASSIGN, is to appoint, or transfer, or set over, a right to another. He that *assigns* is called the *assignor,* and he to whom the thing is *assigned* is named the *assignee.*

ASSIGNEE, in law, a person appointed by another to do and act, transact some business, or enjoy a particular commodity.

Assignees may be by deed, or by law: by deed, where the lessee of a farm assigns the same to another; by law, where the law makes an assignee, without any appointment of the person intitled, as an executor is assignee in law to the testator, and an administrator to an intestate. It is most commonly applied to those creditors of a bankrupt who are appointed by the rest to manage for them, and consequently have the bankrupt's estate assigned over to them. *See* BANKRUPT.

ASSIGNMENT, in law, differs from a lease in this; that by a lease a man grants an interest less than his own: in assignment he grants the whole property. 2 *Black.* 326.

ASSIZE, is a word of extensive interpretation and diversified application; so diversified indeed, that, for particular information, the reader must inevitably be referred to more voluminous works. It signifies a sitting of judges *assigned* by the king's commission to travel through all the counties of the kingdom, in order to hear suits and to try offenders. This assize is of so early a date as the reign of King Henry II., and was, even then, rather the adoption of an anterior practice with certain alterations, than a new ordinance.

The word is also both legally and colloquially used for any law which regulates

the weight or size of any commodity; and sometimes also for the quantity itself which is prescribed. Thus the statutes which have been occasionally passed respecting the weight of bread are called the *assize of bread;* and the comparative proportion which is to be kept up between the price of wheat and that of bread, is also called the *assize.*

The statutes relative to the assize of bread are extremely numerous, but the most recent and comprehensive is 53 Geo. 3. c. 116. See the numerous tables, and decided cases on it, *Dick. Pract. Expos.* v. 3. p. 74.

By 55 Geo. 3. c. 99. the city of London, and all places within ten miles thereof, are exempted from the provisions of the statutes for setting the assize of bread; and other provisions are introduced for protecting the public from the frauds of bakers. *Id.* p. 99.

ASSUMPSIT, a voluntary promise, whereby a person assumes, or takes upon himself, to perform or pay any thing to another. All assumpsits must be for some valuable consideration; and they are either *express,* or *implied.* Express is by direct agreement, either by word, or note without seal. Implied: when any person becomes legally indebted to another for goods sold, the law *implies* a promise that he will pay his debt; and if he does not pay it, the writ *indebitatus assumpsit* lies against him; and will lie for goods sold and delivered to a stranger or third person, at the request of the defendant: but the price agreed on must be proved, otherwise that action does not lie.

ASSURANCE. *See* INSURANCE.

ASTERISK, a little star; a succession of these are placed to denote that so many letters in a word are omitted; for which these are substituted. This is generally done in order to avoid a prosecution for libel.

An Asterisk is also frequently used as a mere mark of reference for some passage in a page, to a note at the bottom of the same page.

ASTERN, one vessel sailing after another is said to be astern of her.

ASTRINGENTS are substances distinguished by a rough austere taste, and the power of changing solutions of iron, especially those made in the sulphuric acid, into a dark purple, or black colour. But the most certain test is that of their forming a copious precipitate with animal jelly. Those used in medicine, and in the arts, are, oak-bark, nut-galls, logwood, walnut fuel, kino, catechu, bistort, sloe, dragons' blood, pomegranate, red roses, and tormentil root.

ATCHABANNIES, a species of Bengal calico.

ATCHE, a small silver coin used in Turkey, and worth only one-third of the English penny.

ATHANOR, in chemistry, a kind of digesting furnace, contrived to keep a constant heat for a considerable time.

ATIBAR, a name for gold-dust, in the kingdom of Gago in Africa, and from which the Europeans, and particularly the French, have composed the word *tibir,* which also signifies gold-dust.

ATLAS, denotes a book of universal geography, containing maps of all parts of the known world.

ATLAS, in commerce, a sort of silk or satin manufactured in the East Indies, in which gold and silk are so wrought together, as no workman in Europe can imitate. In China they weave long slips of gilt paper into their silks. The same slips of paper are twisted about silk threads, so artificially, as to look finer than gold thread, though of no great value.

ATTACH, (*attachiare,* from the French *attacher,*) signifies to take or apprehend by commandment of a writ or precept. It differs from arrest, in that, he who arresteth a man, carrieth him to a person of higher power to be forthwith disposed of; but he that attacheth keepeth the party attached, and presents him in court at the day assigned.

ATTACHMENT is the process that issues at the discretion of the judges of a court of record against a person for some contempt, for which he is to be committed, and may be awarded by them upon a bare suggestion, or on their own knowledge, without any appeal, indictment, or information.

ATTACHMENT, *Foreign,* is an attachment of money or goods, found within a liberty or city, to satisfy some creditor within such liberty or city. By the custom of London, and several other places, a man can attach money or goods in the hands of a stranger, to satisfy himself. In London the process is taken out for attachment, at the Lord Mayor's Court Office, over the Royal Exchange.

A Foreign *attachment* cannot be had when a suit is depending in any of the courts of Westminster, which make the matter not to be meddled with by any other court. *Cro. Eliz.* 691. And nothing is *attachable* but for certain and due debt; though by the custom of London, money may be attached before due, as a debt; but not levied before due. *Sid.* 327. 1 *Nels. Abr.* 282, 283.

Foreign *attachments* in London, upon plaint of debt, are made after the following manner: "A. owes B. 500*l.* and C. is indebted to A. 500*l.* B. enters an action against A. of 1000*l.* and by virtue of that action a serjeant *attaches* 500*l.* in the hands of C. as money of A. to the use of B. which is returned upon that action." The *attachment* being made returned by the serjeant, the plaintiff is immediately to fee an attorney, before the next court to be holden; or the defendant may then put in bail to the *attachment,* and nonsuit the plaintiff: four court days must pass before the plaintiff can cause C. the *garnishee,* in whose

hands the money was *attached*, to shew cause why B. should not condemn the 500*l.* *attached* in the hands of C. as the money of A. the defendant, in the action (though not in the *attachment*) to the use of B. the plaintiff: and the garnishee C. may appear in court by his attorney, wage his law, and plead that he has no money in his hands of the defendant's, or other special matter; but the plaintiff may hinder his waging of law, by producing two sufficient citizens to swear that the garnishee had either money or goods in his hands, belonging to A. at the time of the *attachment*, of which affidavit is to be made before the Lord Mayor, and being filed, may be pleaded by way of estoppel: then the plaintiff must put in bail, that if the defendant come within a year and a day into court, and he can discharge himself of the money condemned in court, and that he owed nothing to the plaintiff at the time in the plaint mentioned, the said money shall be forthcoming, &c. if the garnishee fail to appear by his attorney, being warned by the officer to come into court, to show cause as aforesaid, he is taken by default for want of appearing, and judgment given against him, for the goods and money *attached* in his hands, and he is without remedy, either at common law, or in equity; for, if taken in execution, he must pay the money condemned, though he have not one penny, or go to prison; but the garnishee appearing to show cause why the money or goods *attached* in his hands, ought not to be condemned to the use of the plaintiff, having feed an attorney, may plead as aforesaid, that he has no money or goods in his hands of the party's against whom the *attachment* is made, and it will then be traced by a jury, and judgment awarded, &c.; but after trial, bail may be put in, whereby the *attachment* shall be dissolved; but the garnishee, &c. and his security will then be liable to what debt the plaintiff shall make out to be due, upon the action; and an *attachment* is never thoroughly perfected, till there is a bail and satisfaction upon record. *Privileg. Lond. & Com. Dig. title* Attachment.

If a plea of foreign attachment (in London) state the custom, &c. it ought also to *aver* "that the defendant in the plaint was indebted to the plaintiff within the city;" but it is not necessary that the debt should arise within the jurisdiction, or that the defendant in that court should reside within it, or be actually summoned. *Morris* v. *Ludlam*, 2 *H. Black. R.* 362. *Harrington* v. *Macmorris*, 5 *Taunt. R.* 232.

A. deposits goods with B. as a security for money advanced by B., with a promise to deliver the bill of lading when it should arrive, indorsed to B.; C. is employed as broker to dispose of the goods for B.'s benefit. Before the bill of lading arrives, the goods are attached in the Mayor's Court, in the hands of C., by a creditor of A., held that the transfer of the property to B. was complete, though the bill of lading had never been indorsed, and therefore that the foreign attachment was no answer to an action by B. against C. for the proceeds. *Giles* v. *Nathan*, 1 *Marsh. R.* 226.

A garnishee against whom there was a recovery in the Mayor's Court on foreign attachment, after a summons to defendant, and return of *nihil*, may protect himself by giving such proceedings in evidence, in an action to recover the same debt brought by the defendant below, without proving the debt of the plaintiff below, who attached the money in his hands. *Macdaniel* v. *Hughes*, 3 *East. R.* 367.

ATTAINDER. When sentence is passed upon a person who has committed treason, or felony, the immediate inseparable consequence is attainder. But this is not till after judgment and sentence pronounced; for there is a material difference between a man merely convicted, and one attainted. After conviction *only*, a person is not subject to the disabilities of attainder, which are forfeiture and corruption of blood; but when judgment has been pronounced, attainder follows of course.

The 54 Geo. 3. c. 145. enacts, that thereafter no attainder, except for treason, or murder, or abetting or counselling the same, shall extend to any person other than the offender, for his natural life only.

ATTORNEY, (*attornatus*,) is one set in the place of another man, and who has authority given him to act in the place and stead of him by whom he is delegated, in private contracts and agreements, which authority must be by deed, that it may appear that the attorney has pursued his commission, and this is in general done by a power or letter of attorney executed under seal, though such a power may be and very frequently is contained in other deeds. 1 *Bac. Abr. title* Attorney.

Of this power all persons are capable, and therefore the same may be executed by infants, femes covert, persons attainted, outlawed, excommunicated, aliens, and others; for this being only a *naked authority*, the execution of it can be attended with no manner of prejudice to the persons under such incapacities or disabilities, or to any other person who by law may claim any interest of such disabled persons after their death. *Ibid.*

Attorney at Law is a person duly admitted in the king's courts, and who is appointed by another person, usually denominated his *client*, to prosecute, or defend, some suit on his behalf: and he is considered as a public officer belonging to the courts of justice in which he may have been admitted.

The principal statutes for the regulation of Attornies, are, 3 Jac. 1. c. 7. — 2 Geo. 2. c. 23. — 12 Geo. 2. c. 13. — and 22 Geo. 2. c. 46. By these none can be admitted, as attornies or solicitors, unless they have

served a clerkship of five years, been enrolled, and taken the oath in that case provided; and the Judges of the respective courts are required to examine their several capacities.

A stamped duty is charged upon all articles of clerkship to an attorney or solicitor. Also every attorney, solicitor, notary, proctor, or agent, shall annually take out a certificate, charged with a stamp duty, between the 15th day of November and the 15th day of December. 54 Geo. 3. c. 144.

Attornies may be punished for illegal practices; and if an attorney, or his clerks, of which he must have but two at one time articled, do any thing against the express rules of the court, he or they may be committed by such court.

Attornies have the privilege to sue and be sued in the courts of Westminster, while *they practise*, but no longer. *Brook* v. *Bryant*, 7 *Term R.* 25.

By 2 Geo. 2. before mentioned, no attorney or solicitor shall commence or maintain an action for the recovery of any fees, charges, or disbursements, until the expiration of one month or more after he shall have delivered to the party charged, or left *at his dwelling-house or last place of abode*, a bill of such fees, &c. written in a legible hand, in English, and in words at length, &c. &c. N. B. A leaving at the compting-house is not sufficient. 2 *Bos. & Pul.* 343.

A copy of such bill will be good evidence without notice to produce the original. 2 *Bos. & Pul.* 237.

But it will also be evidence against any increase of charge, or any addition of items, by a subsequent bill. 1 *Bos. & Pul.* 49.

A mistake in the date of items which does not mislead, will not vitiate the delivery as to time. 4 *Taunt.* 806.

Negligence in the conduct of a cause cannot *in general* be set up as a defence to an action on an attorney's bill. 2 *N. Rep.* 136.

An attorney has a lien for his general balance on papers of his client which come to his hands in the course of his employment; and acceptances given, and afterwards dishonoured, do not extinguish such lien. 1 *M. & S. Rep.* 535.

But the lien of an attorney on papers is only commensurate with the right of the party delivering these to him. 4 *Taunt. R.* 807.

An attorney has a lien for his bill of costs on money levied by the sheriff under an execution, on a judgment recovered by his client. 1 *H. Black. R.* 122.

And he has a similar lien upon a sum *awarded* in favour of his client, as well as if recovered by judgment; and he shall not be prejudiced by a collusive arrangement between the parties. 1 *East. R.* 464.

An attorney coming into possession of records as a deputy to a principal, on the death or removal of that principal, will be compelled summarily by the court of which he is an attorney, to deliver up such records to a new principal. 2 *Black. R.* 912. And generally all court rolls, deeds, and papers, his costs and charges being paid into the hands of the proper officer of the court. 3 *Term. R.* 275.

ATTORNEY, *letter or power of. See* POWER OF ATTORNEY.

AUCTION, sales by auction are subject to many legal regulations. *See* 19 Geo. 3. c. 56. and 28 Geo. 3. c. 37.

AUCTIONEER. An auctioneer is an agent lawfully authorized by the purchaser to sign a contract for him, whether it be for lands or goods. And his writing down the name of the highest bidder in his book, is sufficient to bind any other person for whom the highest bidder purchased, even though such person be present, if he do not object before entry. 4 *Taunton. R.* 209.

An auctioneer receiving money as a deposit on the sale of an estate by auction, *knowing* that there is a defect in the vendor's title, is answerable to the purchaser for the deposit, though he should have paid it over to the vendor. 1 *Marsh. R.* 377.

A bidder at an auction may retract his bidding at any time before the hammer is down. 3 *Term. R.* 148.

And if the vendor of an estate by auction do not show a clear title by the day specified, the purchaser may recover back his deposit, and rescind the contract. 4 *Taunt. R.* 334.

A purchaser at an auction at an extravagant price, in consequence of all the bidders against him being concealed puffers, and not any of them *bonâ fide* bidders, cannot be compelled to complete his contract. 6 *Term. R.* 642.

No person shall act as an auctioneer, or dispose of any goods or effects by auction, without a licence from the commissioners of excise; such licence to be renewed annually. *See title* LICENCE.

Auctioneers, within the limits of the chief office of excise, in London, to give security to the excise in the sum of 1000*l.* with two sureties in the sum of 200*l.* each; to deliver in, within twenty-eight days, a true and particular account of sales; and, without the bills, in the sum of 50*l.* to deliver in a similar account, within six weeks after such sale; and within the fourteen days and six weeks respectively, make payment of the duties.

Auctioneers may make it a condition of sale, that the purchaser shall pay the rates.

The real owner of any estate, goods, or effects, put up at auction, bidding for himself, or any other person bidding in his behalf, shall be allowed the duties, provided notice be given to the auctioneer, in writing, before such bidding; such notice to be verified by the oath of the auctioneer.

There are many exemptions in favour of

sales of estates or chattels, by any rule or decree of the Court of Chancery, or Exchequer Courts in Scotland, East Indies, or Hudson's Bay Companies, Commissioners of Excise, Customs, Ordnance, Navy, Victualling; sales made under any execution or distress; goods imported from British plantations in America, on account of the original importer; ships with their tackle, apparel, and furniture, or the cargoes thereof, condemned as prizes; goods damaged by fire, and sold for the benefit of the insurers; goods woven or fabricated from the loom, in this kingdom, in certain quantities; certain goods, the produce of British colonies in America, imported in British vessels, &c. &c.; property sold to redeem the land-tax, &c. &c.

Two days previous notice of every sale, with an attested catalogue, to be sent by every auctioneer to the excise office, mentioning when and where such sale is to be held, and three days previous notice to be given in the country.

And every auctioneer giving such notice, if within the limits of the excise office, shall, within twenty eight days after the day specified in the notice, for such sale to be made, and, if out of the limits of the excise office, within six weeks after, deliver to the excise office in London, or officer in the country, a declaration on oath, setting forth whether the auction was opened, or any lot bid for, under penalty of 50*l.*

AUDIT, a regular examination of account, by some proper officer.

AUDITOR *of the Receipts*, is an officer of the exchequer, who files the teller's bills, makes an entry of them, and gives the Lord Treasurer a certificate of the money received the week before. He also makes debentures to every teller, before they receive any money, and takes their accounts. He keeps the black book of receipts, and the treasurer's key of the treasury; and sees every teller's money locked up in the new treasury.

AUM, or Aume, a Dutch measure for Rhenish wine, (as an aum of hock) containing forty English gallons. *See* AWM.

AUNCEL-*Weight*, an ancient kind of balance, now out of use, being prohibited by several statutes, on account of the many deceits practised by it. It consisted of scales hanging on hooks, fastened at each end of a beam, which a man lifted up on his hand. In many parts of England auncel-weight signifies meat sold by the hand, without scales.

AUNE, a long measure used in France to measure cloth, stuffs, ribbons, &c.; at Rouen it is equal to one English ell, at Calais to 1,52, at Lyons to 1,16, and at Paris to 0,95 parts. *See* WEIGHTS AND MEASURES.

AUREUS, a Roman gold coin, equal in value to twenty-five denarii. According to Ainsworth, the *aureus* of the higher empire weighed near five pennyweights, and in the lower empire little more than half that weight.

AURICHALCUM, or Orichalcum, signifies a factitious metal, commonly called brass. It is a mixture of copper and calamine-stone, melted together by a very fierce fire.

AURIPIGMENTUM, or Orpiment. *See title* ARSENIC.

AUTOMATON, a self-moving machine, or whose principal of motion is within itself, as a clock, watch, &c.

AUTOM, a sort of bark which resembles cinnamon, but is paler and thicker; it is the colour of a broken nutmeg, and full of spangles. It comes from the Levant, and is an ingredient in the carmine dye.

AVAST, a sea term, signifying *stop*, or *enough*.

AVERAGE, is divided into three kinds, viz. 1. *Particular average*, which consists in the extraordinary expences incurred for the ship alone, or for merchandize alone. Such is the loss of anchors, masts, and rigging, occasioned by the common accidents at sea; the damages which happen to merchandize, by storm, prize, shipwreck, wet, rotting, &c.; all which must be borne and paid by the thing which suffered the damage.

2. The *general average*, being those expences incurred, and damages sustained, for the common good and security both of the merchandise, and vessels, consequently to be borne by the ship and cargo, and to be regulated upon the whole. Of this number are the goods, or money, given for the ransom of the ships and cargo, things thrown overboard for the safety of the ship, the expenses of unlading for entering into a river or harbour, and the provisions and hire of the sailors when the ship is put under embargo.

3. The *small averages*, which are the expences of towing and piloting the ship out of, or into, harbours, creeks, or rivers, one-third of which must be charged to the ship, and two-thirds to the cargo. *See* INSURANCE.

AVIGNON-BERRY, the fruit of a shrub, produced in great plenty near Avignon in France; colour green, inclining towards a yellow, used by dyers and painters.

AVOIRDUPOIS-WEIGHT, a kind of weight used in England, the pound of which consists of sixteen ounces. This is the weight for large and coarse commodities, as groceries, cheese, wool, lead, hops, &c. Apothecaries buy their drugs by *avoirdupois-weight*, but sell by troy. The proportion of a pound avoirdupois to a pound troy, is as 17 to 14; or the avoirdupois pound contains 7000 grains, and the troy pound 5760. *See* WEIGHTS AND MEASURES.

AWARD (from the Fr. *agard*). An

award is the judgment and arbitration of one, or more persons, at the request of two parties who are at variance, for ending the matter in dispute without public authority: and may be called an award, because it is imposed on both parties to be observed by them.

The submission to an award may be by bond, covenant, or by an assumpsit or promise; or without all this, by a bare agreement to refer the matter to such a person or persons. 3 *Black. Com.* 16.

By stat. 9 & 10 W. 3. c. 13. it is enacted, that "submissions to awards, by agreement "of the parties, may be made a rule of any "of his majesty's courts of record; and "on a rule of court thereupon, the parties "shall be finally concluded by such ar-"bitrament: and, in case of disobedience "thereto, the party refusing to perform the "same, shall be subject to the penalties of "contemning a rule of court, &c. unless it "appears on oath that such award was pro-"cured by corruption, or other undue "means, when it shall be set aside: so as "complaint thereof be made to the court be-"fore the last day of the next term, after "made and published."

The limitation under this stat. to the second term is confined merely to such objections as affect the conduct of the arbitrators: but objections which arise on the face of the award itself, may be made at any time. 2 *Burr.* 701. *Barnes* 56, 57.

Where the submission limits no time for the making of the award, it shall be understood to be within convenient time, and if in such a case the party request the arbitrators to make an award, and they do not, a revocation afterwards will be no breach of the submission. 3 *Keble* 745.

An award can only be binding and effectual amongst those who are parties.

If the submission be without deed, it may be revoked without deed, and the party shall lose nothing. 1 *Bac. Ab. tit. Arb.*

If the submission be by deed, it is of its own nature countermandable, though made irrevocable by the express words of the deed, for the arbitrators being constituted and put in the place of the parties by their consent to act for them, they can no longer act, than while they have such consent. *Ibid.*

The court have no authority, by the stat. of Wm. to make a *parol* submission to an award a rule of court. 7 *Term. R.* 1.

But they have jurisdiction under that statute to make the *award*, instead of the submission, a rule of court.

If the bond of submission be, "that if "arbitrators do not make their award by "the day named, then to abide the award "of a third, or umpire, to be chosen by "the arbitrators," the time for the appointment of such umpire commences when the time for their making their award expires. 4 *Taunt. R.* 232.

Arbitrators may choose an umpire either before, or after, the time limited for making their own award, if the umpire be but chosen within the time limited for the umpirage. 15 *East. R.* 556.

And may choose one immediately previous to their entering upon the examination of the matter referred to them. 1 *Taunt. R.* 509.

When an arbitrator has power to enlarge the time for making his award to *any other day*, he may enlarge it more than once. 1 *Taunt. R.* 509.

And any *day* will be construed any *days*. 4 *Taunt. R.* 658.

Arbitrators appointed to arbitrate a certain measure contemplated, as, for instance, a dissolution of a partnership, they are not necessarily bound to direct that such partnership *shall* be dissolved. 1 *Taunt. R.* 549.

After the delivery of an award, an arbitrator cannot correct a mistake (as in the calculation of figures), by making another award, though within the time limited by the submission.

As an award is in nature of a judgment, *it ought to be wholly decisive*, for if it doth not determine the matter, it becomes a new controversy; therefore if the arbitrators award a bond for quiet enjoyment of lands, without appointing a certain sum, or direct one party to give to the other a good security for a certain sum of money, without saying what security; or to pay for so many quarters of malt sold according to the market price, or without ascertaining what that price was, this is a void award, and the party is not obliged to give bond to the value of the land; for then the sense of the award must be supplied by averment; now if it hath the credit of a judgment, there can be no interpretation made of the award, but by the words of the award itself; for if it receives its meaning from any matters out of the award, the mind of the arbitrators is only guessed at, and not expressed; but the parties intended to be obliged only by what the arbitrators themselves declare to be their award, and the bond to be according to the value, they cannot assign their power to any person to assess the value. 5 *Co.* 77. *Cro. Eliz.* 432.

But an award directing one of two things to be done in the alternative, if either of them is capable of being performed, is good, and ought to be carried into execution. 1 *Taunt. R.* 549.

The awarding of costs is incidental to the power of an arbitrator: the provision therefore on the reference, that the costs shall abide the event of the award, is a restriction of the power which he necessarily hath of giving costs at his election. 2 *Term. Rep.* 644.

And the award of costs *to be taxed* by the proper officer, doth not include the costs of the reference, but is merely confined to the

costs of the action. 1 *H. Black.* 213. But if no directions be given by arbitrators respecting costs, they are to be paid by both the submitting parties equally. 1 *Taunt. R.* 165.

An award, "that each party shall pay "his own costs, and certain actions shall be "discontinued," is final and good. 9 *East. R.* 497.

If either of the parties submitting a matter to arbitration die before award made, it is a revocation of the arbitrator's authority, and the award made subsequently to such death would be set aside. 1 *Marsh. R.* 366.

AWLS, (Ger. *Ahlen.* Du. *Elsen.* Da. *Sycle, Syle.* Sw. *Syl.* Fr. *Alènes.* It. *Lesine.* Sp. *Lesnas.* Port. *Sovelas.* Rus. *Schilo.* Pol. *Szydla,*) a sharp pointed iron instrument, used for boring holes. Shoemakers, saddlers, and some other mechanics use awls for the purpose of making small apertures in the leather, &c. for the admission of waxed cord, thread, &c. whereby the stitches are formed. A sort of short awl is used by carpenters for boring holes in the covers of boxes, chests, &c. in order that the nails, being driven in, may not split the wood. Awls of this description are usually denominated brad-awls; the iron part of this instrument is round, while that used by shoemakers is flat and curved. Large quantities of awls are manufactured at Birmingham and in its neighbourhood.

AWM, or Aum, a measure of Rhenish wine. containing 40 English gallons, mentioned in the statute, 1 Jac. 1. c. 33. and 12 Car. 2. c. 4. *Awm* is considered as a Dutch measure, answering to what is called in England, a tierce, or one seventh of an English tun, and one-sixth of a tun in France.

AWNING, on board a ship, is when a sail, tarpaulin, &c. are hung over any part of the ship, to keep off the sun, rain, or wind.

AXES, (Ger. *Aexte.* Du. *Axten.* Dan. *Oxer.* Sw. *Yxor.* Fr. *Coignées.* It. *Appié.* Sp. *Hachas grandes.* Port. *Machados grandes,*) instruments consisting of a metal head, with a sharp edge, fixed in a handle. They are used by carpenters, &c. for cutting wood, &c.

AXUNGIA *vitri,* sandiver, or salt of glass, a kind of salt which separates from the glass, while it is in fusion. It is of an acrimonious and biting taste. The farriers use it for clearing the eyes of horses. It is also used for cleaning the teeth, &c.

AZIMUTH *compass,* an instrument adapted to find, in a more accurate manner than by the common sea-compass, the sun's or star's magnetical amplitude, or azimuth.

AZOGA *ships,* Spanish ships, commonly called the quicksilver ships, from their carrying quicksilver to the Spanish West Indies, in order to extract the silver out of the mines of Mexico and Peru. These ships, strictly speaking, are not to carry any goods unless for the king of Spain's account; but by procuring special licences, they are enabled to take in a full cargo for merchants as well as the sovereign.

AZURE, a name for a celebrated blue colour, prepared from *lapis lazuli,* and generally called *ultramarine.* *See* ULTRAMARINE.

B, the second letter of the alphabet, is used as an abbreviation; in music, B stands for the tone above A; B also stands for bass, and B C for basso continuo, or thorough bass. As a numeral, B was used by the Greeks and Hebrews, to denote 2; but among the Romans, for 300, and with a dash over it, (thus $\overline{B}$) for 3000. The same people likewise used B for Brutus, B. F. for *bonum factum.* B, in the old chemical alphabet, signifies mercury; B. A. stands for Bachelor of Arts; B. L. for Bachelor of Laws; and B. D. for Bachelor of Divinity.

BAAT, in *Siamese,* and *Tical* in *Chinese,* is both a weight and coin current in the two empires; the *baat* is of silver, and, as a weight, answers the English half ounce. It is there four mayons, (in *Siamese* seling) the mayon two fouangs, the fouang four payes, and the paye two calms; here are also sompayes, in value half a fouang. All these weights are also coins, or at least bits of silver that pass in lieu of them, as well in China as in Siam. The tical weighs three gros and twenty-three grains, which (reckoning the ounce of silver at three livres and a half *Tournois*) is thirty-two sols and four deniers as money, for it weighs nearly half an ounce. The form of the *baat* is square, and as it is subject to great alterations from the wearing down of the angles, strangers should not take it as a weight or coin, till its value is known. *See* WEIGHTS AND MEASURES.

BABYLONICA TEXTA, a rich sort of weavings or hangings, so denominated from the city of Babylon, where the practice of weaving divers colours in their hangings was first invented.

BACCALAO. *See* BARCALAO.

BACHELOR is said to be a feudal

term expressive of inferiority of rank, whence it has been adopted among our titles of honour, as well those conferred by the sovereign, as those by certain public bodies; the former for military, the latter for scientific, achievement. Thus the kings of England have been used to bestow the title of *Knight Bachelor* being the lowest order of knighthood, inferior to those of Knights Banneret, and Knights of the Bath, on such as they wished to distinguish above the ordinary gentry. 1 *Black. Com.* 404.

The universities also confer the title of bachelor as the first, or lowest, on those who, having finished their studies and resided the necessary time, are to become *graduates*, or to *take their degrees*, according to the technical phraseology of those learned bodies. There are bachelors of arts, of law, of physic, of music, and of divinity.

The most ordinary acceptation of the word (remotely derived from *one* of the *qualifications* of a knight bachelor under the feudal *regime*) is that of merely an *unmarried man*. In this sense it is used in all the modern statutes for raising what are denominated the *assessed taxes*, by which every unmarried man is directed to make his return with the addition of a capital B, denoting bachelor, that he may be assessed double on that account.

BACK, in brewing, a large flat kind of tub or vessel, in which the wort is put for cooling. The ingredients of beer pass through three kinds of vessels; they are mashed in one, worked in another, and cooled in a third. *See* BREWING.

BACK *the sails*, is to put them in a situation that will occasion the ship to retreat or move a-stern.

BACK-STAFF, an instrument to take the sun's altitude. It consists of two concentric arches, the greater of which is divided into 30 degrees, and every degree into 5 minutes, by means of diagonal lines, and the lesser into 60 degrees. There are likewise three vanes belonging to it; that upon the arch of 30 degrees, being called the sight vane; that upon the arch of 60 degrees, the shade vane; and the other, in the centre of the arches, the horizon vane.

To find the sun's altitude by this instrument, fix the shade vane on the 60 degrees arch, at or about 15 or 20 degrees less than the complement of the altitude; and turning your back towards the sun, move the sight vane up and down till the sun's image fall on the horizon vane, and at the same instant you see the horizon through the slit in the horizon vane; then will the degrees cut by the shade vane on the arch, being added to those cut by the sight vane on the other arch, be the sun's zenith distance at that time, which being subtracted from 90 degrees, will give his altitude.

BACK-STAYS *of a ship*. *See* STAYS.

BACON (Ger. *Speck*. Du. *Spek*. Da. *Flesk*. Sw. *Fläsk*. Fr. *Lard*. It. Sp. and Port. *Lardo*. Rus. *Solo*. Pol. *Slonina*. Lat. *Lardum*,) is made from the sides and belly of the pig, which are first thoroughly impregnated with salt, then suffered to remain for a certain period in brine, and lastly dried and smoked in places, called drying-houses. Those counties of England particularly celebrated for bacon, are Yorkshire, Hampshire, Berkshire, and Wiltshire. Ireland also produces immense quantities of bacon, but it is neither so clean fed, nor so well cured, as the English, but much lower in price. Scotland, especially those parts of it on the borders of England, have recently cured very large quantities of pork and bacon, with which no inconsiderable portion of the London markets are supplied, and it is excellent in quality.

Bacon makes an important article of exportation, especially to our West Indian colonies.

BADIAN, or Badiane, Indian anniseed; the seed of a tree which grows in China, and smells like our annise-seed, or as it is usually called by contraction *aniseed*. The Chinese, and the Dutch, in imitation of them, sometimes use the *badian* to give their tea an aromatic taste.

BAETAS, so called by the Spaniards and Portuguese, is a sort of woollen stuff, which is not crossed, and which is called in France *baguette*, or *bagette*.

BAFFETAS, or Bastas, or Baftaes, a cloth made of coarse white and blue cotton thread, which comes from the East Indies. Those of Surat are the best.

BAG. A great variety of articles in commerce are sold by the *bag*, which means no more than that the *bag*, being made of a determinate size, is supposed to contain a certain weight, which is taken in the gross without weighing, for the sake of expedition; but in this case bags or sacks are generally proved and sealed, or marked under the inspection of the magistracy of the places where they are in use, otherwise they are not to be relied on.

A *bag* of hops is from $2\frac{1}{2}$ to 3 cwt.; of almonds, 3 cwt.; of aniseed, from 3 to 4 cwt.; of pepper, from $1\frac{1}{4}$ to 3 cwt.; of goats' hair, from 2 to 4 cwt. &c.

In France, they make *bags* of pistoles, of louis-d'ors, *bags* of a thousand livres, or crowns, *bags* of small pieces of silver coin, &c. Tare is allowed for the bag, as five sols *per bag* of 1000 livres.

BAGAUZ, a name given to the sugar-canes, after they have passed through the mill in the West Indies; they are kept under cover in small huts in order to use them, when dry, for boiling the sugar. These huts are called the *bagauz* huts.

BAHAR, Bahaire, or Barre, a weight used in several places in the East Indies.

There are two sorts of this weight, the one the great bahar, with which are weighed pepper, cloves, nutmegs, ginger, &c. and contains about 5 cwt. and 24 pounds 9 ounces, avoirdupois weight. With the little bahar are weighed quicksilver, vermilion, ivory, silk, &c. It contains about 437 pounds 9 ounces.

BAIL, in law, the setting at liberty one arrested, or imprisoned, upon a suit either civil or criminal, upon sureties taken for his appearance at a day and place assigned. In civil cases the bail is either common, or special. Common bail is a matter of course, being nothing but a mere form upon appearance, after personal service of the writ, and notice to appear served upon the defendant. If he appear thereto, his attorney puts in imaginary sureties for his future attendance, as John Doe and Richard Roe. But if the plaintiff will make affidavit that this cause of action amounts to 10*l.* or upwards, in order to arrest the defendant, and make him put in substantial sureties for his appearance, called special bail; it is then required that the true cause of action be expressed in the body of the writ or process. 3 *Black.* 287.

Special bail, are two or more persons, who, after the arrest, undertake generally, or enter into a bond to the sheriff in a certain sum, to insure the defendant's appearance at the return of the writ; this obligation is called the bail-bond.

Bail in criminal cases.—Upon offering sufficient surety, bail may be taken either in court, or in some particular case, by the sheriff, coroner, or other magistrate, but most usually by justices of the peace.

BAILE. Thus they style at Constantinople the ambassador of the republic of Venice, who resides at the Porte.

BAILE, or Bale, in the sea-language. The seamen call throwing the water by hand or small vessels out of the ship's or boat's hold, *bailing*. They also call those hoops that bear up the tilt of a boat, its bails.

BAILIFF, a keeper or protector. Hence the sheriff is considered as bailiff to the crown; and the county of which he has the care, and in which he is to execute the king's writ, is called his bailiwick; so also his officers who execute writs, warrants, &c. are called bailiffs.

BAILIFF, *Water*, an officer appointed in all port-towns, for searching of ships, gathering the toll for anchorage, &c. and arresting persons for debt, &c. on the water. Bailiff is still applied to the chief magistrate of several corporate towns. The government of some of the king's castles is also committed to persons called bailiffs, as the bailiff of Dover Castle.

BAILIFFS *of courts baron*, summon those courts, and execute the process thereof; they present all pound-broaches, cattle strayed, &c. &c.

BAILLOQUE, or Bayoque. Thus the French call those ostrich-feathers, which are of a dark brown colour, mixed with white. This kind of feather is seldom dyed; but the feathers are well washed with soap, which gives them a bright glossy appearance. These *bailloque* feathers are the least valued.

BAILMENT, in law, is a delivery of things, whether writings, goods, &c. to another, sometimes to be delivered back to the bailer, that is, to him who so delivered them; sometimes to the use of the bailee, that is, of him to whom they are delivered; and sometimes also to be delivered to a third person; this delivery is called *a bailment*. 2 *Black.* 451.

In a great commercial metropolis, the law of bailment is of the greatest importance, and the general principles of it extremely necessary to be rendered intelligible. There are generally admitted to be six species of bailment. *Ld. Raym. R.* 909.

1st. A mere *deposit* to keep for the use of the bailor.

2d. *Accommodation*, or the delivery of things useful in themselves, *to be returned in specie*.

3d. A delivery of articles for *hire*.

4th. A delivery by way of *pledge*.

5th. A delivery of things to be *carried for a reward*.

6th. A delivery of things respecting which something is to be done (as carrying, for example,) *without reward*.

On the 1st. The bailee is not liable *but for gross* neglect.

On the 2d. He is answerable for *every degree* of neglect.

On the 3d. He is bound to take all *imaginable* care, and only exonerated by circumstances that exceed *all reasonable* caution.

On the 4th. (Which is the case of pawnbrokers.) The bailee or pawnee has a special property, which is in the nature of a security, to compel the pawner to pay. He is bound to exercise all ordinary caution in merely *keeping* the articles pledged; and if he *use* them also, he does it at his own peril of their being lost or deteriorated. *See further, title* PAWNBROKER.

On the 5th. By the laws of England, a carrier for reward is liable *at all events*; and nothing discharges him of responsibility but the act of God, or the king's enemies. *See further, title* CARRIER.

On the 6th. It seems, the responsibility attached to the bailee is qualified and conditional. He is answerable for wilful injury and for absolute neglect, but discharged from responsibility for injury arising from extraneous causes, against which ordinary caution was not sufficient to provide. *Jones on Law of Bailment.*

BAIOCAO, or Bayoc, a copper coin, current at Rome, and throughout the whole

state of the church, ten of which make a julio, and an hundred a Roman crown. At Rome, Civita Vecchia, &c. the baiocao passes for three-fourths of a penny English; at Bologna and Ravenna it is worth three-fifths of a penny only.

BAIZE, (Ger. *Boy*. Du. *Bay, Baay*. Da. *Bay*. Sw. *Boj*. Fr. *Bayette*. It. *Bajetta*. Sp. *Bayeta*. Port. *Baeta, Baetilha*. Rus. *Baika*,) a sort of coarse open woollen stuff, having a long nap, sometimes frized, and sometimes not. This stuff is without wale, and is wrought on a loom, with two treddles, like flannel. It is manufactured at Colchester and Bocking, in Essex; Rochdale. in Lancashire, and many other places. At Colchester there is a hall called the Dutch Bay-hall, or Raw-hall. By the statute 12 C. 2. c. 22. no person shall weave at Colchester any Baize, known by the names of four-and-fifties, sixty-eights, eighties, or hundred *baize*, but, within two days after weaving any such, shall carry it to the Dutch Bay-hall, to be viewed and examined, that it may appear whether it be well and substantially wrought, before it be carried to be scoured and thickened. No scourer or thickener shall receive any such *baize*, before it has been marked or stamped at the said hall. This manufacture, which is very considerable, was first introduced into England with that of says, serges, &c. by the Flemings, who being persecuted by the Duke of Alva for the sake of religion, fled hither, about the fifth year of Queen Elizabeth's reign. There are considerable manufactories of *baize* at Beauvais, Castres, Montpellier, and Nismes, in France; also at Tournay, Lisle, &c. in Flanders. The export of baize is very considerable to Spain and Portugal, where they are called *baetas*. Their chief use is for dressing monks and nuns, and for linings, especially in the army; and, in this view, much is now exported to every part of the South American continent, especially the Brazils. The looking-glass makers also use them behind their glasses, to preserve the tin, or quicksilver, and the case-makers to line their cases.

The breadth of *baize* is commonly a yard and a half, a yard and three quarters, or two yards, by forty-two to forty-eight in length. Those of a yard and three quarters are fit for the Spanish and Brazilian markets.

BAKER, a person whose occupation or business is to prepare bread, or to reduce meals of any kind, whether simple or compound, into bread, biscuits, &c.

The statutes for the regulation of bakers, as well those which apply to the kingdom at large, as those which are peculiar to the metropolis and the bills of mortality, are numerous. The notice of many of them will be more appropriately applied under title Bread; but it is necessary here to observe, that 31 G. 2. c. 29. (amended by many *subsequent acts*, especially 50 G. 3. c. 73.) is the foundation of all the modern regulations respecting bakers in general. By these they are prohibited from adulterating flour with other ingredients than the genuine meal of the grain, of which the bread purports to be made; from selling bread deficient in weight; from selling at a price more than is allowed by the assize; from mixing, or even from having in possession, noxious ingredients; from baking or delivering bread, meat, &c. on the Lord's day, except within certain specified hours, &c. under severe penalties, severally recoverable before justices of the peace. 1 *Dick. Pract. Exp.* 184.

The 55 G. 3. c. 99. is the most recent and most comprehensive statute respecting the regulation of bakers within the metropolis, bills of mortality, and 10 miles of the Royal Exchange. By that statute, the assize of bread, within the district to which it applies, is abolished, but the weight of bread is fixed; the bakers are prohibited from mixing flour with any meal other than that of which the bread purports to be made; from adulterating it with noxious ingredients; from obstructing officers coming to search their premises; and from exercising their trades on the Lord's day, except under certain restrictions as to time; and all these under severe penalties, recoverable before justices of the peace, in like manner as by the former statutes already referred to.

Magistrates, or peace officers by their warrants, may at seasonable times search bakers' premises, and if any adulterated flour, bread, alum, or other ingredient be found, it may be seized and disposed of.

If any baker shall make it appear that any offence for which he shall have paid the penalty shall have been occasioned by the wilful default of a servant, the justice may order his servant to make recompence, and if unable, commit him to hard labour, for not exceeding six months.

Persons forswearing themselves, are guilty of perjury. 3 *Dick. Pract. Expos.* 99.

BALANCE, or Balances, (Ger. and Du. *Waagen*. Da. *Vegt*. Sw. *Vagar*. Fr. *Balances*. It. *Bilancie*. Sp. *Balanzus, Peso*. Port. *Balanças*. Rus. *Wässii*. Pol. *Szale, Wagi*,) in mechanics, one of the simple powers which serve to find out the equality or difference of weight in heavy bodies. The *balance* is of two kinds, ancient and modern; the ancient, or Roman, called the *statera Romana*, or steel-yard, consists of a lever or a beam, moveable on a centre, and suspended near one of its extremities; on one side the centre are applied the bodies to be weighed, and their weight, measured by the divisions marked on the beam, in a place where a weight moveable along the beam, being fixed, keeps the balance in

equilibrio. This is still used in markets, &c. where large bodies are to be weighed.

The modern *balance*, now commonly in use, consists of a lever or beam, suspended exactly by the middle, and a scale suspended at each extremity. The principle on which each is founded is the same, and may be easily conceived. *See ante*, AUNCEL.

BALANCE *in the account of merchants*, is when the debtor and creditor sides of any distinct account are equal. When that is the case, such account is said to be "balanced."

BALANCE *of a merchant's or trader's books.* This is a branch of the art of accountantship. In the method of keeping the books of traders, according to that admirable art of charge and discharge, by double entry, such books, if kept as they ought to be, will be always fit for a general balance; for such is the excellency of that method, that the books of themselves must be necessarily upon a balance on the whole, though not in every distinct account, throughout the ledger.

BALANCE *of trade*, is the equality between the value of the commodities bought of foreigners, and the value of the native productions transported into other nations.

It is reckoned that that nation has the advantage in the balance of trade, which exports more of native commodities, and imports less of the foreign; so that the nation grows so much richer in bullion as the balance of that trade amounts to, which must be made up of bullion or money. *See further, title* BULLION.

BALANCE *of a clock or watch. See the article* CLOCK-WORK.

BALANUS *Myrepsica*, in pharmacy, the *ben-nut.* The tree which produces this fruit, is common on the mountains of Arabia. The oil extracted from this fruit is used by perfumers for preserving the scents of flowers, as jasmine, orange, tuberose, &c.

BALASTRI. Thus they call at Smyrna the finest gold cloths that are manufactured at Venice, and which the Venetians carry into the ports of the Levant.

BALAZEES, or SAUVAGAZEES, of Surat, are white cotton cloths, manufactured in that city. They are thirteen French ells and a half in length by two-thirds in breadth.

BALE, a pack, or certain quantity of goods or merchandise; as a *bale* of silk, cloth, &c. This word is used in the statute 16 R. 2. and is still in use.

The *bales* are always marked and numbered, that the merchants to whom they belong may know them; and the marks and numbers correspond to the same in the bills of lading, &c. Selling under the *bale* or under the *cords* is a term used in France and other countries for selling goods whole-sale, without sample or pattern, and unopened.

Bale merchandise is a term of contempt in France and Flanders, by which are described common hardware, and other low goods that are manufactured slightly, and sold in *bales* at a very low price.

BALKS, (GER. and DU. *Balken.* DAN. *Bielker.* SW. *Balkar.* FR. *Poutres, Solives.* IT. *Travi.* SP. *Vigas.* PORT. *Traves.* RUS. *Brewna.* POL. *Balky,*) is used to signify the large pieces of timber brought from Norway, &c. and among bricklayers, the large beams used in making scaffolds, &c.

Balks, in agriculture, commonly called *grass balks*, are the ridges or banks between two furrows, or parcels, of arable land.

BALLAST, (GER. DU. and SW. *Ballast.* DA. *Baglast.* FR. *Lest.* IT. *Savorra.* SP. *Lastre.* PORT. *Lastro.*) a quantity of stones, gravel, sand, or any other heavy material, laid in a ship's hold, in order to make her draw the more water, and render her stiffer, or more capable of carrying sail, without oversetting. The ballast is sometimes one-quarter, or one-third, or one-half of the ship's burthen, according to the difference of bulk. Flat vessels require the most ballast. The following table will exhibit in one view the quantity of ballast allowed to ships of different sizes:

Ballast allowed to the following Ships;

Guns.	Tonnage.	Iron Tons.	Shingle Tons.
110	2290	180	370
100	2090	180	370
98	2110	160	350
90	1870	160	350
80	1620	140	300
74	1700	80	270
64	1370	70	260
50	1100	65	170
44	900	65	160
38	930	70	170
36	870	65	160
32	700	65	140
28	600	60	100
24	500	50	80
22	450	50	70
20	400	50	60
Sloop	300	50	40
Brig	160	30	15
Cutter	——	20	seldom
Sloop	——	15	any.

The iron ballast is first stored fore and aft, from bulk-head to bulk-head; then the shingle ballast is spread and levelled over the iron.

Ships are said to be in ballast when they have no other loading. Masters of vessels are obliged to declare the quantity of ballast they bear, and to unload it at certain

places. They are prohibited unloading their ballast in havens, roads, &c. under a penalty of 10*l.*, by 54 Geo. 3. c. 159. *See title* HARBOUR.

All masters of ships lying in the river Thames, shall pay to the corporation of Trinity-house, for all *ballast* demanded and entered at the ballast-office, the rates following, viz. for every ton consisting of twenty hundred weight, carried to any ship employed in the coal trade twelve-pence, and for every ton carried to any other British ship, fifteen-pence; and for every ton carried to any foreign ship, nineteen-pence, and the corporation of Trinity-house shall pay for the raising and carrying every ton of *ballast* nine-pence, whereof six-pence shall be paid to the two ballast-men, and three-pence for the use of the lighters. 32 G. 2.

BALLIAGE, a small duty paid to the city of London by aliens and others for certain commodities exported by them, which they claim by their charter, dated the fifth day of September, in the sixteenth year of the reign of King Charles II. confirmed by the twentieth rule of the book of rates, and by 2 W. and M. c. 8.

BALLIN, so called at Bourdeaux, Bayonne, &c. what at Paris and elsewhere they call *emballage*, or packing, &c.

BALLOON, or Ballon in a colloquial sense, signifies any spherical hollow body, of whatever matter it is composed, or for whatever purposes it is designed.

BALLOON, in the French paper trade, is a term for a quantity of paper, containing twenty-four reams. It is manufactured at Marseilles, and called paper *à la croizette* (or paper with the little cross), of which large quantities are sent to Constantinople, and there sold by the *ballon*. The paper made with a crown mark in it, in Provence in France, is very fit for the Levant trade, where it is sold for Venice paper: of this quality there are only fourteen reams to the *balloon* or *ballon*.

BALLON, called also Ballot, in the glass trade of Lorrain, signifies a certain quantity of glass plates, smaller or greater, according to their quality. The *ballon* of white glass contains twenty-five bundles, of six plates per bundle; but the *ballon* of coloured glass is only of twelve bundles and a half, and of three plates to a bundle.

BALLON, or Balon, a sort of brigantine of the kingdom of Siam, to navigate up and down the rivers, and carry on the inland trade, made of the trunk of one single tree, in a hollow manner, and managed with oars.

BALLOT signifies a ball, or ticket, used in giving votes privately.

BALLS, this term comprehends all sorts of bullets for fire-arms, from the cannon to the pistol. Cannon-balls are of iron; musket-balls, pistol-balls, &c. are of lead. The experiment has been tried of iron balls for pistols and fusees, but they are justly rejected, not only on account of their lightness, which prevents them from flying straight, but because they are apt to furrow the barrel of the pistol. Cannon-balls are distinguished by their calibres thus:

A 42	pound ball, the diameter of which is	6,684 inches.
32		6,105
24		5,547
18		4,040
12		4,403
9		4,000
6		4,398
3		2,775
2		2,423
1		1,923

Chain-balls, are two balls linked together by a chain of eight or ten inches long, and some have been made with a chain of three or four feet long: they are used to destroy the palisadoes, wooden bridges, &c. of a fortification; they are also very destructive to the rigging of a ship. *See* ARTILLERY.

BALM. *See* BALSAM.

BALSAM, (Ger. Da. Sw. Rus. & Pol. *Balsam*. Du. *Balsem*. Fr. *Baume*. It. Sp. & Port. *Balsamo*. Lat. *Balsamum*,) or *native balsam*, an oily, resinous, liquid substance, flowing either spontaneously, or by means of incision, from certain plants. There are many kinds of balsam, but the most remarkable are Benzoin, Storax, Peru, Tolu, Capaiba, Gilead, and Rakasira. They owe their most important properties to the resinous ingredient and benzoic acid.

1. *Benzoin*, commonly called *gum benzoin*, will be found at large under the head GUM.

2. *Storax*. This substance is obtained by incision from the *styrax officinalis*, a tree which grows abundantly in the islands of the Levant, and in Italy and France. The storax is sometimes in large masses, sometimes in small tears; it is brittle, and has a brown colour. It has an aromatic taste, and fragrant smell. It is soluble in alcohol, and yields benzoic acid by the usual processes. It is composed apparently of benzoic acid, and a peculiar resin. It is principally used as a perfume.

3. *Balsam of Peru*. This substance is obtained from the *myroxylon peruiferum*, which grows in the warm parts of South America. The tree is full of resin, and the balsam is obtained by boiling the twigs in water. It has the consistency of honey, a brown colour, an agreeable smell, and a hot acrid taste. Like the last it consists of benzoic acid and volatile oil, not completely converted into resin. Water dissolves part of the acid, alcohol the whole balsam. It is easily volatilized by heat. It is used as a cordial medicine, and as an external application to wounds.

4. *Balsam of Tolu*. This substance is ob-

tained from the *toluifera balsamum*, a tree which grows in South America. The balsam flows from incisions made in the bark. It comes to Europe in small gourd shells. It is of a reddish yellow colour, and considerable consistence: and when exposed to the air, it becomes solid and brittle. Its smell is fragrant. The composition of this substance has not been ascertained. It is only from analogy that it has been put among the balsams. Mr. Hatchett's experiments on it are very curious and important. He has ascertained that the balsams in general are soluble in alkalies. When Tolu is dissolved in the smallest possible quantity of lixivium of potash, it completely loses its own odour, and assumes a most fragrant smell, somewhat resembling that of the clove pink. "This smell," Mr. Hatchett observes, "is not fugitive, for it is still retained by a solution which was prepared in June, and has remained in an open glass during four months." Mr. Hatchett found that it dissolved in nitric acid, with nearly the same phenomena as the resins; but it assumed the odour of bitter almonds, which leads him to suspect the formation of prussic acid.

It is used in medicine, in coughs arising from a want of due secretion from the lungs.

5. *Balsam of Copaiba* is obtained by incision of the trunk of the *copaibifera officinalis. Lin. Sp. Pl.* 557. It is colourless when first obtained, but becomes yellow by time, without losing its transparency. The smell is fragrant; the taste aromatic, bitter, somewhat sharp, and very permanent on the tongue. It is occasionally adulterated with turpentine. This may be detected by the smell on rubbing it between the fingers. Balsam of copaiba is of considerable use in medicine, particularly in restraining inordinate mucous discharges.

6. *Balsam, or Balm of Gilead*, is obtained from an evergreen tree, or shrub, of Arabia. The finest is of a greenish colour, and obtained by incision of the branches, called *opobalsam*. The second is called *carpobalsam*, expressed from the fruit, which is about the size of a small pea, with a short pedicle, of a roundish or oval figure, pointed at top, composed of a dark brown or reddish-black wrinkled bark, marked with four ribs from top to bottom, and a whitish or yellowish medullary substance. The third sort is called *xylobalsam*, and obtained from a decoction of the branches. A sort which is said to flow naturally from the branches of the tree, has been called *balsam of Mecca*. It has a strong pungent smell, like that of turpentine, but more fragrant, and a bitter acrid taste. When recent it is turbid and whitish, but on being kept it becomes thin, nearly transparent, greenish, and then of a golden yellow; after which it is thick, like turpentine, and loses much of its fragrance. Its smell resembles a mixture of rosemary and sage flowers.

It is chiefly used in the East as a cosmetic; it is sometimes given as a medicine, and partakes of the general properties of the balsams, which are those of a stimulant, expectorant, and diuretic medicine.

7. *Balsam of Rakasira*. This name has been given to a balsam brought from the East Indies; but its source we are ignorant of; and it has been supposed to be an artificial composition. In its qualities it resembles the Tolu balsam.

Such are the balsamic substances already known. *Tar*, which has been sometimes placed among them, is obtained by a rude distillisation of the fir. Hence it contains a variety of ingredients, oil, resin, pyroligneous acid, and water. When concentrated by heat it loses these volatile parts, and is converted into *pitch*; a substance which possesses the properties of resin.

BAMBOO, or Bambou, is a plant which multiplies very much by its root, whence springs a ramous or branchy tuft, after the manner of the European reeds. The Indian *bamboe* is the largest kind of cane that is known. It is of an extraordinary height and bigness when it bears its blossom. With these *bamboe-canes* the Indians build their houses, and make all sorts of furniture in a very ingenious manner. The thickest *bamboes* serve to make the sticks or poles with which the slaves or other persons carry those sort of litters which are called *palanquins*, and are so common in use, and so convenient in all the East. They likewise make of them a kind of pails, in which the water keeps extremely cool. The walking-canes we see in Europe are the first and smallest shoots of the *bamboes*. Two pieces of *bamboe* of a certain bigness, being rubbed hard against each other after a certain manner will produce fire; and when the Indians cannot get any by other means, they obtain it in that way. The Malays and the Chinese who are dispersed in the Molucca and Sunda Isles, use the young shoots of the *bamboes* preserved in vinegar after their manner, with very strong or peppered ingredients. This they call *achiar-bamboe*, or *achia*.

BAN, a fine smooth muslin, manufactured in the East-Indies. The breadth is nearly a yard, and in length it runs about twenty yards and a half.

BAN, or Bans, an old British word signifying proclamation, or public notice; whence comes the application of it to the notice directed to be published in the parish church before marriage, to the end that if any person know any just cause why the intention of the contracting parties, thus *publicly proclaimed*, should not be carried into execution, he may have an opportunity of forbidding it, by stat. 26 G. 2. c. 33., commonly

called the Marriage-act. This public notice or ban, is required to be made on three Sundays preceding the solemnization of marriage, without which (unless licensed by episcopal authority,) every marriage shall be null and void, and the minister solemnizing it shall be guilty of felony.

BANCO has been generally considered as a genuine Italian word, signifying what *we* denominate a bank, and commonly used to describe the bank of Venice. Some, probably with more fancy than foundation, derive it from another source. *See post, title* CASH.

Banco is also used to describe Banco-money from current-money, at Hamburgh, &c. *See* EXCHANGE.

BAND, a weight used on the Gold Coast for weighing gold dust. It is equal to two ounces troy.

BANDAL, or BANDLE, the name of a measure in the south and west of Ireland, which is something more than half a yard; by it the coarse narrow linen is sold in the markets, on which account it is called *bandle-cloth.*

BANDANNOES, silk handkerchiefs, generally red, spotted with white, manufactured in the East Indies.

BANDELIERS. *See* IRON.

BANDSTRINGS. *See* BONELACE.

BANIANS, or BENJANS, a tribe of Indians dispersed over all Asia, through whose hands passes almost the whole trade with the Europeans in those parts. They are the third sect of the heathens who dwell in the East Indies. The *Banians* and the Chinese are the greatest traders in the Indies, to whom must also be added the Jews and the Armenians, who are greatly dispersed over those parts. But the most considerable trade is carried on by the *Banians,* in the whole peninsula on this side the Ganges. They are extremely skilful in commerce; are brokers and likewise bankers, and there are few places in the East Indies, for which they cannot furnish bills of exchange.

BANK, a common repository, where many persons agree to keep their money, to be always ready at their call or direction: or certain societies or communities, who take the charge of other people's money, either to improve it, or keep it secure.

There are banks of various kinds, and different in the nature of their constitutions and establishments: some are instituted wholly on the public account, and put under the direction of the magistrates, as the famous bank of Amsterdam, where the money deposited was to be always kept for the use of the proprietors, and never to be let out for profit or advantage.

A second sort of bank is such as consists of a company of monied men, who being duly established, *and incorporated* by the laws of their country, agree to deposit a certain considerable fund, or joint stock, to be employed for the use of the society; as lending money on good security, buying and selling bullion, gold and silver, discounting bills of exchange, &c. Such is the Bank of England, which was established in the year 1694, with a capital of 1,200,000*l.* This they lent to government, for which eight ℘ cent. interest was paid, and 4000*l.* ℘ annum for charges of management. The corporation was entitled "The Governor and Company of the Bank of England," and their charter directed that there be a governor and twenty-four directors; it also lays down rules respecting the qualifications of voters and of directors, with other regulations. In 1697, the bank was allowed to enlarge its capital to 2,201,171*l.* 10*s.* for the purpose of supporting public credit, bank notes being then at 20 ℘ cent. discount, owing to the want of punctuality in the payments of government. This capital has been since increased from time to time, as the necessities of the times and the dependence of the government on the bank, for anticipating the supplies, has predominated. Hence it follows that the Bank of England acts not only as an ordinary bank, but as a great engine of state. It receives and pays the greater part of the annuities which are due to the creditors of the public; it circulates exchequer bills; and it advances to government, the annual amount of the land and malt taxes, which are frequently not paid up for some years. It discounts bills of merchants, and upon different occasions it has supported the credit of the principal houses, not only of England, but of Hamburgh and Holland.

The company is properly a trading company; and that which is peculiarly distinguished by the appellation of *bank-stock,* is a trading stock, the dividend of which, on the capital, besides occasional bonuses, accrues from the annual income of the company; and this arises from the interest received for the money advanced by the proprietors to the public, on the permanent debt, from interest on annual temporary advances, from profits of their dealings in bullion, and of their discounts; from the interest of stock held by the company; and and from the sums allowed by government for the management of the annuities paid at the offices of the bank.

It appears by some recent discussions in parliament, that the gross returns to the bank, from its transactions with the government, are 1,390,898*l.* per annum, the national debt being 860 millions.

The Method of opening an Account with the Bank of England.

The accounts opened with the bank, are either *cash* accounts, or *discount* accounts.

The person wishing to open a cash account, must apply to the chief clerk of the drawing-office in the hall, who, upon the receipt of 500*l.* (which is the lowest sum that an account can be opened for) will deliver the necessary book to the party, with a quantity of checks, on which he draws out such sums as he occasionally requires.

To open a discount account, the party must apply to a director; and such application must be laid before the court of directors for their approbation, which, if obtained, application is also made to the chief clerk of the drawing-office, who takes the signatures in a book kept for the purpose, where the accounts are also kept, and, when required, powers of attorney are granted, to enable persons to act for their principals.

The chief clerk of the drawing-office then delivers a book to the party, wherein the account is opened, who receives also a quantity of checks.

Different columns are appropriated in the books for the entries of *cash paid, cash received,* and *bills deposited* in the bill-office until due, which, when received, are passed forwards to the parties' book.

To pay Cash into the Bank.—Take the cash with the book to one of the tellers, who gives a voucher to the drawing-office, and it will be immediately entered to your credit; and when you have occasion to pay money, draw the sum wanted upon one of the checks, in the following manner:

January 1*st.* 1818.

To the Cashiers of the Bank of England.
Pay to John Doe, or bearer, One Hundred Pounds. J. W. & Co.
£100.

When you wish to have your accounts examined, which is termed checking your book, the same is to be left at the Accountant's Office, where all drafts paid are written off the bank-book, and returned cancelled to the drawer.

No money will be paid without such a *check* or *write-off,* which is a printed slip of paper, with a blank for the sum. These slips are always hung up at a desk in the great hall, and are filled up as follows:

July 25. 1818.

Write off from our bank-book, One Hundred Pounds.
£100. J. W. & Co.

This being delivered to one of the clerks of the drawing-office, he writes off the sum required, and gives the money, reserving the write-off as a voucher.

When bills are intended to be received, which are payable in London, they should be indorsed and carried with the book to the bill-office, where they are written, or, as is technically termed, *entered short,* and are allowed in the bank-book so left the day after they are paid.

All charges of noting and protesting are paid to the clerks of the bill-office, by whom also all bills dishonoured are returned.

Where you intend that the bank shall pay any of your acceptances, make them payable there; and before they come due, an order must be addressed to the cashiers to pay the same when presented.

The order should contain a short abstract of the bill, specifying the drawer, the payee, the amount, and when due, and be signed by the acceptor, in the same manner as a draft for cash.

No bill can be discounted for less than 100*l.* nor for a longer date than two months.

Bills entered for discount must be sent to the discount office, with a list containing the name of the drawer, the day when due, and the sum subscribed by the persons applying for the discount.

The chief clerk of the discount-office lays the bills before the committee, who either allow or reject them, without assigning any cause: if the bills are approved, the money is immediately paid, by applying at the drawing-office, with a deduction of the discount.

The following may not be unacceptable by way of *vade mecum* to those who are not extremely conversant with the *routine* of transactions at the bank.

Transfer Days, Period of Dividends, and Hours of Business.

Name.	Days of Transfer.	H. of Tr.	Dividends when due.	Hours for receiv. Dividends.
Bank Stock	Tues. Thurs. Fri.	11 to 1	April 5 and Oct. 10	9 to 11, and 1 to 3
5 ℘ cent. Navy Ann.	Tu. Wed. Thu. Fr.	ditto	Jan. 5 and July 5	ditto
4 ℘ cent. consolidated	Tu. Wed. Thu. Fr.	ditto	April 5 and Oct. 10	ditto
3 ℘ cent. consolidated	Tu. Wed. Thu. Fr.	ditto	Jan. 5 and July 5	9 to 3
——— reduced	Tu. Wed. Thu. Fr.	ditto	April 5 and Oct. 10	9 to 11, and 1 to 3
——— 1726	Tuesday and Satur.	ditto	Jan. 5 and July 5	ditto
Long Annuities	Mond. Wed. Sat.	ditto	April 5 and Oct. 10	ditto
New 5 ℘ cent. 1797	Tu. Wed. Thu. Fr.	ditto	ditto	ditto
Imperial 3 ℘ cent.	Mond. Wed. Sat.	ditto	May 1 and Nov. 1	ditto
——— Ann. for 25 years	Tues. Thurs. Sat.	ditto	ditto	ditto
Irish 5 ℘ cent.	ditto	ditto	Mar. 25 & Sept. 25	ditto

Transfer Days, &c. — continued.

Name.	Days of Transfer.	H. of Tr.	Dividends when due.	Hours for receiv. Dividends.	
South Sea stock	Mond. Wed. Friday	ditto	Jan. 5 and July 5	9 to 2	Satur. after 1 excepted
3 ℘ cent. old Ann.	ditto	ditto	April 5 and Oct. 10	ditto	
——— new Ann.	Tues. Thurs. Sat.	ditto	Jan. 5 and July 5	ditto	
——— 1751	Tuesday and Thurs.	ditto	ditto	ditto	
India stock	Tues. Thurs. Sat.	ditto	ditto	ditto	

*** India Ann. transf. to 3 per cent. red. at the Bank, Oct. 10. 1793. Interest on India bank due March 31. September 30.

No business transacted on Jan. 1, 6, 18, 25, 30; — Feb. 2, 23, 24; — March 25; — April 8, 11, 12, 25; — May 1, 17, 19, 30; — June 4, 11, 24, 29; — July 25; — Aug. 12, 24; — Sept. 2, 21, 22, 29; — Oct. 18, 25, 26, 28; — Nov. 1, 4, 5, 9, 30. — Dec. 21, 25, 26, 28. Ash-Wed. Good-Fri. East.-Mon. Tues. Whit.-Mon. Tues. Ascen. Day, are Holidays. If Jan. 18, 30; May 29; June 4; Aug. 12; Sept. 2; Nov. 5, 9, fall on Sunday, to be kept on Monday.

A third sort of banking concern consists of the banks of private men, or partnerships, who deal in the same way as the former, upon their own single, or joint, stock or credit.

There is scarcely a town of considerable size throughout the United Kingdom, in which there is not, now at least, *one* such establishment, and in the principal cities, and manufacturing districts, there are *many*. Much has been advanced in favour of, as well as against, these private banks. The most weighty argument against them, is their tendency to enhance the price of provisions, by enabling the agriculturist to keep his commodity out of the market. On the other hand some commerce has been so extended, the aid of these capitalists has become necessary for its support. Much obloquy has been cast on the general system, on account of the great number of failures which took place among the proprietors of these establishments near the conclusion of the last war, and an attempt has been made by the ministers in 1818, if not to give some security for the stability of the respective establishments themselves, at least to prevent their proprietors from obtaining credit on fictitious pretensions to capital, which they might not possess. In the discussion however, which took place in parliament, on the projected measures of precaution, it appeared clearly, that the failures were attributable more to the particular circumstances of the times, than to any radical defect in the system; and also that the evils arising out of the proposed restrictions, would much overbalance the contemplated benefits, and therefore the project was abandoned.

A fourth description of bank has been introduced by stat. 59 Geo. 3. c. 130. viz. "for the safe custody and increase of small savings belonging to the industrious classes of his majesty's subjects," amended by 58 Geo. 3. c. 48.

The statute prescribes the rules for the foundation and government of these institutions, and they are placed under the cognizance of the justices of peace in general, or quarter, session assembled. They are becoming numerous, and promise to be extraordinarily beneficial.

BANKER. A banker may be termed the trustee for a merchant or other person possessed of a large sum of money, which he does not wish to retain in his own hands, but places it, for security, with some banker, from whom he draws it in such sums, and at such times, as his occasions require. The banker's house is termed a bank, or repository of other persons' money.

The profits of banking arise from the interest made, by putting out, upon good security, the surplusage of money, for current demands, and from the difference of exchange between the countries, from, and to, which the banker remits. When they draw for others, all bankers expect a premium, or per centage.

The practice of keeping money with a banker, so universally prevalent in this country, is one of the great causes of its commercial wealth and prosperity: the individual not only saves trouble and risk, but those small sums, which must lie useless in the hands of various individual possessors, constitute, in the hands of the banker, a large aggregate, which the latter can employ advantageously in trade, by discounting for his customers.

In support of the exclusive charter of the Bank of England, it is enacted, that no persons, exceeding six in number, may be united in partnership to borrow, owe, or take up, any sum of money on their bills or notes, payable on demand, or at any time less than six months.

A banker's draft is only taken conditionally, *if paid*, and not otherwise; unless there be an express agreement to take it as cash: but a person in London, who receives such a draft, ought to present it for payment on the day he receives it, if there be a reasonable time for that purpose.

A banker's draft, payable to bearer, and indorsed, is as a bill of exchange against an indorser, and he is equally liable. If a bank-bill or a bank-draft, payable to A. B. or bearer, be delivered to him and lost, and be afterwards found by C. D., A. B. may have an action against C. D., for he has no title to it; though, if the banker pays it, he is indemnified. But if C. D. tranfer it to E. F. for a valuable consideration, A. B. cannot maintain an action against E. F., the course of trade creating a property in the assignee.

If a banker's clerk overpay a bill, he is good evidence for his master, in an action to recover back the money so overpaid.

BANKS *at Sea*, are usually distinguished by a buoy, the colour of which is varied. Sand-banks are denoted by light-coloured buoys, and rocks by black ones.

Banks of the Sea, are protected by divers statutes. Unlawfully and maliciously *breaking them down*, is made felony *sans* clergy by 6 Geo. 2. c. 37. Cutting off, drawing up, or removing any piles, or other things driven into the ground for the protection of sea banks, is made an offence cognizable before justices of the peace, and subject to a penalty of 20*l*. by 10 Geo. 2. c. 32.

And by 15 Geo. 2. c. 33. even cutting down certain shrubs, which are planted on the north west coast of the kingdom for the protection of the sandy banks on the seashore, is subjected to a penalty of 20*s*. to be recovered before justices of the peace, and a second offence subjected to a year's imprisonment, with whipping and hard labour. The repairing and maintaining of sea banks is a duty annexed to the office of a commissioner of sewers. 8 *Term R.* 312.

BANKRUPT, a trader whom insolvent circumstances have forced to commit an act of bankruptcy. The benefit of the bankrupt laws is allowed to none but *actual traders*, or such as buy and sell, and gain a livelihood by so doing.

Description of a bankrupt, within the several statutes, brought together into one view, appears to be as follows: — Every person using the trade of merchandize, by way of bargaining, exchange, bartery, chevisance, or otherwise in gross, or by retail, or seeking his trade of living by buying and selling, or that shall use the trade or profession of a scrivener, receiving other men's monies or estates into his trust or custody, who shall, (1) depart the realm; or (2) begin to keep his house, or otherwise to absent himself; or (3) take sanctuary; or (4) suffer himself willingly to be arrested for any debt or other thing not grown or due for money delivered, wares sold, or any other just or lawful cause or good consideration or purposes; or (5) shall suffer himself to be outlawed; or (6) yield himself to prison; or (7) willingly or fraudulently shall procure himself to be arrested, or his goods to be attached or sequestered; or (8) depart from his dwelling-house; or (9) make any fraudulent grant or conveyance of his lands or goods, to the intent or whereby his creditors shall and may be defeated or delayed in the recovery of their just debts; or (10) shall obtain any protection, other than such person as shall be lawfully protected by privilege of parliament; or (11) shall prefer to any court any petition or bill against any of his creditors, thereby endeavouring to enforce them to accept less than their just debts, or to procure time, or longer days of payment than was given at the time of their original contract; or (12) being arrested for debt, shall lie in prison two months; or (13) being arrested for 100*l*. or more, shall escape out of prison, — shall be adjudged a bankrupt; (and in the said cases of arrest, or lying in prison, from the time of his first arrest.) 1 J. c. 15. s. 2. — 21 J. c. 19. s. 2. 15. — 10 An. c. 15. s. 1.

This description of a bankrupt includes, first, *persons liable to bankruptcy*; and, secondly, *by what* acts, *or by what* conduct, *a trader renders himself liable to be made a bankrupt*; or, in other words, what constitutes an *act of bankruptcy*.

Every person.] An *Irishman*, who trades and hath contracted debts in England, and comes over here, may have a commission issued against him, at the petition of the creditors here; and the Irish creditors also upon the commission may come in and prove their debts. And generally, if a person carries on a trade in any place belonging to the crown of Great Britain, and comes into England, a commission may be taken out by the creditors in England. 1 *Atk.* 82. — 5 *Term R.* 530.

A *clergyman*, if he trades, may be a bankrupt. 1 *Atk.* 199.

An *infant*, though a trader, cannot be a bankrupt; for no person can be made a bankrupt for debts which he is not liable at law to pay. 2 *Blackst.* 477.

The daughter of a freeman of London, being a *married woman*, if she trades separately from her husband, may be a bankrupt. 1 *Atk.* 206.

Using the trade of merchandize.] As by exercising the calling of a merchant, a grocer, mercer, or, in one general word, a *chapman*, who is one who buys and sells any thing. 2 *Blackst.* 477.

But one single act of buying and selling will not make a man a trader; but there must be a repeated practice, and profit by it. 2 *Blackst.* 476.

Of merchandize.] But no person who shall adventure any money in the East India company, and shall receive his dividend in merchandize, and shall sell or exchange the same, shall be judged thereby a merchant or trader within any statute for bankrupts. 13 & 14 G. 2. c. 24.

And generally, buying and selling stock

in the public funds, or government securities, will not make a man a bankrupt; the same not being goods, wares, or merchandize, within the intent of the statute, by which a profit may be fairly made. 2 *Blackst.* 476.

So also the members of the corporation of the English *linen company* (for making cambricks and lawns) shall not on that account only be liable to bankruptcy. 4 G. 3. c. 37.

Seeking his trade of living by buying and selling.] He who buys only, or sells only, is not within this description; but it must be both buying and selling, and also getting a livelihood by it. 2 *Blackst.* 476.

By special statute of 5 G. 2. c. 30. no *farmer, grazier,* or *drover* of cattle, shall be deemed a bankrupt, s. 40. But if such farmer, or other, shall be a dealer in wool, hops, or the like, he shall be deemed a bankrupt. A farmer, who planted potatoes, but withal bought divers large quantities of potatoes, and sold the same again, was adjudged a bankrupt. *Str.* 513. So a farmer who buys and sells horses to make a profit of them. 1 *Term R.* 573. 11 *East. R.* 274. and 2 *Taunt. R.* 176.

A mere *handicraft occupation,* where nothing is bought and sold, will not make a man a bankrupt; as that of a husbandman, a gardener, &c. who are paid for their work and labour only. 2 *Blackst.* 476.

Nor can an *innkeeper* or *victualler,* as such, be made a bankrupt; for his gain or livelihood doth not arise from buying and selling in the way of merchandize, but greatly from the use of his house, furniture, attendance, and the like; and though he may buy corn and victuals, to sell again at a profit, yet that no more makes him a trader, than a schoolmaster or other person is, who keeps a boarding-house, and makes considerable gains by buying and selling what he spends in the house; and such an one is clearly not within the statutes. *Bl.* 476. yet a *victualler* may. 1 *Ld. Raym.* 287.; as also an innkeeper selling liquors out of his house. 1 *Term R.* 572.

And where persons buy goods, and make them up into saleable commodities, as *shoemakers, smiths, bakers,* and the like: here, though part of their gain is by bodily labour, and not by buying and selling, yet they are within the statutes of bankrupts; for the labour is only in melioration of the commodity, and rendering it more fit for sale. 2 *Blackst.* 476.

So also, for the like reason, a *butcher* is within the statutes of bankruptcy. *Bur. R.* 2148.

But where a person bought a *coal-mine,* and worked the mine, and sold the coals, he was adjudged not to be within the statutes for bankrupts: but otherwise it would have been, if he had bought the coals and sold the same again. 2 *Wils.* 169.

A person *having a brick ground,* and making bricks for sale, has been held subject to the bankrupt laws, 1 *Term R.* 34.; but a person only making the best of *a part* of an estate, by burning bricks on such part, and selling them, only enjoys the estate in the most beneficial manner, and is not subject to the bankrupt laws. 7 *East. R.* 442.

A *ship carpenter,* who buys timber, and sells his ships when built, may be a bankrupt; but a mere "working carpenter," who is paid for his labour only, cannot, on that account, be liable to bankruptcy.

By 4 Geo. 3. c. 33. members of parliament, who are traders, are made liable to a commission of bankrupt, if they do not pay or compound with their creditors in the manner that act describes.

A peer of the realm may be a bankrupt, and a commission was once awarded and sued out against the Earl of Suffolk, as a trader in wines. 1 *Atk.* 206.

A *dyer* is also considered as a trader; for he gets his living by buying the drugs, and by selling them in the price which he receives for dyeing. *Cro. Jac.* 585.

But no receiver-general of any taxes granted by act of parliament, shall be deemed a bankrupt. 5 Geo. 2. c. 30. s. 40.

By 9 & 10 W. 3. c. 44. "No member of the East India Company, in respect of his stock therein only, shall be a bankrupt."

Having a share in a barge or stage coach will not make a man a trader; nor even holding part of a ship and cargo upon *a single adventure;* for persons liable to be bankrupts must be *professed traders,* who get their living by a course of buying and selling, and not persons who merely adventure some particular article in *one* particular voyage. *T. Raym.* 286.

Merely drawing bills on a person's own account, at the expence of paying a quarter per cent. commission, besides interest at five per cent. for their being discounted, and borrowing accommodation notes in exchange for his own to the same amount, will not make a man an object of the bankrupt laws; for this is not an exchange and re-exchange, or drawing and redrawing, within the acts of parliament, and therefore not a *trafficking in exchange;* but a person residing in India, and trading there, drew bills upon England for the value of other bills sent thither, on which he got a profit by the exchange, and during this traffic contracted debts in England, held that he was a trader within the bankrupt laws. 5 *Term Rep.* 530.

Or that shall use the trade or profession of a scrivener, receiving other men's monies or estates into his trust or custody.] Bankers, brokers, and factors, are within this description. 5 G. 2. c. 30. s. 39.

So also are *pawnbrokers,* being comprehended under the general word *brokers,* which includes the several species of brokerage. 1 *Atk.* 206.

Acts of Bankruptcy.

In general, whenever such "a trader" hath endeavoured to avoid or delay his creditors, or evade their just demands, it hath been declared by the legislature to be an *act of bankruptcy*, upon which a commission may be sued out.

Depart the realm.] Although the words seem to connect the act of departing the realm with the intention to delay the creditors, yet if a man go abroad not with the intention of delaying his creditors, if by such departure they are in fact delayed or hindered in recovering their just debts, it is an act of bankruptcy. *Bull. Ni. Pri.* 37.

Any departure from the realm, whereby the creditor must necessarily be delayed and hindered, is an act of bankruptcy. 1 *Taunt. Rep.* 270.

Begin to keep his house, or otherwise absent himself.] If a man keeps his house for a long time, this doth not immediately make him a bankrupt; but if he conceals himself within his house for a day or hour, *to delay or defraud his creditors*, he is a bankrupt. 1 *Bac. Abr.* 250.

But the denial must be to hinder a creditor; and therefore if a person is denied when sick in bed, or engaged in company, or the denial be made to one who comes on behalf of a creditor, and not to the creditor himself, it is not sufficient; for the denial even to a creditor, is not of itself an act of bankruptcy, but is *primâ facie* evidence only of beginning to keep house, and the fact may be explained by circumstances. *Bull. N. P.* 5 *Term Rep.* 570.

A denial to the *clerk* of the holder of a bill of exchange, or promissory note, is considered as an act of bankruptcy. So to a tax-gatherer. 2 *Taunt. R.* 401.

And an act of bankruptcy once committed cannot be purged by any subsequent circumstances, however strong. 2 *T. R.* 59.

Taking sanctuary.] This mode of committing an act of bankruptcy is now obsolete.

Willingly shall procure himself to be arrested.] If a trader causes a feigned action to be commenced against him, by which any creditor be injured or delayed, it is an act of bankruptcy. *Green*, 36. And

Procuring his goods, money, or chattels to be sequestered, has been said to be a plain and direct endeavour to disappoint his creditors of their security. But he is not a bankrupt if his goods are attached or sequestered *without his procurement*, as upon an attachment out of a court for his default or laches; as if A. has a rectory impropriate, and the tithes are sequestered for not repairing the chancel. 5 *Com. Dig.* 506.

Shall suffer himself to be outlawed.] It appears to be in this case admitted, that the outlawry must be suffered by the party with intention to defraud or delay his creditors.

Yield himself to prison.] By the yielding to prison must be intended a voluntary yielding, and not where a man is imprisoned for non-payment of a fine or any refractory behaviour; for although the act which causeth the imprisonment might be voluntary, yet the imprisonment itself is involuntary. But where a man was arrested for thirty pounds, and although he had money sufficient to pay the debt, yet he chose rather to go to prison, in order, as he declared, to force his creditors to come into a composition, this was held to be an act of bankruptcy. *Vin. Ab. tit.* Bankrupt.

Depart from his dwelling-house.] If he depart with a view of defrauding his creditors, or even delaying them, although the absence be but for a single day or hour, it shall be an act of bankruptcy. This departure from his dwelling-house must be voluntary, and not by means of an arrest; nor will the absconding, to avoid any process, make a man a bankrupt, unless the foundation of the process is the non-payment of money. 1 *Atk.* 196. 7 *Term R.* 509.

Make any fraudulent grant or conveyance of his lands or goods, &c.] A fraudulent grant, to come within the meaning of this statute, must be by *deed;* and therefore a fraudulent sale of goods not by *deed*, is no act of bankruptcy, though the sale, if made in contemplation of bankruptcy, is void. *Cooke's B. L.* 86. 4 *Burr.* 2478.

The system of the bankrupt laws is, that the bankrupt's estate shall be divided equally among all his creditors; and therefore, where a trader conveys his whole estate to one or more creditors, in exclusion of one or more, the law construes such a deed to be fraudulent as against them, and makes the attempt, *ipso facto*, an act of bankruptcy. 2 *Burr.* 829. 831. 7 *East. R.* 137.

Obtain any protection, other than such person who shall be lawfully protected by privilege of parliament.] By the 4 G. 3. c. 33. in respect to persons having privilege of parliament, it is enacted, that the petitioners, on affidavit in any of his majesty's courts of record at Westminster, that the debt is justly due, and that they verily believe that the debtor is a merchant, banker, broker, factor, scrivener, or trader, within the statutes of bankruptcy, may sue out a summons, or an original bill and summons, against such person, and serve him with a copy thereof; and if he shall not, within two months after personal service of such summons, pay, secure, or compound for such debt, or enter into a bond in such sum, and with two such sureties as any of the judges of that court out of which the summons issued, shall approve of, to pay such sum as shall be recovered in such action, together with such costs as shall be given in the same, he shall be adjudged a bankrupt from the time of the service of such summons, and the creditors may pro-

ceed against him as against other bankrupts. Provided that nothing herein shall subject any person entitled to privilege of parliament to be arrested or imprisoned during the time of such privilege, except in cases made felony by any of the statutes of bankruptcy.

Being arrested for debt, shall be in prison two months.] The inability of a trader to find bail in order to obtain his liberty, argues a strong deficiency of his credit; and his neglect to do it, if able, can arise only from a fraudulent intention; in either case it is high time for his creditors to compel a distribution of his effects. 2 *Burr.* 819.

The act of bankruptcy relates back to the time of arrest, so as to vest the property in the assignees from that time. 2 *Term R.* 141. And the day of arrest is to be reckoned the first of the two months. 3 *East. R.* 407.

Of Contracts and Dealings, previous to the Date of the Commission.

But in all cases of commissions of bankrupt hereafter to be issued, all conveyances, and all payments by and to, and all contracts and other dealings and transactions by and with any bankrupt, *bonâ fide* made or entered into more than two calendar months before the date of such commission, shall, notwithstanding any prior act of bankruptcy committed by such bankrupt, be good and effectual to all intents and purposes whatsoever, in like manner as if no such prior act of bankruptcy had been committed; provided the person or persons so dealing with such bankrupt had not, at the time of such conveyance, payment, contract, dealing or transaction, any notice of any prior act of bankruptcy by such bankrupt committed, or that he was insolvent, or had stopped payment. 46 G. 3. c. 135. s. 1.

And no commission of bankrupt hereafter shall be avoided or defeated by reason of any act of bankruptcy having been committed by the person or any of the persons against whom such commission shall have issued, prior to the contracting of the debt of any of the creditors upon whose petition such commission shall have issued, if such petitioning creditor had not any notice of such act of bankruptcy, at the time when the debt to him was contracted; but that such commission of bankrupt, and all the proceedings under the same, shall be valid and effectual to all intents and purposes, notwithstanding that such prior act or acts of bankruptcy shall have been committed by such bankrupt.

And all persons with whom the bankrupt shall have really and *bonâ fide* contracted any debt or debts before the date and issuing forth of such commission, (which if contracted before any act of bankruptcy committed, might have been proved under such commission,) shall, notwithstanding any prior act of bankruptcy may have been committed by the bankrupt, be admitted to prove such debt or debts, and to stand and be a creditor under such commission to all intents and purposes whatever, in like manner as if no such prior act of bankruptcy had been committed by such bankrupt; provided such creditor or creditors had not, at the time of such debt or debts being contracted, any notice of any prior act of bankruptcy by such bankrupt committed. Sect. 2.

Of the Commission, striking a Docket, &c.

No commission of bankruptcy can issue after a man's death; and although it be *granted in his life-time, yet, if nothing be done upon it before he dies,* all is avoided; but when it has issued, and *the commissioners have proceeded to declare the party a bankrupt, his death will not prevent the further execution* of the commission. 2 *Ch. Cas.* 143. 192.

On a joint commission against two bankrupts, they must be *each* found bankrupt; and though one of them die, the commission may still go on; but if one of the joint traders be dead at the time of taking out the commission, it abates, and is absolutely void. 1 *Atk.* 97. 1 *Bac. Ab.* 251.

A separate commission may issue against one of three or more partners for a joint debt, though an action cannot be maintained against one partner without joining the others. 1 *Atk.* 133.

When a joint commission is granted, all the partners must be severally declared bankrupt.

A debt contracted before a man enters into trade, may be the ground of a petition for a commission of bankruptcy. *Dougl.* 295.

A creditor who has taken his debtor's body in execution, cannot afterwards sue out a commission against him on the debt for which he has taken him in execution. *Strange*, 653.

When, after notice of bankruptcy, a creditor receives a part of his debt, as such money is liable to be refunded to the future assignees, the original demand remains as before, and will support a commission.

A creditor by promissory note may sue out a commission, though the note be above six years standing; for the statute of limitations, by which an action on it might be barred at law, does not extinguish the debt, but only removes the remedy.

A separate commission against one partner may be taken out on a debt due from the partnership. 1 *Atk.* 341.

A commission is granted upon petition to the lord chancellor.

But no commission of bankrupt shall be issued on the petition of one or more creditors, unless the single debt of such cre-

ditor, or of two or more being partners, amount to 100*l.*; or of two such creditors petitioning, amount to 150*l.* or of three or more creditors, amount to 200*l.* 5 Geo. 2. c. 30. s. 23.

The petitioning creditor must have a *legal* and not an *equitable* demand, to the amount thus specified against the bankrupt, to be enabled to sue out a commission. 1 *Atk.* 147. 2 *Vezey*, 407.

The creditor or creditors petitioning, shall, before the commission shall be granted, make affidavit before a master in chancery (to be filed with the proper officer) of the truth of the debt, and shall also give 200*l.* bond to the lord chancellor for proving the debt, as well before the commissioners, as upon a trial at law, if the due issuing of the commission shall be contested, and also for proving the party a bankrupt, and farther to proceed on such commission, as hereafter is mentioned; and *if it shall appear that the commission was taken out fraudulently, the lord chancellor may order satisfaction, and may assign such bond to the party injured.* 5 Geo. 2. c. 30. s. 23.

This is technically termed *striking a docket*, upon which the *chancellor is bound to issue a commission, not as matter of discretion or favour, but of right.*

Unless, however, the party seal the commission within *four* days, exclusive of the day of striking the docket, and prosecute such commission within *fourteen* days, if to be executed in London; or *twenty-eight* days, if to be executed in the country; another petition may be opened by any other competent creditor.

If the bankrupt reside either in the metropolis or *within forty miles of it*, the commission must be executed in town. [If exceeding these limits, and where none of the ordinary commissioners reside, a list of commissioners' names must be sent to the bankrupt-office. This list should consist of *three solicitors*, and of *two barristers*, as the quorum commissioners.]

And the lord chancellor will, by commission under the great seal, appoint such wise, honest, and discreet persons as to him shall seem good, to be commissioners. 13 Eliz. c. 7. s. 2.

Which commissioners, before they act, shall administer to each other the following oath: "I, *A. B.* do swear, that I will faithfully, impartially, and honestly, according to the best of my skill and knowledge, execute the several powers and trusts reposed in me as a commissioner in a commission of bankrupt against ——, and that without favour or affection, prejudice or malice. So help me God." 5 Geo. 2. c. 30. s. 43.

Then the commissioners shall cause notice of the commission being issued to be given in the Gazette, and likewise notice in writing to be left at the bankrupt's usual place of abode, or personal notice to be given, if he is in prison. 5 G. 2. c. 30. s. 1.

In which notice also shall be appointed a time and place of meeting of the commissioners; which meeting shall be at three several times within forty-two days, the last of which shall be on the forty-second day; within which time the bankrupt shall surrender himself, and discover his estate and effects. 5 Geo. 2. c. 30. s. 1, 2.

But the lord chancellor may enlarge the time for such surrender and discovery, not exceeding fifty days from the end of the said forty-two days; so as such order be made by him, six days before the expiration of the forty-two. Id. s. 3.

A creditor may choose whether he will come in under the commission or not; but if he chooses to come in, he cannot proceed at law likewise for the same debt. Therefore if a creditor has a bankrupt in execution, he must discharge him from the execution, before he can be admitted as a creditor under the commission. And a petitioning creditor, by the very petition, hath made his election. 1 *Atk.* 83. 152.

Proving a debt under a commission to be an election not to proceed against the bankrupt by action in respect of such debts. 49 Geo. 3. c. 121. s. 14.

The commission shall not abate by the death of the king. 5 Geo. 2. c. 30. s. 45.

Choice of Assignees, Disposal of Money, and Proof of Debts.

The first meeting after the commissioners are appointed, shall be for choosing the assignee or assignees of the bankrupt's estate and effects (which, in *London*, shall be at *Guildhall*). 5 Geo. 2. c. 30.

And the commissioners may, from time to time, appoint new assignees, if the major part of the creditors, whose debts amount to 10*l.* shall think fit; and the former assignees shall assign to them, in ten days after notice of such choice, and of the new assignees' acceptance thereof, signified under their hands; on pain of 200*l.* to the creditors, with full costs. 5 Geo. 2. c. 30. s. 30.

As the statute directs that the choice of assignees shall be by the major part of the creditors *in value*, one creditor, if his claim be sufficiently large, may choose himself assignee.

And the creditor or creditors who shall sue out the commission, shall prosecute the same at their own expence till assignees be chosen; and the commissioners shall, at the meeting for choosing assignees, ascertain such costs, and by writing under their hands, order the assignees to reimburse the same, out of the first effects that shall be got in. 5 Geo. 2. c. 30.

But before assignees are chosen, the

major part in value of the creditors may direct how and with whom the money to be received shall remain till divided: to which the assignees shall conform, as often as 100*l.* shall be got in. 5 Geo. c. 30.

By 49 Geo. 3. c. 121. s. 3. — If the creditors do not direct how the money arising from the bankrupt's estate shall be paid in, the commissioners shall give directions, to which rule and direction the assignee or assignees of the bankrupt's estate shall conform, as often as 100*l.* shall be got in and received from such bankrupt's estate, and are hereby indemnified for what they shall do in pursuance of such direction of the said commissioners as aforesaid; provided that it shall not be lawful for the commissioners to direct such monies to be paid into the hands of the said commissioners, or any of them, or of the solicitor to the commissioners, or into any banking-house, or other house of trade or business, in which the commissioners, or any of them, or the solicitor to the commission, are or is interested or concerned as a partner or partners, or otherwise.

Assignees disobeying such directions, to be charged 20 per cent. on the money retained or employed contrary thereto. Sect. 4.

Commissioners may direct the money paid in on a bankrupt's effects to be invested in exchequer bills, for the benefit of the creditors. Sect. 7.

At the said meeting for choosing assignees, the commissioners shall admit the proof of any creditor's debt who lives remote from the place of meeting by affidavit; and also permit any person duly authorised by letter of attorney from such creditors (oath being first made of the due execution thereof, either by affidavit sworn before a master in chancery, or before the commissioners *vivâ voce;* and in case of creditors residing in foreign parts, such affidavits to be made before a magistrate where the party shall be residing, and together with such creditor's letters of attorney, to be attested by a notary public) to vote in the choice of an assignee or assignees, in the place of such creditor: And every creditor shall be admitted to prove his debt, without paying any thing for the same. And the commissioners shall assign the estate and effects unto such person or persons as the major part in value of the creditors, according to the debts then proved, shall choose. 5 Geo. 2. c. 30. s. 25, 26. — But no creditor shall so vote, whose debt shall not amount to 10*l.* Ibid. s. 27.

The common proof required, is the oath of the creditors.

The positive oath of the book-keeper of a merchant or trader is allowed to be sufficient to hold his master's debtor to bail, and therefore his deposition in case of bankruptcy, ought to be admitted by the commissioners as proof of the debt due to his master; but his oath must be positive, both by 12 G. 1. c. 29., perpetuated by 21 G. 2. c. 3., and by the established rule of the court.

If any person shall swear that any sum is due to him from the bankrupt, which is not due, or more than is due, he shall suffer as in cases of perjury, and moreover forfeit double to the creditors. 5 Geo. 2. c. 30.

Debts not payable at the time of the bankruptcy may be proved, deducting a rebate of interest. 49 Geo. 3. c. 121.

Claims of particular Creditors, including Liens on a Bankrupt's Goods, &c.

Actions.—A person having *a cause of action* only, is not a creditor capable of proving a debt under the commission; but if he has commenced his suit, and obtained judgment before the act of bankruptcy, it then becomes a legal debt, and may be proved. *Cro. Car.* 166.

Agreement for the purchase of goods, to be paid for at a future day; and before the day of payment arrived, the trader became a bankrupt: held, that this was not a debt proveable under his commission, because the goods were not delivered, nor was the contract signed with the party, and therefore not within the statute 7 Geo. 1. c. 31. respecting debts payable at a future day. 2 *Peere Williams*, 396.

Annuity creditors may be admitted to prove the value under any commission. 49 Geo. 3. c. 121. s. 17.

Apprentices are entitled to be admitted creditors under master's commission for so much of the apprenticeship fee as shall appear to remain after deducting for the time served. The most equitable method is to allow the apprentice a gross sum out of the bankrupt's effects; and commissioners have of late years recommended it to creditors to allow it.

Assets are not affected by the bankruptcy of an executor; and the creditors and legatees of the testator need not come in under the commission, unless where the executor has wasted or misapplied the assets.

Attorney.—An attorney has a general lien upon all papers delivered to him. 4 *Taunt. R.* 807.

Children.—A child living with the father, and earning money for itself, may, if the father receive the money, be admitted a creditor under the commission. 2 *Vesey*, 6751.

Executions and attachments against the lands and tenements, or goods and chattels of the bankrupt, *bonâ fide* executed or levied more than two calendar months before the date and issuing of such commission, shall be valid and effectual, notwithstanding any prior act of bankruptcy committed by such bankrupt, in like manner as if no such prior act of bankruptcy had been committed;

provided the person, at whose suit such execution or attachment shall have issued, had not, at the time of executing or levying the same, any notice of any prior act of bankruptcy by such bankrupt committed, or that he was insolvent or had stopped payment: provided always, that the issuing of a commission of bankrupt, although such commission shall afterwards be superseded, shall be deemed such notice, if it should appear that an act of bankruptcy had been actually committed at the time of issuing such commission. 49 Geo. 3. c. 121.

Exhibits. If a creditor has any security for his debt, as a bond, note of hand, bill of exchange, &c. he must produce them to the commissioners, who are to endorse or underwrite them as *exhibited* under the commission.

If a creditor has a lien on the bankrupt's estate, as a mortgage, pledge, execution, bill of sale, &c. he is not obliged to part with them till he is satisfied for his debt, as far as such liens will extend; and if, after such satisfaction, any part of his debt remains unpaid, he may come under the commission for the residue.

Factor.—A factor has a lien upon goods consigned to him by a bankrupt, whilst they remain in his possession, for items of a general account with the bankrupt; and therefore such factor is only a creditor for the balance of his account. 2 *Burr.* 397.

Bills remitted to a factor, while unpaid, are in the nature of goods unsold, and are subject to such lien as the factor may have thereon. 2 *Bl. Rep.* 1155.

A factor, who is surety in a bond for his principal, has a lien on the price of the goods sold by him for his principal, to the amount of the sum he is bound for. *Cowp.* 251.

Friendly Societies.—Persons entrusted with property belonging to such societies, dying, or becoming bankrupt or insolvent, their executors, administrators, or assignees, shall, within 40 days after demand made by such society, deliver up to such persons as shall be by them appointed, every thing belonging to such society; and pay out of the effects of such persons, all sums of money remaining due, and received by virtue of such office, before any of the other debts are paid or satisfied. 33 Geo. 3. c. 54. s. 10.

Joint Trader.—Creditors of a joint estate, where there are no separate creditors, may exhaust both the joint and separate estate; but where there are both the joint and separate creditors, the joint creditors (as they give credit to the joint estate) shall have first their demand on the joint estate; and separate creditors (as they give credit to the separate estate) shall have first their demand on the separate estate. But if there be a surplus of the separate estate, the joint creditors are entitled to it; for a bankrupt has no right to any thing till they are fully satisfied. 1 *Atk.* 67. 138. 227.

Landlord.—A landlord may distrain goods while they remain on the premises, for his entire rent, be the arrears what they may, notwithstanding the assignment by the commissioners; but if he suffer them to be sold by the assignees, he has lost his remedy by distress, and can only come in with the rest of the creditors. 1 *Atk.* 102. 104.

Marriage Articles.—If a husband, by articles previous to marriage, covenants to leave his wife a certain sum of money, in case she survives him, and he becomes a bankrupt, and dies before any dividend is made, the wife cannot be admitted as a creditor under the commission, for it was not a debt due before the bankruptcy; but if the covenant had been to pay the money to trustees for her use, in his life-time, the court would admit the trustees to prove it, for it was a debt due in his life-time, and before the bankruptcy. 1 *Atk.* 115, 116.

Mortgagee.—A mortgagee of land may choose whether he will come in as a creditor under the commission; for having a real security in his hands, he is safe, and the assignees have only the equity of redemption; but if he prove his debt, he must relinquish his security. 1 *Atk.* 105. 162.

Packer.—A packer may retain goods till he is paid the price of packing; and if he has another debt due to him from the same person, the goods shall not be taken from him till he is paid the whole, notwithstanding the debtor is become a bankrupt. *Atk.* 228.

Policies of Insurances.—All and every person or persons who have effected or shall effect any policy or policies of insurance, upon ships, goods, wares, merchandize or other effects, with any person, as a subscriber or underwriter, who is or are, or shall become a bankrupt, shall be admitted to prove any loss to which such bankrupt is or shall be liable in respect of his subscription to such policy or policies, notwithstanding the person or persons effecting such policy or policies is not or are not the person or persons beneficially interested in such ships, goods, wares, merchandize, or other effects; provided the person really interested is not in that part of the united kingdom in which the commission of bankrupt shall have issued in the proceedings under which such loss is to be proved. 49 Geo. 3. c. 121.

Respondentia.—The obligee in any bottomree or respondentia bond shall be admitted to claim; and after the loss or contingency has happened, may prove his debt. 19 Geo. 2. c. 32.

Securities. — Persons taking securities, payable at a future day, for goods delivered to persons who shall become bankrupts before the time of payment, shall be admitted to prove their securities, and receive their

proportion, deducting interest from the time of payment to the time it would have become due. 7 Geo. 1. c. 31.

Servants.—The commissioners, in the case of menial servants, always recommend the creditors to direct the assignees to pay them their full wages; and Lord Chancellor Cowper expressed an opinion, that it was unreasonable that servants should come in with the rest of the creditors; but this depends entirely upon the generosity of the creditors; for unless they consent, servants have no remedy by law to recover their full money. *Green*, 134.

Sureties.—In all cases of commissions of bankrupts hereafter to be issued, where, at the time of issuing the commission, any person shall be surety for, or be liable for any debt of the bankrupt, it shall be lawful for such surety, or person liable, if he shall have paid the debt, or any part thereof in discharge of the whole debt, although he may have paid the same after the commission shall have issued, and the creditor shall have proved his debt under the commission, to stand in the place of the creditor as to the dividends upon such proof; and when the creditor shall not have proved under the commission, it shall be lawful for such surety, or person liable to prove his demand in respect of such payment as a debt under the commission, not disturbing the former dividends, and to receive a dividend or dividends proportionably with the other creditors taking the benefit of such commission, notwithstanding such person may have become surety or liable for the debt of the bankrupt after an act of bankruptcy had been committed by such bankrupt; provided that such person had not, at the time when he became such surety, or when he so became liable for the debt of such bankrupt, notice of any act of bankruptcy by such bankrupt committed, or that he was insolvent, or had stopped payment: provided always, that the issuing a commission of bankrupt, although such commission shall afterwards be superseded, shall be deemed such notice. 49 Geo. 3. c. 121.

This act does not extend to Scotland.

Bankrupt not surrendering.

On certificate under the hands and seals of the commissioners, that such commission is issued, and such person proved before them to become bankrupt, any judge or justice of the peace, shall, on application to them for that purpose made, grant their warrant for taking and apprehending such person, and commit him to the common gaol, there to remain until he be removed by order of the commissioners by their warrant. And the gaoler shall forthwith give notice to one or more of the commissioners, of such person being in his custody; whereupon they shall send their warrant to him to deliver him to the person who shall be named in the warrant, who shall convey him to the commissioners to be examined. And the commissioners, by such or any other their warrant, may seize the goods and papers of such bankrupt which shall be in any prison (necessary wearing apparel of himself, and wife and children excepted). 5 Geo. 2. c. 30.

But if the person so apprehended shall, within the time allowed, submit to be examined, and in all things conform, he shall have the same benefit as if he had surrendered. 5 Geo. 2. c. 30.

By which last clause it appears, that the bankrupt shall not be apprehended and committed, until he shall have made default in not surrendering and making discovery, after due notice as aforesaid.

If the bankrupt does not surrender himself to the commissioners by twelve o'clock at night, of the day appointed for the third public meeting, the messenger warns him so to do, on pain of death, by proclamation made in Guildhall. This, however, seldom occurs.

Surrender of Bankrupt, &c.

If not actually in custody, the bankrupt, in prudence, should attend the first meeting of the commissioners, to apply for a protection.

The bankrupt, after assignees shall be appointed, shall deliver up to them, on oath (to be administered by a master in chancery, or justice of the peace) all his books of accounts, papers, and writings not seized by the messenger of the commission, and not before delivered up, and then in his power, and discover such as are in the power of others; and being not in custody, shall at all times attend the assignees, on reasonable notice given to him in writing, or left for him at his place of abode, in order to assist in making out the account of his estate. 5 G. 2. c. 30.

And such bankrupt having surrendered, shall, at all seasonable times, before the expiration of 42 days or further term, be at liberty to inspect his papers, in presence of the assignees, or some person appointed by them, and to bring with him, for his assistance, any persons, not exceeding two at a time, and to make extracts from thence, the better to enable him to discover his effects. 5 Geo. 2. c. 20.

And in order thereto, he shall be free from arrest or imprisonment by his creditors, in coming to surrender, and from his surrender, for the said 42 days or further term; provided he was not in custody at the time of surrender. And if he be arrested for debt, or on an escape warrant, coming to surrender, or after surrender within the said term; then, on producing the notice under the hands of the commissioners or assignees, to the officer who shall arrest him, and making it appear to such officer that such notice is signed by them, and giving the officer a copy thereof, he shall be immediately discharged. And if any officer

shall in such case detain him, he shall forfeit to him, for his own use, 5*l.* a day by action of debt, with full costs. *Id.*

And if the bankrupt be in prison or custody at the time of issuing the commission, and is willing to surrender and be examined, and can be brought before the commissioners and creditors, the expence thereof shall be paid out of his estate. 5 Geo. 2. c. 30.

And every bankrupt, being in custody at the time of his or her last examination, although charged in execution, shall be brought before the commissioners to be examined by them, in the same manner as is now practised with respect to bankrupts in custody on mesne process; and the gaoler shall be fully indemnified by the warrant of the commissioners for bringing up such bankrupt. 49 Geo. 3. c. 121.

And the commissioners may examine him on oath (21 J. c. 19.), *as well by word of mouth, as on interrogatories in writing,* touching his trade, dealings, estate, and effects; and take down in writing his answers to verbal examinations; which he shall sign; and if he shall refuse to answer, *or not answer fully,* all lawful questions, or refuse to sign the same; the commissioners may, by warrant, commit him to prison without bail, *till he shall submit to them, and full answer make,* and sign the same; which warrant shall specify such questions. 5 G. 2. c. 30.

But if on an *habeas corpus* there appear insufficiency in the warrant of commitment, the judge nevertheless shall commit him to the same prison, to remain as aforesaid, unless it be made appear that he hath fully answered all lawful questions, or unless it appear that he had sufficient reason for not signing. 5 Geo. 2. c. 30.

And if he shall not, within the said time, surrender himself to the commissioners, and sign such surrender, and also submit to be examined from time to time on oath, and in all things conform to the statutes concerning bankrupts, and also on his examination fully discover all his estate, and how disposed of, except what hath been *bonâ fide* disposed of in the way of his trade and dealings, and except what hath been laid out in the ordinary expence of his family, and also deliver up to them all his effects (except the necessary wearing apparel of himself, and wife and children); then, in case of any default and wilful omission in not surrendering and submitting to be examined, or in case he shall remove, conceal, or embezzle any part of his estate to the value of 20*l.* or any books of account, or writings relating thereto, with intent to defraud his creditors and be thereof convicted by indictment or information, he shall be guilty of felony without benefit of clergy, and his estate shall be divided among his creditors. 5 Geo. 2. c. 30.

And every person who shall accept any trust, or conceal any estate of the bankrupt, and shall not, in 42 days after issuing the commission, and notice thereof in the Gazette, discover the same in writing to one or more commissioners or assignees, and submit himself to be examined; shall forfeit to the creditors 100*l.* and double the value of the estate concealed, by action of debt, with full costs. 5 Geo. 2. c. 30.

Of superseding the Commission, &c.—If a bankrupt is able to satisfy the demands of his creditors, the commission may be superseded.

Petitioning creditor may agree to supersede the commission; but the other creditors may renew it, and revoke the supersedeas.

A commission may also be superseded if the party is not found to be a trader, or if the commission was not issued in due time, &c.

And if any bankrupt, after issuing the commission, shall compound with the person suing out the same, for more than his proportion with the rest of the creditors, such commission may be superseded; and the lord chancellor may award to any creditor petitioning, another commission, and the person so compounding shall lose his whole debt, and deliver up to the new commissioners all he shall have so received, for the use of the other creditors. 5 G. 2. c. 30.

Powers of Commissioners and Assignees.—The commissioners may examine, on oath, the bankrupt's wife, like as any other person. 21 J. c. 12.

As also every other person duly summoned before, or present at their meeting, touching the person, trade, dealings, estate, and effects of the bankrupt, and any acts of bankruptcy by him committed; and may take down in writing the answers to verbal examinations, which the party shall sign; and if any of them shall refuse to answer, or not answer fully, all lawful questions, or refuse to sign the same, the commissioners may, by warrant, commit him to prison without bail, till he shall submit. 5 Geo. 2. c. 30.

Commissioners and others, by warrant under their hands and seals, may break open the bankrupt's houses, doors, trunks, and chests, where he or any of his goods are reputed to be, and seize upon and order his body and goods as before is said. 21 J. c. 19.

And shall have power, by their discretions, to take such order with the lands of such bankrupt, which he had in his own right before he became a bankrupt, or which he purchased jointly with his wife or child to the only use of such bankrupt, or for such use or interest, as he may lawfully part with; or with any person of trust to any secret use of such bankrupt; and also with all his money, goods, chattels, wares, merchandizes, and debts; and cause all the same to be sold by deed indented, and enrolled in a court of record; or otherwise

ordered for payment of the creditors. And if any lands or goods shall descend or come to the bankrupt afterwards, before the debts be fully paid, the same shall be disposed of in like manner. 13 El. c. 7.

But this shall not extend to lands assured by such person before he becomes bankrupt, provided the assurance be made *bonâ fide*, and not to his own use only, or of his heirs; and that the party to whose use they are assured, be not privy to the fraudulent purpose of the bankrupt to deceive his creditors. Sect. 12.

Also the commissioners may, by deed indented, and enrolled at *Westminster*, in six months, sell the bankrupt's estate in tail, whereof no reversion or remainder is in the king or of the king's gift; which sale shall be good against all persons whom the bankrupt, by common recovery, or otherwise, might cut off.

Also, if the bankrupt hath conveyed any estate, on condition, or power of redemption at a day to come, by payment of money, or otherwise; the commissioners, before the time of the performance of such condition, may appoint, under their hands and seals, any person to make tender or payment of money or other performance, as fully as the bankrupt might have done; and may dispose of the estate redeemed for the use of the creditors, as fully as any other estate of the bankrupt. 21 J. c. 19.

Effects which a bankrupt hath as executor only, shall not be applied to the use of the creditors; but shall go according to direction. 1 *Atk.* 101. So as a bailee only. 3 *Term R.* 316. So as a factor or banker for a specific purpose. 5 *Term R.* 215. 2 *H. Black. R.* 501. So as an overseer of a parish for the poor. 1 *Term. R.* 370.

If the bankrupt shall convey to any of his children, or other person, any lands or goods, or transfer his debts in other men's names, except the same be conveyed or transferred on marriage of any of his children, or for some valuable consideration; the same may be seized and disposed of. 1 J. c. 15.

Also the assignees, with consent of the major part in value of the creditors, present at a meeting pursuant to notice to be given in the Gazette, may submit disputes relating to the bankrupt's estate to arbitration; and may compound for debts owing to the bankrupt. 5 Geo. 2. c. 30.

Every person who shall, after the time of surrender, voluntarily make discovery to the commissioners or assignees, of any part of the bankrupt's estate, not before come to the knowledge of the assignees, shall have 5*l.* per cent. and such farther reward as the assignees and the major part of the creditors in value, present at any meeting, shall think fit. 5 Geo. 2. c. 30.

Where debts carry interest, the same shall be continued down to the date of the commission: but note-creditors have no right to prove interest upon them, unless it is expressed in the body of the notes. Even at law, where notes are for value received, and interest is not expressed, the jury do not give the plaintiff in an action upon the notes, interest for them, but by way of damages only; and commissioners of bankrupts cannot award damages. 1 *Atk.* 151. 259.

Assignees shall not be answerable for losses occasioned by their own necessary acts; but if an assignee trusts a person with the payment of money who fails, and the money is lost, such assignee shall be answerable over to the creditors, unless he consulted the body of the creditors in the appointment of such agent. 1 *Atk.* 87.

An assignee, who is an officer of the court, and an officer of the commission, shall not be allowed to stop a person's share in the dividend on account of his own private debt, which is owing to him from that person; he hath his remedy at law, and ought not to intermix his own private affairs with the commission, to which he is only a trustee. 1 *Atk.* 90.

The assignees shall keep books of accounts of all sums and effects received: which every creditor, who hath proved his debt, may inspect at all seasonable times. 5 Geo. 2. c. 30.

To prevent expences, no money shall be paid out of the effects for eating and drinking of the commissioners, or of any other person, nor shall the commissioners have above 20s. each, for each meeting; nor any schedule be annexed to the deed of assignment. Commissioners acting contrary hereto, shall be disabled for ever to act as such. 5 Geo. 2. c. 30.

In actions brought by assignees, the commission and proceedings under it to be sufficient evidence of the petitioning creditor's debt, and the trading and act of bankruptcy, unless notice be given that those matters are to be disputed. 49 Geo. 3. c. 121. The same in suits in equity by assignees as against all other parties to the suit. *Id.*

No suit in equity shall be commenced by the assignees, without consent of the major part in value of the creditors, who shall be present at a meeting of the creditors, pursuant to notice in the Gazette. 5 Geo. 2. c. 30.

But the assignees may bring actions at *law* without first calling a meeting of creditors; and they shall have the same remedy for recovery of debts due to the bankrupt, as the bankrupt himself could have had; and therefore they may have debt upon bond or contract made to the bankrupt, or an action upon the case upon *assumpsit*. 3 *Salk.* 59.

By 46 Geo. 3. c. 135. it is enacted, that in all cases in which, under commissions of bankrupt hereafter to be issued, it shall appear that there has been mutual credit given by the bankrupt and any other person, or mutual debts between the bankrupt

and any other person, one debt or demand may be set off against another notwithstanding any prior act of bankruptcy committed by such bankrupt before the credit was given to, or the debt was contracted by such bankrupt, in like manner as if no prior act of bankruptcy had been committed, provided such credit was given to the bankrupt two calendar months before the date and suing forth of such commission, and provided the person claiming the benefit of such set-off had not, at the time of giving such credit, any notice of any prior act of bankruptcy by such bankrupt committed, or that he was insolvent, or had stopped payment.

No action to be brought against assignees for dividends, but the remedy to be by petition to the chancellor, who may order payment with interest and costs. 49 Geo. 3. c. 121.

And in case any commission of bankrupt shall issue against any person who is or shall be an assignee of the estate and effects of any bankrupt, and who shall, at the time of such commission issuing against him, be indebted to the estate of the bankrupt, of whose estate and effects he was an assignee, to the amount of 100*l.* or upwards, in respect of money come to his hands as such assignee, and wilfully retained or employed by him for his own benefit, the certificate of conformity which may be obtained by such assignee so becoming bankrupt as aforesaid, shall only have the effect of freeing the person of such bankrupt from arrest and imprisonment; but the future estate and effects of every such person shall remain liable for so much of his debt to the estate of the bankrupt of whose estate and effects he was an assignee, as shall not be paid by dividends under the said commission, together with lawful interest for the whole debt, in like manner as if he had not obtained his certificate; the tools of trade, the necessary household goods and furniture, and necessary wearing apparel of such bankrupt, and his wife and children, only excepted.

Dividends.—Commissioners are not to declare a dividend till a true statement, in writing, be made upon oath by the assignees; and the commissioners shall examine such statement, "and shall enquire for what reason any sum appearing to be in the hands of such assignees ought to be retained, and thereupon shall declare a dividend on the remaining sum, specifying in their order the sum so allowed to be retained, and the grounds on which they may conceive it proper that the same should be retained, and not divided amongst the creditors." 49 G.3. c. 121.

The assignees shall, after *four* and within *twelve* months, after issuing the commission, cause at least twenty-one days' notice to be given in the Gazette, of the time and place the commissioners and assignees intend to meet to make a dividend; at which time, the creditors who have not before proved their debts, may prove them; and the assignees shall produce fair accounts, and be sworn to them before the commissioners, if required by the creditors; and they shall be allowed therein all reasonable expences. And the commissioners may then order, under their hands, a distribution (to every creditor a portion ratelike, according to the quantity of his debts. 13 Eliz. c. 7.); which order shall contain the time and place of making it, and the total of the debts proved, and of the money in the hands of the assignees, and how much in the pound shall be then distributed; one part of which order shall be filed among the proceedings under the commission, and each of the assignees shall have a duplicate thereof. And the assignees shall take receipts for the same, in a book to be kept for that purpose. 5 Geo. 2. c. 30.

In *eighteen* months after issuing the commission, the assignees shall make a second dividend, and shall cause notice to be inserted in the Gazette of the time and place the commissioners intend to meet to make a second distribution, and for the creditors who have not proved their debts, to come and prove them. And at such meeting, the assignees shall produce their account on on oath; and what is in their hands, shall, by order of the commissioners he forthwith divided. Which second dividend shall be final, unless a suit in law or equity be depending, or part of the estate standing out that cannot have been disposed of, or that the major part of the creditors shall not have agreed to be sold, or unless some other or future estate of the bankrupt shall come to the assignees; which they shall, as soon as may be, convert into money, and in two months distribute the same in like manner. 5 Geo. 2. c. 30.

Allowance to Bankrupt. — The bankrupt, surrendering and conforming, shall be allowed 5*l.* per cent. if, after such allowance, the neat produce of his estate will pay 10*s.* in the pound; so, as the said 5*l.* per cent. amount not to above 200*l.*

And if the neat produce of his estate will pay 12*s.* 6*d.* in the pound, he shall be allowed 7*l.* 10*s.* per cent. so as it amount not to above 250*l.*

And if it will pay 15*s.* in the pound, he shall be allowed 10*l.* per cent. so as it exceed not 300*l.*

If the neat produce will not pay 10*s.* in the pound, the bankrupt shall be allowed so much as the assignees and commissioners shall think fit, not exceeding 3*l.* per cent. 5 Geo. 2. c. 30.

But the same shall not be paid to the bankrupt till a final dividend shall be made; because, until that time, creditors may still come in to prove their debts. 1 *Atk.* 208.

Certificate. — No discovery on oath shall

entitle the bankrupt to the said allowance, unless the commissioners shall, under their hands and seals, certify to the lord chancellor, that he hath made a full discovery of his estate, and in all things conformed himself; and that there doth not appear to them any reason to doubt the truth of such discovery, or that the same is not a full discovery; and unless three parts in five in number and value of the creditors, who shall be creditors for not less than 20*l.* and who have proved their debts, or some person by them authorised thereto, shall sign such certificate, and testify their consent to such allowance and certificate, and to the bankrupt's discharge, to be also certified by the commissioners; but the commissioners shall not certify the same, till they have proof by affidavit of such creditors, or of the persons by them respectively authorised, signing the said certificate, and of the power by which any person is so authorised; and the letter of attorney of a creditor residing in foreign parts, attested by a notary public, shall be sufficient evidence in such case of such power. 24 Geo. 2. c. 57. which said affidavit, together with such power to sign, shall be laid before the lord chancellor with the certificate, in order for allowing the same; — and unless the bankrupt make oath, that the certificate and consent of the creditors were obtained fairly and without fraud; and unless the certificate shall, after such oath, be allowed and confirmed by the lord chancellor, or two of the judges to whom he shall refer it; and any of the creditors shall be allowed to be heard against making a certificate, and against the confirmation of it; nor shall any commissioner sign the certificate, till after three parts in five in number and value of the creditors shall have signed it. 5 Geo. 2. c. 30. and 49 Geo. 3. c. 121.

But every security given to the use of any creditor, to induce him to sign such allowance or certificate, shall be void. 5 Geo. 2. c. 30.

Moreover, no bankrupt shall be entitled to such allowance, who hath upon marriage of any child given above 100*l.*, unless he prove by his books, or upon his oath, that he had remaining at the time sufficient to pay his debts; or who hath lost in one day the value of 5*l.* or in the whole the value of 100*l.* in twelve months next before his becoming bankrupt, at cards, dice, tables, tennis, bowls, billiards, shovel-board, cock-fighting, horse-races, dog-matches, foot-races, or other pastime or game, or in bearing a part in the stakes, or by betting; or hath, within one year before he became a bankrupt, lost 100*l.* by contracts for the stock of any company, or public funds, where the contract was not to be performed within a week, or where the stock was not actually transferred. 5 Geo. 2. c. 30.

And moreover, by 24 Geo. 2. c. 57., when any person shall fraudulently swear, before the major part of the commissioners, or by affidavit exhibited to them, that a sum of money is due to him from the bankrupt, which shall in fact not be really owing; and shall, in respect of such fictitious debt, sign the certificate for such bankrupt's discharge; in such case, unless the bankrupt shall, before the major part of the commissioners have signed the certificate, by writing signed by him, and delivered to one or more of the commissioners or assignees, disclose the fraud, and object to the reality of such debt, the certificate shall be void, and the bankrupt shall not be entitled to his discharge or allowance. *Id.* s. 9.

The bankrupt, after allowance of the certificate, shall attend, on notice in writing from the assignees, to settle accounts, and and shall have 2*s.* 6*d.* a day allowed for attendance; and if he shall neglect or refuse, he shall, on oath made by the assignees before the commissioners, be apprehended and committed to close gaol, by warrant of the said commissioners till he conform. 5 G. 2. c. 30.

Bankrupt dying before distribution, shall not hinder the distribution. 1 J. c. 15.

And if the certificate be allowed in the life-time of the bankrupt, it is good, though it be not confirmed by the lord chancellor till after his death; for the operative force of it arises from the consent of the creditors; and when confirmed, it hath its effects from the beginning. 1 *Atk.* 77.

And the allowance to the bankrupt, being a vested interest, shall go to his executor. 1 *Atk.* 208.

Bankrupt's Discharge. — By 46 Geo. 3. c. 135. All persons against whom any commission of bankrupt shall hereafter issue, and who shall be duly found bankrupt, under the same, shall upon obtaining his, her, or their certificate, be discharged of and from all debts by this act made proveable under such commission, and shall have the benefit of the several statutes now in force.

And by 5 G. 2. c. 30. If a bankrupt shall be arrested or prosecuted for any debt due before that time, he shall be discharged on common bail, and may plead in general, that the cause of action did accrue before he became bankrupt, and may give this act, and the special matter in evidence; and the certificate of his conforming, and allowance thereof, shall be sufficient evidence of the trading, bankruptcy, commission, and other proceedings precedent to the obtaining the certificate; and a verdict shall pass for the defendant, unless the plaintiff can prove that the certificate was obtained fraudulently, or can make appear a concealment by the bankrupt to the value of 10*l.* And if the plaintiff is cast, the defendant shall have full costs.

If the bankrupt shall be taken in execu-

tion, or detained in prison, for debt owing before his bankruptcy, by reason that judgment was obtained before the certificate was allowed and confirmed; any judge of the court, on producing his certificate, may order him to be discharged without fee, 5 Geo. 2. c. 30.

But the bankrupt's discharge, and allowance of his certificate, will not preclude the creditors from proceeding against his sureties. 1 *Atk.* 83.

The commissioners shall, on lawful request of the bankrupt, declare how they have bestowed his lands and goods, and pay to him the overplus, if any there be. 13 Eliz. c. 7.

Though the bankrupt's certificate extinguishes all those debts which might have been proved under the commission, yet, as he continues under a moral obligation to pay them if he should ever have it in his power, he may make himself again liable at law by a new promise. 1 *Atk.* 67. — Therefore, where Fenton purchased linen of Trueman, and gave him his promissory note of hand for the amount, but became bankrupt before it became due, and after the bankruptcy gave Trueman another note of hand for the amount, in lieu of the former one; upon which second note of hand, Trueman, not having proved the first note under the commission, sued him subsequent to the obtaining his certificate; it was held, that the certificate was no bar to this demand. *Cowp.* 549. — So also, a bond and warrant of attorney to confess a judgment given by a bankrupt after his bankruptcy for a debt contracted before, is not barred by his certificate, though given in prison, and for the purpose of obtaining his liberty; for the court held, that it was to be considered in the light of a new debt arising upon a new consideration, viz. to procure the defendant's liberty, by which the old debt became extinguished, and is the same as if a new promise had been given for the same debt upon the same consideration. 1 *T. Rep.* 715.

All property coming to the bankrupt before allowance and confirmation of the certificate, may be claimed by the assignees, for the benefit of the creditors. A person becoming a bankrupt, had purchased a ticket in the lottery; his certificate was signed by the creditors, and within a day or two of being confirmed by the chancellor; in the interim, the ticket was drawn a prize of 10,000*l.* which was claimed bythe creditors.

A bankrupt, entitled to a lease, or an agreement for a lease, delivering up the same to assignees, will not be liable afterwards for the rent, nor in respect of covenants; but the lessor, or person agreeing to make such lease, (if the assignees do not determine whether they will or will not accept of such lease, or agreement for a lease) may "apply by petition to the lord chancellor, lord keeper, or lords commissioners of the Great Seal, praying that they may either so accept the same, or deliver up the lease or agreement for the lease, and the possession of the premises demised, or intended to be demised, who shall thereupon make such order as in all the circumstances of the case shall seem meet and just, and which shall be binding on all parties." 49 Geo. 3. c. 121.

Second Bankruptcy. — If any commission of bankruptcy shall hereafter issue against any person who shall have been discharged by this act, or shall have compounded with his creditors, or delivered to them his estate, and been released by them, or been discharged by an act of insolvency, then the body only of such person conforming shall be free from arrest and imprisonment; but his future estate shall remain liable to his creditors, (his tools of trade, necessary household goods and furniture, and necessary wearing apparel of himself and wife and children only excepted,) unless the estate of such person shall produce, clear of all charge, 15*s.* in the pound. 5 Geo. 2. c. 30.

The 56 Geo. 3. c. 137. recites, that "In and by an act passed in 1 Jac. 1. intituled 'An act for the better relief of the creditors against such as shall become bankrupt,' it was enacted, that no debtor of a bankrupt should be thereby endangered for the payment of his or her debt truly and *bonâ fide* to any such bankrupt, before such time as he should understand or know that he was become bankrupt; and the provisions of the said statute have been found to be beneficial, and it is also expedient to make such provisions respecting the delivery of goods, wares, merchandizes, and effects, as are hereinafter contained; be it enacted therefore, that no person or persons, body politic or corporate, joint stock or other company, having in his, her, or their possession or custody any goods, wares, merchandizes or effects belonging to any person or persons who shall be or become bankrupt, shall be endangered for or by reason of the delivery of any such goods, &c. truly and *bonâ fide* to such person or persons, or to his, her, or their order, before such time as the person or persons, body politic or corporate, joint stock or other company, having such goods, &c. in his or their possession or custody, shall understand or know that the person or persons to whom such goods, &c. do or shall belong, is or are become bankrupt.

"Provided nevertheless, that in all cases in which it shall be proved that the person or persons acting on the behalf of any body politic or corporate, joint stock or other company, in the paying or causing or directing the payment of any debt, or in the delivering or causing ordirecting the delivery of any goods, wares, merchandizes or effects, to any person or persons, understood or knew that the person or persons or any of them to whom such debt was paid, or such

goods, &c. were delivered, was or were or had become bankrupt, such body politic or corporation, joint stock, or other company, shall be deemed and taken to have understood and known the same."

BARBADOES ALOES, (Ger. *Leberaloe.* Du. *Leveraloe.* Da. *Lever-Aloe.* Sw. *Lefverfargäd Aloë.* Fr. *Aloes hepatique.* It. *Aloe epatico o Patica.* Sp. *Acibar epatico.* Port. *Azebre hepatico.* Lat. *Aloe hepatica,*) a bitter juice extracted from the leaves of a plant of the same name. *See* ALOES.

BARBADOES TAR, (Ger. *Bergtheer.* Du. *Bergteer.* Da. *Biergtiere.* Sw. *Bergjära.* Fr. *Poix minerale.* It. Sp. and Port. *Malta.* Lat. *Maltha.*) *See* BITUMEN.

BARBATINA, or SEMEN CONTRA, a seed which is efficacious in extirpating worms from the human body. It is imported from Aleppo by way of Smyrna, &c.

BARCALAO, or Bacalao, a Spanish word, which the French pronounce baccala, or baccaliau. By this last name the Basques most commonly call the fish which we style *cod;* and those people also call the isle of Newfoundland, the Isle of *Baccaliau* (Cod Island), because of the large quantity of cod that is caught there. There is, however, a league westward of that large island, another small one, which is more particularly called *Baccaliau.*

The *bacalao* is a kind of cod, perfectly like that of Newfoundland, and is to be met with in several parts of the South Sea; but the greatest quantity is catched on the coast of the island of Juan Fernandez, eighty leagues westward of Valparaiso, on the coast of Chili.

BARCONE, a short and broad vessel, used in the Mediterranean for the carriage of corn, salt, and other provisions, from one place to another.

BARGAIN AND SALE. *See* CONTRACT.

BARGE, a kind of state or pleasure-boat, or boats of burden, chiefly used on rivers, &c. which lead to great cities. There are various kinds of *barges,* as *royal barge, ship's barge, sand barge,* &c.

BARGHMOTE, a court which takes cognizance of causes and disputes between miners. By custom of the mines, no person is to sue a miner for ore, debt, &c. but in this court, on penalty of forfeiting the debt, and paying the charge at law.

BARIGA, a species of raw silk, brought from the East Indies.

BARILLA, (Ger. *Waidasche.* Du. *Weedas.* Da. *Veedaske.* Sw. *Dräggaska.* Fr. *Vedasse, Cendre gravelée.* It. *Feccia bruciata.* Sp. *Cenizas gravelladas.* Port. *Cinza de Toscanas de tartaro.* Rus. *Smoltschug.* Pol. *Smelcuga.* Lat. *Cineres infectorii,*) the name of a sea-plant which grows very plentifully on the coast of Spain. It abounds with soda; and the impure ashes of the plant, containing that salt in great abundance, form an important article of commerce. The ashes themselves are commonly called barilla. *See* SOAP.

BARK, small vessels which carry merchandise from maritime ports, into the inland parts of a country, where there are canals and rivers that are not navigable by larger vessels. In France they are called *barques;* in Holland and Flanders *bilanders;* and in England *barges* and *lighters.*

BARK, *in Botany,* the outer rind of plants. The following are the species chiefly used in medicine and the arts.

Angelina. The tree from which this is obtained, is not correctly known. It is found in the island of Grenada. It is sometimes employed as a vermifuge.

Angustura. This bark is imported in pieces of about six inches long, and one inch and a half in breadth. It is whitish externally, the substance compact, and the colour, when powdered, not unlike that of rhubarb. It is a powerful bitter, joined with an aromatic flavour, and a slight degree of pungency. It is highly useful as a tonic medicine in some kinds of fever, indigestion, and dysentery.

Canella, (*caminga, cassia lignea Jamaicensis, canella cubana,*) the wild cinnamon tree; growing in Jamaica, Antigua, and other of the Caribbee islands. The bark consists of two parts, an outward and an inward; the outer is about the thickness of a shilling; of an ash-grey colour, interspersed with white spots, and several shallow furrows of a darker colour running through it. The inner bark, which is alone employed, is thicker than that of cinnamon, smooth, of a pale yellowish colour, of pungent aromatic taste, resembling that of cloves; it is not glutinous when chewed, but crumbles between the teeth. It is sometimes sold for winter's bark, which it in some degree resembles. It is used as an aromatic medicine, conjoined with bitters, &c. in dyspeptic complaints.

Cascarilla. (Ger. *Kaskarille.* Du. *Kaskarilla.* Da. *Caskarille.* Sw. *Schakarillbark.* Fr. *Cascarille, Chaquerille.* It. *Cascariglia.* Sp. *Cascarilla.* Port. *Cascarilha.* Rus. *Kaskaril.* Pol. *Kaskarel, Szakrel.* Lat. *Cascarilla.*) This name is given to the bark of a tree, growing plentifully in the Bahama islands, called by the natives *hathera,* the *croton cascarilla* of Linnæus, Sp. Pl. 1424.

It is brought to us in curled pieces, or rolled up in short quills about an inch in width, covered on the outside with a rough whitish matter, and brownish within; exhibiting when broken a smooth, close, brown surface. It has a light fragrant smell, and a moderately bitter taste, accompanied by a considerable degree of aromatic warmth. It yields, when burning, a very agreeable smell, somewhat resembling musk.

It is an excellent tonic medicine, and is,

in many cases, superior in efficacy to the Peruvian bark; particularly in debility of the stomach, and indigestion.

Cassia caryophillata; called also *amomum, clove-berry tree, sweet-scented Jamaica pepper tree*, the bark of which is called *clove bark*, and sometimes *cassia bark*.

This is the produce of Jamaica, Cuba, and other of the West Indian islands. It is rolled like cinnamon, but is rather thinner, rougher on the outside, and of a dark-brown colour. It is warm and aromatic, and somewhat resembles cinnamon in taste. The smell is like that of cloves, though weaker.

A similar bark is brought from the East Indies, under the name of *culiltawan*, or *culilawan*. That distinguished in Europe by the name of *culilawan* is thicker than the other, and has more of a cinnamon colour, but scarcely differs in smell or taste. Rumphius observes, that the outer and inner barks of different parts of the tree differ from each other, whence probably the variation in those brought under different names into Europe.

The unripe fruit of the tree is the *Jamaica pepper*.

Cassia lignea, or *canella Malabarica, cinnamomum Malabaricum, carva, calihacha; wild cinnamon tree, Malabar cinnamon tree*, or *cassia lignea tree*. The bark of this tree is called *cassia lignea*; and is brought from the East Indies. The best pieces (called *daphnitis*) resemble cinnamon in appearance, but is distinguishable by its breaking short and smooth, while the fracture of cinnamon is fibrous; and by chewing, when the cassia becomes mucilaginous, but the cinnamon austere and dry. It resembles cinnamon in flavour, but is weaker; it contains a mucilage, of which cinnamon does not sensibly partake; if powdered, and boiled in water, the water becomes glutinous, so as to concrete on cooling almost into a jelly. That should be chosen which is small, easily broken, fragrant, pungent, sweetish, and mucilaginous when chewed.

Both those barks have nearly the same medicinal properties as cinnamon; they are however weaker, and do not possess any degree of astringency.

Cinnamon, (Ger. *Zimmet, Kanehl*. Du. *Kaneel*. Da. *Caneel*. Sw. *Canel*. Fr. *Canelle, Cannelle*. It. *Canella*. Sp. *Canela*. Port. *Canella*. Rus. *Koriza*. Pol. *Cynamom*. Lat. *Cinnamomum, Canella*,) is a light, reddish, thin bark, rolled up in long quills of a fibrous woody texture, inclining to red, not unlike rusty iron, of a fragrant smell, and a sweet, pungent taste. The greatest impositions in the sale of cinnamon, are the selling such, being dried again, as has already had its essential oil distilled from it, and imposing the *cassia lignea* in its place. The first of these is discovered by the want of pungency in the cinnamon; the second by this, that the cassia, when held a little in the mouth, becomes mucilaginous, which the true cinnamon never does. This oil has been made genuine in England, from the common cinnamon of the shops, so as to exceed that brought from Holland. The cinnamon is the interior or second bark of the tree that produces it in the East Indies; the people who gather it take off the two barks together, and immediately separating the outer one, which is rough, and has very little fragrancy, they lay the other to dry in the shade in an airy place, where it rolls itself up into the form we see it. This valuable article is principally grown in the island of Ceylon. It is much used as a cordial, tonic, and astringent medicine. Cinnamon can only be imported into Great Britain from the East Indies, and is reckoned among the garbleable spices by stat. 1 Jac. c. 19.

Peruvian, called also *Cinchona*, and *Jesuits' Bark*. (Ger. *Chinarinde, Chinachina*. Du. *Kina, Quinquina*. Da. *Kina, China, Chinabark*. Sw. *Feberbark, China*. Fr. *Quinaquina*. It. *China, Chinacchina*. Sp. and Port. *Quina, Quinquina*. Rus. *China, Chinchina*. Pol. *Kwinkwinna*. Lat. *Quinquina, Cortex Peruvianus*.) There are several species of cinchona, but those chiefly employed are the *red* and *yellow*.

The yellow, or common Peruvian bark, is the produce of a tree growing in Peru; the *cinchona officinalis* of Linnæus, the *macrocarpa* of Willdenow. It is brought in pieces of different sizes, some rolled up in short thick quills, and others flat; the outside is brownish, and generally has a whitish moss spread upon it, the inside is of a yellowish or rusty iron colour. The best sort is bitter and astringent to the taste, breaks close and smooth, is friable between the teeth, pulverises easily, and when powdered, is of a yellowish brown colour. The surest test of its goodness is a peculiar smell, which is somewhat musty and slightly aromatic. The inferior kinds, when broken, appear woody, and, in chewing, separate into fibres. That, the taste of which is nauseous, mucilaginous, the surface is polished, and is tough, spongy, or powdery, should be rejected.

The red bark is in much larger and thicker pieces than the common bark. It evidently consists of three different layers. The external is thin, rugged, and covered with a mossy substance, and of a reddish brown colour; the middle is darker, thicker, and more compact; the innermost has a woody and fibrous appearance, and is of a brighter red than the former. It breaks short, and smooth. Its flavour is more bitter and aromatic than that of the common bark. The tree from which it is obtained is not accurately known.

Oak bark dyed red with sanders wood, has been sold for the red Peruvian bark. This may be distinguished by the want of

difference of colour in the several layers of which it is composed.

Peruvian bark is of considerable use in medicine, from its tonic and astringent properties. It is in cases of ague, and continued fever, accompanied with great debility and relaxation, the most efficacious remedy known.

Oak. (Ger. *Bork, Eichenrinde, Loke.* Du. *Run, Runne.* Da. *Bark, Garverbark.* Sw. *Bark, Ekbark.* Fr. *Tawbrut.* It. *Scorza di quercia.* Sp. *Corteza de encina.* Port. *Casca do carvalho.* Rus. *Dubowüi kora.* Pol. *Dab garbarski.*) This is a strong astringent; it is moderately bitter to the taste, without any particular smell. It is employed in medicine occasionally, in diseases attended with much debility and relaxation, and for restraining immoderate discharges of all kinds; but the principal use to which it is applied, is for tanning leather; for which purpose, from its moderate price, and the large quantity of tan it contains, it is well applicable.

It has recently been discovered, that the bark of the larch-tree has precisely similar effects, so far as concerns the arts, as the bark of the oak.

Willow, this bark is considerably bitter and astringent, and has been employed in medicine as a substitute for the Peruvian bark, with the most satisfactory results.

Winter's, is obtained from the wild cinnamon tree; it has been called Winter's bark, from a captain of that name, who brought it from the Straits of Magellan in the year 1579. This bark is of different degrees of thickness, from a quarter to three quarters of an inch; of a dark cinnamon colour, having, if rubbed, an aromatic odour, and a pungent, hot, spicy taste. Canella has been usually substituted for it; but Winter's bark may be distinguished by its being in larger pieces than canella, of a more rugged surface, a deeper colour, more agreeable smell, a warmer, more pungent, and less bitter taste.

It is used in medicine as a stimulant and slight tonic.

BARLEY, (Ger. *Gerste.* Du. *Gerst, Garst.* Da. *Byg.* Sw. *Biugg, Korn.* Fr. *Orge.* It. *Orzo.* Sp. *Cebada.* Port. *Cevada, Sevada.* Rus. *Fatschmen.* Pol. *Feczmien.* Lat. *Hordeum,*) a sort of grain very well known. The chief kinds are the long-eared *barley;* the winter, or square *barley;* and the sprat, or battledore *barley.* The meal of *barley* is very white, and good to make bread, particularly if mixed with that of some other corn. It is the substratum of beer and ale; by making it sprout, ferment, and boil, all sorts of malt liquor are extracted from it. *See title* MALT.

There are other barleys called *pearl barley, French barley,* and *Scotch barley,* which have been stripped of their first coat. These kinds are used in the composition of diet-drinks, and are found to be nourishing.

BARLEY-CORN, the least of our long measures, being the third of an inch.

BARLEY-SUGAR, (Ger. *Gerstenzucker.* Du. *Garstensuiker.* Dan. *Bygsukker.* Sw. *Kornsocker.* Fr. *Sucre d'orge, Sucre tors.* It. *Pennito.* Sp. *Alfenique.* Port. *Alfenim.* Lat. *Alphenix,*) a preparation of sugar, candied with orange or lemon peel.

BARM. *See* YEAST.

BARNACLES, in farriery, an instrument composed of two branches joined at one end with an hinge, to put upon horses' noses, when they will not stand quietly to be shod, blooded, or dressed.

Barnacles in the West Indies, are a kind of shell-fish, that penetrate into the bottoms of ships and vessels, which they oftentimes damage so materially, as to give the sheathing the appearance of a honey-comb.

BAROMETER, a machine for measuring the weight of the atmosphere.

BARONET, is a dignity or degree of honour, of inheritance, created by letters patent, and usually descendible to the issue male: it hath precedency before all knights, except bannerets.

BARONS. *Baron* hath divers significations here in England. First, it is taken for a degree of nobility next to a viscount. *Bracton, lib.* 1. *c.* 8.

There are also barons by office; as the barons of the exchequer, barons of the cinque ports, &c.

Baron and Feme, are husband and wife by our law; and they are adjudged but one person: that is, the very being or legal existence of the woman is suspended during the marriage, or at least is incorporated and consolidated into that of the husband: under whose wing, protection, and *cover,* she performs every thing, and is therefore called in our law French, a *feme covert.*

BARONY, is that honour and territory which gives title to a baron; comprehending not only the fees and lands of temporal barons, but of bishops also, who have two estates; one as they are spiritual persons, by reason of their spiritual revenues and promotions; the other grew from the bounty of our English kings, whereby they have baronies and lands added to their spiritual livings and preferments. The baronies belonging to bishops are by some called *regalia.*

BARRA, a long measure, used in Spain and Portugal, to measure woollen cloths, linen cloths, serges, &c. In Spain it is one-eighth less than an English yard. In Portugal it is equal to the English ell.

BARRACAN or Barragan, (Ger. *Berkan.* Du. *Barkaan.* Da. and Sw. *Barkan.* Fr. *Barracan.* It. *Baracane.* Sp. *Barragan.* Port. *Barregana.* Rus. and Pol. *Barakan,*) a French woollen stuff, resembling the English *banagon,* but inferior in quality.

BARRAGE, a linen interwoven with worsted flowers, manufactured in Normandy.

BARRATRY, is a word of divers significations. *In law*, it is used to denote the offence of stirring up strife, by inciting persons to prosecute suits wantonly and vexatiously. It is punishable by fine, imprisonment, and recognizance for good behaviour. 4 *Black. Com.* 134.

By stat. 12 Geo. 1. c. 29. an attorney convicted of barratry shall be transported as a felon.

In commerce, it signifies a fraud committed by the master of a ship against the owners.

In marine insurances, one of the risks insured against, is the barratry of the master or mariners.

And any act of the master or mariners which is of a criminal nature, such as a deviation for the purpose of smuggling or making capture, or which is grossly negligent, tending to their own benefit, to the prejudice of the owners of the ship, without their consent or privity, is barratry. 1 *Str.* 581. 2 *Str.* 1173. *Cowp.* 143. 1 *Ter. Rep.* 323.

And whatever is done by the captain to defeat or delay the performance of the voyage, is barratry in him, it being to the prejudice of the owners. 6 *Ter. Rep.* 379.

But if the act of the captain be done, with a view to the benefit of his owners, as by deviation for the purpose of saving the ship, or the like, and not to advance his own private interest, it is no barratry. *Cowp.* 154.

And an act of the captain, with the knowledge of *the owners of the ship*, though without the privity of the owner of the goods insured, is not barratry. 1 *Ter. Rep.* 323.

Neither can the master of the ship, if he be also owner, be guilty of barratry; for no man shall be allowed to derive a benefit from his own crime, and which he would do, if he were permitted to recover against the insurers for a loss occasioned by his own act. 4 *Ter. Rep.* 33.

BARREL, a cask or vessel for holding liquids. It contains 31½ gallons wine measure, 36 gallons beer measure, and 34 gallons of vinegar. It is also a dry measure, as a barrel of oats, pitch, tar, &c. *See* WEIGHTS AND MEASURES.

BARRICADE, in the marine, a strong wooden rail, supported by pillars, and extending as a fence across the foremost part of the quarter-deck. In ships of war the intervals between the pillars are filled with cork, old cable, &c. About a foot above the rail, there extends a double rope netting; and between the two parts of the netting are stuffed hammocks, seamen's bedding, &c. to intercept small shot, fired by swivel guns and muskets in time of battle.

BARROW, in the salt-works, wicker cases shaped like a sugar loaf, in which the salt is put to drain.

BARTERING, the exchanging of one commodity for another, or the trucking wares for wares, among merchants. Such was the original and material mode of commerce, there being no buying till money was invented, though in exchanging, both parties are buyers and sellers.

The value of goods bartered is always equal to the product of the quantities bartered, into their respective rates. Therefore, multiply the given quantity and rate of one commodity, and this product divided by the rate of the other commodity, will give the quantity, or divided by the quantity will give the rate.

BARUTH, an Indian measure, containing seventeen gantans, which are equal to about fifty-four to fifty-eight pounds of pepper, avoirdupois weight. At that rate a *gantan* ought to weigh about three pounds and a half of pepper.

BARUTINE-SILKS, are those which come from Persia, by way of Seyde, or Said. They are weighed by the damasquin, which contains about six hundred drachms, or about four pounds avoirdupois weight.

BASARUCO, a small base coin in the East Indies, being made only of very bad tin. There are two sorts, good and bad *basarucos*; three good ones are equal to two Portuguese reas, fifteen a vintim, and three hundred and seventy-five a pardao-xerafin. The bad ones are of one-sixth less value than the good ones. *See* COINS.

BASIL, among joiners, the sloping edge of a chissel, or of the iron of a plane, to work on soft wood: they usually make the basil twelve degrees, and for hard wood eighteen, it being remarked, that the more acute the basil is, the better the instrument cuts; and the more obtuse, the stronger and fitter it is for service.

BASKET, as a measure, denotes an uncertain quantity, as a basket of medlars is two bushels; of assafœtida from twenty to thirty pounds weight, &c. &c.

BASKETS (Ger. *Körbe.* Du. *Bennen.* Da. *Kurve.* Sw. *Korgar.* Fr. *Corbeilles.* It. *Paniere, Cesti.* Sp. *Canastas, Canastos, Cestas, Cestos.* Port. *Canastas, Cestas.* Rus. *Korsinü.* Pol. *Kosze,*) are made of rushes, splinters, willows, osiers, and sallows. The proprietors of marsh lands generally let what they call osier-beds, to persons who cut them at certain seasons, and prepare them for basket-makers. To form an osier-bed, the land should be divided into plots, six, eight, or ten feet broad, by narrow ditches; and if there is a power of keeping water in these cuts at pleasure, by means of a sluice, it is highly advantageous in many seasons. The common osier is cut at three years, but that with yellow bark is permitted to remain a year longer. When the osiers are cut down, those that are intended for white work, such as baskets used in washing, are to be stripped of their bark or rinds, while green. This is done by means of a sharp instrument fixed into a firm block: the

osiers are passed over this, and stripped of their covering with great velocity. They are then dried, and put in bundles for sale. Before they are worked up, they must be soaked in water, which gives them flexibility. The basket-maker usually sits on the ground to his business, unless when the baskets are too large for him to reach their upper parts in that position.

Hampers and other coarse work are made of osiers without any previous preparation, except soaking. Some expert workmen make a variety of articles of wicker manufacture, as work-baskets of different descriptions, table-mats, fruit-baskets for desserts, &c. They have been heretofore an article of considerable exportation, especially to America, and so continue in an inferior degree. They are among the articles, the importation of which is prohibited by the last Russian tariff.

BASON, or, according to Johnson, Basin, (Ger. *Becken*. Du. *Bekken*. Da. *Bækkener*. Sw. *Bäcken*. Fr. *Bassin*. It. *Bacini*. Sp. and Port. *Bacias*. Rus. *Tasii*. Pol. *Miednice*,) a term used by glass-grinders for a dish of copper, iron, &c. in which they grind convex glasses, as concave ones are formed on spheres; and by hatters for a round iron mould, in which they form the matter of their hats; and also for a leaden one for the brims of hats, having an aperture in the middle, of a diameter sufficient for the largest block to go through.

BASON, *sale by the*, at Amsterdam, is a public sale made by authority, over which presides an officer, appointed by the magistrates. It is so called because, before the lots are delivered to the highest bidder, they commonly strike on a copper bason, to give notice that the lot is going to be adjudged.

BASSOON, a musical instrument of the wind sort, blown with a reed, furnished with cloven holes, and used as a bass in a concert of hautboys, flutes, &c.

BASS-VIOL, a musical instrument of the same form with that of a violin, but much larger. It is struck with a bow as that is, has the same number of strings, and has eight stops, which are subdivided into semi-stops: its sound is grave, and has a much nobler effect in a concert, than that of the violin.

BASTARD. All persons born out of lawful matrimony, are bastards by the common law. 1 *Inst.* 244.

And all persons born within marriage are legitimate, unless there is an apparent impossibility that they should be generated by the husband.

If therefore the husband be an eunuch, so that he cannot by any possibility beget a child, if his wife hath issue, this will be a bastard, though it was begot within marriage.

So if a male of seven years old is married to a female of fourteen, and she, before the male is thirteen, has issue, this issue is a bastard; because no law will intend, that an infant under that age can beget a child. 4 *Viner*, 8*vo. ed.* 215.

And in general, though the husband and wife live in England, yet if the husband had no access, the child is a bastard; but this proof must be clear, otherwise access will be presumed in favour of legitimation. 3 *Dick. Pract. Expos.* 58.

If a marriage be declared *null and void*, by divorce, the issue is illegitimate; for where the marriage is nullified, it is a copulation without marriage, and consequently the issue are bastards; but till there be a divorce, the issue is not a bastard; for though the marriage be unlawful, yet it remains good till the sentence of divorce be pronounced. *Roll's Ab.* 357.

And if there be a divorce for adultery *a mensa et thoro*, the issue born afterwards are presumed, *primâ facie*, not to be the husband's, unless it appear upon proof that the husband after such separation did cohabit with his wife. 1 *Bacon's Abr.* 311.

But in a voluntary separation by agreement, the law will suppose access, unless the negative be shewn. 1 *Black. Com.* 457.

By stat. 18 Eliz. c. 3. the mode of providing for bastards, so that they shall not become burthensome to the parishes where born, is directed to be by the reputed father entering into recognizance before a justice of the peace to indemnify such parish by one of two alternatives; viz. either by giving a private security to the overseers of the poor, or by abiding such order of two justices for the maintenance of the child as shall thereafter be made when the child shall have been born. Stat. 6. Geo. 2. c. 31. regulates the proceedings thereon; and 49 Geo. 3. c. 68. amends the former laws, so far as respects the *public* indemnity by the order of two justices. Lastly, stat. 54 Geo. 3. c. 170. explains and regulates the mode of indemnity by private security.

For the modern determinations on these subjects, see 3 *Dick. Pract. Expos.* 59.

BAT, Bate or Batz or Batzen, a small copper coin, mixed with a little silver, current in several cities in Germany: it is worth four crutzers, or $\frac{11}{15}$ sterling. It is also a coin of Switzerland, current at five livres, or one hundred sols French money, or 4s. 2d. English.

BATMAN, a weight used at Smyrna, containing six okes, of four hundred drachms each, equal to sixteen pounds, six ounces, and fifteen drachms of English weight.

BATTEN, a name in common use for a scantling of wood about one inch thick and three wide, sometimes more and sometimes less; the chief use of which is to line the walls of houses, in order to prevent the damp from striking through. Ordinary doors and window shutters are also made of them.

BATTERY, (from the Fr. *battre*, to strike, or Sax. *batte*, a club,) is an injury

done to another in a violent manner, as by striking or beating of a man, pushing, jolting, filiping upon the nose, &c. And it is also defined by our law to be a trespass committed by one man upon another, *vi et armis et contra pacem*, &c. This offence is punishable by action and indictment; and on action for the injury at the suit of the party, the defendant shall render damages, &c. On indictment at the suit of the king, for a breach of the peace, he shall be fined according to the heinousness of the offence. *Dalt.* 282. 1 *Hawk. P. C.* 134.

BATTLE, beside its ordinary colloquial acceptation, signifies a *trial by combat*, which has been allowed by our laws ever since the time of our Saxon ancestors, where defendant (in an appeal of murder or felony) may fight with the appellant, in order to make proof thereby whether he were guilty or innocent. The process of appeal having fallen much into disuse, it is only necessary to refer to 4 *Black. Com.* 312. *Archbold's Edit.*

BAWDY-HOUSE, a house of ill fame, kept for the resort and commerce of lewd people of both sexes. The keeping of a bawdy-house comes under the cognizance of the temporal law, as a common nuisance. Those who keep bawdy-houses are punished with fine and imprisonment; and a lodger who keeps only a single room for the use of bawdry is indictable for keeping a bawdy-house. Persons resorting to a bawdy-house are punishable, and they may be bound to the good behaviour, &c. But if one be indicted for keeping or frequenting a bawdy-house, it must be expressly alleged to be such a house, and that the party knew it, and not by suspicion only. And a constable, upon information that a man and woman are gone to a lewd house, or about to commit fornication or adultery, may, if he finds them together, carry them before a justice of peace *without any warrant*, and the justice may bind them over to the sessions. 2 *Dick. Pract. Expos.* 39.

Constables in these cases may call others to their assistance, enter bawdy-houses, and arrest offenders for breach of the peace: in London they may carry them to prison; and by custom of the city whores and bawds may be carted. 3 *Inst.* 206.

BAY-BERRIES, (Ger. *Lorbeeren.* Du. *Bakelaaren.* Da. *Laurbær.* Sw. *Lagerbär.* Fr. *Baies de laurier.* It. *Coccole o bacche d'aloro, Orbacche.* Sp. *Bayas de laurel.* Rus. *Laurowüe jagodü.* Pol. *Bobki.* Lat. *Lauri baccae,*) are the berries of the laurel tree.

BAY-LEAVES, (Ger. *Lorbeerblätter.* Du. *Laurierbladen.* Da. *Laubærblader.* Sw. *Lagerbärsblader.* Fr. *Feuilles de laurier.* It. *Foglia d'alloro.* Sp. *Hojas de laurel.* Port. *Folhas de louro.* Lat. *Lauri folia,*) are the leaves of the laurel tree. The extract of laurel leaves is a rank poison. The leaves are wrapped round the wedges of licorice-ball imported from Spain, &c. in order to prevent them from adhering to each other. Both bay-leaves and bay-berries are frequently used for medicinal purposes.

BAYS. *See* BAIZE.

BAY-SALT, (Ger. *Baysalz, Seesalz.* Du. *Zeezout.* Da. *Söesalt.* Sw. *Bojsalt, Hafssalt.* Fr. *Sel marin.* It. *Sabe marino.* Sp. *Sal marina.* Port. *Sal marinho.* Lat. *Sal marinum,*) a salt made from the sea water. *See* SALT. It is commonly employed in the making up of provisions for exportation.

BAZAR, Bazari, or Bazaard, a place designed for trade among the eastern nations, particularly the Persians, some of which are open at top, like the market-places of Europe; others are covered with high vaulted ceilings, and adorned with domes to give light.

At Constantinople the old and new bazar are large square buildings, covered with domes, and sustained by arches and pilasters; the former chiefly for arms, harnesses, and the like; the latter for goldsmiths, jewellers, furriers, and all sorts of manufactures.

BAZAT, or Baza, a long, fine-spun cotton, which comes from Jerusalem, whence it is also called Jerusalem cotton.

BAZENDGES, a vegetable substance used by the Turks, and other eastern nations, in the scarlet dyeing. For this purpose it is mixed with cochineal and tartar, in the proportion of two parts of bazendges to one of cochineal.

BDELLIUM. *See* GUM.

BEACON, a public signal to give warning against rocks, shelves, invasion, &c. It is made sometimes by putting pitch barrels upon a long pole, and fixing them upon an eminence, so that they may be seen at a distance; for the barrels being fired, the flame in the night-time, and the smoke in the day, give notice, and in a few hours may alarm the whole kingdom, upon an approaching invasion, &c. By 8 Eliz. c. 13. s. 2. The masters, wardens, and assistants of the Trinity House, may at their cost set up *beacons*, and marks for the sea, in such places, near the coasts or forelands, as to them shall seem meet. And no man may erect a light-house, *beacon*, &c. without lawful warrant and authority. 3 *Instit.* 204.

BEACONAGE, a tax or farm paid for the use and maintenance of a beacon. The Trinity House is empowered to levy this tax by act of parliament.

BEADS, (Ger. *Rosenkränze.* Du. *Paternosters.* Da. *Paternosterbaand.* Sw. *Raband.* Fr. *Rosaires.* It. *Corone.* Sp. *Coronas.* Port. *Coroas, Rosarios, Avemarias.*) The common glass, of which beads are made for necklaces, &c. is coloured with manganese only. Glass beads, or bugles, are exported in large quantities to Africa, and are given

in exchange to the natives for their commodities.

BEAD-*Proof*, among distillers and venders of liquors, a fallacious mode of determining the strength of spirits, from the continuance of the bubbles, or beads, raised by shaking a small quantity of them in a phial.

BEAK, or Beak-head, of a ship, that part without a ship, before the forecastle, which is fastened to the stern, and is supported by the main knee.

BEAM, Beams, (Ger. & Du. *Balken*. Da. *Bielker*. Sw. *Balkar*, *Bielkar*. Fr. *Poutres*, *Solive*. It. *Travi*. Sp. *Vigas*. Port. *Traves*, *Vigas*. Rus. *Brewna*. Pol. *Balky*.) The largest piece of wood in a building, which lies across the walls, and serves to support the principal rafters of the roof, and into which the feet of these rafters are framed. No building has less than two of these beams, viz. one at each end, into these the girders of the garret roof are also framed; and if the building be of timber, the teazle tenors of the posts are framed into them. The proportion of beams in or near London are fixed, by statute, as follows: a beam of fifteen feet long, must be seven inches on one side of its square, and five on the other; if it be sixteen feet long, one side must be eight inches, the other six, and so proportionably to their lengths.

BEAMS *of a Ship*, are the great main cross-timbers, which hold the sides of the ship from falling together, and which also support the decks and orlops. The main-beam is next the main-mast, and from it the others are reckoned by first, second, third beam, &c. The greatest beam is called the midship beam. *See* SHIP.

BEAM-*Compass*, an instrument consisting of a square wooden or brass beam, having sliding sockets, that carry steel or pencil points; they are used for describing large circles, where the common compasses are useless.

BEAM *of an Anchor*, the largest part of it, called also the shank.

BEAM, also denotes the lath, or iron, of a pair of scales; sometimes the whole apparatus for weighing goods is so called: thus we say, "It weighs so much at the king's beam."

BEAM *of a Plough*, that in which all the parts of the plough tail are fixed. It is commonly made of ash, and is eight feet long; but in the four-coultered plough it is ten feet long.

BEAM, or Roller, among weavers, a long and thick wooden cylinder, placed lengthwise on the back part of the loom of those who work with a shuttle. That cylinder on which the stuff is rolled, as it is weaved, is also called the beam or roller, and is placed on the fore part of the loom.

BEANS, (Ger. *Bohnen*. Du. *Boonen*. Da. *Bönner*. Sw. *Bönor*. Fr. *Feves*. It. *Fave*. Sp. *Habas*. Port. *Favas*. Rus. *Boobii*. Lat. *Fabae*,) a pulse of the large sort. They are an important article both in agriculture and in horticulture, and the species are various.

The *horse bean*, the only sort generally propagated by the plough, delights chiefly in stiff and moist clay soils. Beans are usually mixed with oats as the common provender of horses that work hard, but are of too heating a quality to be given plentifully to those of mere pleasure. Mixed with pease they make good food for pigs. According to the drill husbandry, one bushel plants an acre of ground.

Of the *garden bean* there is an almost infinite variety, inasmuch as some species or other is a native of almost every country on the globe, and most of them have been introduced at different periods into these kingdoms.

Those from Portugal and Spain bear putting into the ground the earliest, and therefore produce the first crops. A kind called the Windsor bean, supposed by some to be indigenous, is principally to be relied on for the late crops.

There are varieties of that species of bean, known by the name of *kidney bean*, that almost defy enumeration. The principal use that we make of them here is by boiling in the pod while green; but on the continent many of them are suffered to ripen, and the corn separated from the pod is used in different articles of cookery for the table during the winter season.

The flour of beans was formerly much used as a cosmetic. The straw of beans, cut by an instrument, in conjunction with wheat straw and coarse hay, makes excellent provender for horses of the plough. It also produces ashes useful in several manufactures, especially that of glass.

BEARER *of a Bill*, is the person in whose hands the bill is, and in favour of whom the last order or indorsement was made. Checks or drafts on the bank or bankers, are frequently made payable to *bearer*, but bills of exchange seldom or ever are made payable to bearer. *See* BILLS OF EXCHANGE.

BEARER, in architecture, a post or brick wall, trimmed up between the two ends of a piece of timber, to shorten its bearing, or to prevent its bearing with the whole weight at the ends only.

BEARING, *in the sea language* When a ship sails towards the shore, before the wind, she is said to bear in with the land or harbour. To let the ship sail more before the wind, is to bear up. To put her right before the wind, is to bear round. A ship that keeps off from the land, is said to bear off. When a ship that was to windward comes under another ship's stern, and so gives her the wind, she is said to bear under her lee, &c. There is another sense of this word, in reference to the burden of a ship,

for they say a ship *bears*, when having too slender or lean a quarter, she will sink too deep into the water with an over-light freight, and thereby can carry but a small quantity of goods.

BEARING *of a Piece of Timber*, among carpenters, the space either between the two fixed extremes thereof, when it has no other support, which they call bearing at length, or between one extreme, and a post, brick wall, &c. trimmed up between the ends to shorten its bearings.

BEAR-SKINS, a sort of fur very much esteemed, and which gives rise to a large trade. The old bear-skins are used for housings or horse-cloths, &c. The skins of the young *bears* serve to make muffs, tippets, &c. for ladies' wear. Of bear-skins the principal colours are black, brown, and silver-grey. The skins are brought from America, and the northern parts of Europe and Asia.

BEATERS, a term well understood in commerce, for those artizans who hammer certain metals; whence there are gold-beaters, who prepare gold and silver by reducing them to thin leaves for gilding and silvering copper, iron, wood, &c.; tin-beaters, who prepare that metal for using in conjunction with quicksilver in the manufacture of looking-glasses; plaister-beaters, who reduce gypsum to a powder for various purposes of manufacture. There are also paper-beaters, book-beaters, hemp-beaters, &c. &c.

BEAVER, (Ger. *Biber*. Du. *Beever*. Da. *Bever*. Sw. *Bäsver*. Fr. *Bievre, Castor*. It. *Bivaro, Bibaro, Castore*. Sp. & Port. *Castor*. Rus. *Bobr*. Pol. *Bobr, Kastor*. Lat. *Castor, Fiber*.) An amphibious animal, formerly very common in this kingdom, but now extirpated. They are found occasionally on some parts of the southern European continent, and are frequent in the northern; but abound in North America, where their skins make a considerable article of exportation to Europe, as well for furs to be worn in apparel, as for the hair to be mixed with wool and manufactured into hats. The skins, when shorn of the hair and tanned, are also useful for many inferior purposes, as the covering of trunks, &c. Considerable quantities of the fur of beaver, as well as of hares, used to be brought from Russia; but by the Russian tariff, published in 1816, they are among the prohibited articles of exportation.

BEDS, (Ger. *Betten*. Du. *Bedden*. Da. *Sæng*. Sw. *Säng*. Fr. *Lits*. It. *Letti*. Sp. and Port. *Camas*. Rus. *Posteli*.) All beds that are for sale must be filled with one sort of stuffing only, on the pain of forfeiture; as the mixing of feathers, down, scalded feathers, dry pulled feathers, any ways together, is conceived to be injurious to a man's body to lie on. Also bed-quilts, mattrasses, and cushions, stuffed with horse-hair, fen-down, goats' hair, and neats' hair, which are dressed in lime, and in which the heat of a man's body will exhale, and cause them to yield a noxious smell, are prohibited by statute.

BED, *of the Carriage of a Great Gun*, a thick plank that lies under the piece, being in fact the body of the carriage.

BED, in masonry, a course or range of stones; and the joint of the bed is the mortar between two stones placed over each other.

BED-FEATHERS. *See title* FEATHERS.

BEE, in physiology and husbandry, a winged insect remarkable for its skill and industry in collecting *honey* and *wax* from flowers. (See further those *titles* respectively.) According to the Linnean system, the bee is a genus of insects, of which there are no less than 55 different species. The bee, which alone we have any interest in describing, is usually denominated the hive bee. Nature indicated hollow trees to these creatures as receptacles for their produce, on which man has improved, by presenting them with hives. These hives are commonly made of twisted straw, nicely bound together, which are warm, and at the same time light and easily moveable. There is no method, however, of obtaining the honey from these straw hives without destroying the bees by suffocation with brimstone smoke. But a method has obtained of late years of constructing a stationary hive of wood, with small windows of glass, and surmounting it, when the wooden one is filled with honey, by a larger one of straw, leaving an interval between them, which will soon be filled also with honey. This may be taken away, and replaced by an empty one, and so on in succession, without destroying the bees. To give any more perfect description of these improved receptacles, would inevitably lead to a minuteness of description incompatible with our limits, we must therefore refer the reader, for more practical information, to works expressly dedicated to this particular subject; adding only, that at the price for which wax as well as tallow now generally sell, there are few articles of husbandry which offer greater advantages to the cultivator than the propagation of bees.

A species of bee is common in America, which swarms in the woods, the honey from which is as clear and liquid as rock-water, and is much used infused in water as an agreeable beverage. The combs of these hang from the trees somewhat like clusters of grapes, and the wax of them is not very unlike the black grapes in colour.

BEECH, a forest-tree, is very thick and full of branches, and grows remarkably well in heavy lands, on mountains, and even in a stony or rocky soil. The fruit, which is called *mast*, consists of two triangular nuts, which are enclosed in a rough hairy rind, divided into four parts. The timber is used for making household furniture, &c. And the *mast* or fruit is good for fattening hogs,

deer, &c. and is said, in the earliest stages of society, to have been used commonly for the food of men. The beech is one of the most ornamental trees, but is too heavy and too brittle for timber generally, although, not being liable to splinter, it is now used in ship-building a good deal. *See further, title* WOOD.

BEECH-OIL, an oil drawn by expression from the *mast* of the beech tree, after it has been shelled and pounded. This oil is very common in some parts of France, and is used instead of butter.

BEEF, of this article immense quantities are salted and made up in tierces, barrels, and half-barrels, in all the sea-ports in Ireland, for exportation to the East and West Indies, &c. and so well cured, that after a voyage to India and back to this country, the *beef* returns as sweet and good as when exported thither. In Ireland it is the principal business of the coopers who who make the casks, to purchase, for the merchants, from the slaughter butchers, the carcases of beef, pork, &c. which are then sent to the cooper's yard, and cut up in small pieces, and salted with Liverpool white salt, mixed with that of St. Ubes, and a proportionate quantity of saltpetre, and after lying a few days in the salt, are packed into the different sort of casks provided for that purpose, with a quantity of strong salt pickle about them, and the head of the cask completely covered with salt. When headed, the casks are laid on their sides, hung up, and in some days after, a quantity of pickle is put in at the bung hole, till the cask is completely full; the beef is then ready for shipping. On the end of the cask is branded the exporter's name, with the words *ox beef* or *mess beef*, as may be.

The statutes respecting *beef* are, viz. 12 Car. 2. c. 4. 18 Car. 2. c. 2. 20 Car. 2. c. 7. 22 Car. 2. c. 13. 3 & 4 W. & M. c. 8. 3 Geo. 2. c. 20. 5 Geo. 2. c. 6. 4 Geo. 3. c. 28.

BEELE, a kind of pick-axe, used by the miners for separating the ores from the rocks in which they lie: It is called a *tubber* by the miners of Cornwall.

BEER, (Ger. *Bier, Gerstenbier.* Du. *Bier.* Da. *Ol, Oll.* Sw. *Ol.* Fr. *Biere.* It. *Birra, Cervogia.* Sp. *Cerveza.* Port. *Cerveja.* Rus. and Pol. *Piwo.* [Lat. *Cerevisia.*) a common and well known liquor, used in those parts of Europe where vines will not grow, and where cyder is scarce.

Beer, from the German *Bier*, is a *generic* term for *drink extracted from malt.* The *species* are as numerous as the descriptions of *grain*, the qualities to be extracted from them, and the processes employed in malting and brewing them. Barley is generally used in England, and of that grain ale, porter, strong beer, purl, and various other liquors (all only different species of beer) are composed, by the addition of other ingredients, and the different methods of preparing the malt, according to the respective liquors which it is intended to produce. But beer may be extracted from most other sorts of grain after having undergone the process of what is denominated *malting. Oat* beer is not uncommon in Scotland, and a similar liquor made from maize, or Indian wheat, in America.

Beer was known to the ancients, as we learn from various authors, especially from the old physicians; but it is perhaps not to be traced to a greater antiquity in this country than the reign of king Henry VII., when historians tell us the Flemings had a licence from the crown to bring it into England.

Lexicographers mostly insist that beer must, *ex vi termini*, be extracted from malt *and hops.* But this is incorrect, as we ascertain both from history and experiment. We read nothing of hops being introduced into this kingdom till the reign of king Edw. VI., when they were made the object of a legislative provision in 1552, the 6th year of his reign; and we know, from the various statutable prohibitions against substituting other bitter ingredients for the preservation of beer, that the application of others has been found practicable.

Beer has, in modern times, been an object of the greatest solicitude to the legislature in two distinct points of view, viz. as a general and a salutary beverage for the labouring classes of the community, and also as the subject of a considerable revenue to the state.

In the *former* of these views are to be considered all those numerous statutes which have been enacted from 1 W. c. 24. to the 56 Geo. 3. c. 58. prohibiting the use of all deleterious drugs in the manufacture of beer, and the substitution of any ingredients instead of malt and hops. 1 *Dick. Pract. Expos.* p. 38. *Id.* v. 3. p. 6.

In the *latter*, all those which impose a duty of excise on malt and on hops respectively, as well as those which require licences to be taken out by persons who sell beer, under its different denominations, by retail, the last and most comprehensive of which is 56 Geo. 3. c. 113.

English beer was, during the whole reign of the empress Catherine of Russia, an article of very considerable exportation. It went principally from Burton and Newark, both in the county of Nottingham, through the port of Hull, in the county of York; but by the Russian tariff, promulgated by an ukase, bearing date at St. Petersburg, in March 1816, *beer of all kinds, except English porter*, is prohibited from being imported into the Emperor's dominions.

BEHAVIOUR, *Good*, formerly denoted by the term "*good-abearance.*" There are many instances of misbehaviour which do not amount to actual breaches of the peace, and which do not come under any defined head of crime, which are, nevertheless, of so disorderly a kind as ought to be noticed and

prevented. For this purpose, justices of the peace have the power to require from eaves-droppers, night-walkers, common prostitutes, and other such offenders against public order and decorum, sureties to be of good behaviour. 4 *Black. Com.* 251.

BEIGE-SERGE, called so by the people of Poitou; it is black, grey, or tawney-coloured. It is also called sheep-coloured serge, or natural serge; because the wool of which it is manufactured is never dried, being employed both for warp and woof, such as it comes from the sheep. *Beiges* ought to be composed of thirty-eight or thirty-nine reeds at least, each reed being of twenty threads.

BEJUTAPAUTS, a species of blue and red cheque calicoes, brought from Bombay, and are what is called by the East India Company *prohibited goods*, must therefore be sold for exportation.

BELAY, in the sea language, is to make fast the ropes in their proper places.

BELELAIS, a species of silk resembling taffetas, manufactured at Bengal: the piece contains 20 yards.

BELL, (Ger. *Glocken.* Du. *Klokken.* Da. *Klokker.* Sw. *Klockor.* Fr. *Cloche.* It. *Campana.* Sp. *Campanas.* Port. *Sinos.* Rus. *Kolokolü.* Pol. *Dzwony,*) a well known machine, ranked by musicians among the musical instruments of percussion. The music of bells is altogether melody; but the pleasure arising from it consists in the variety of interchanges, and the various succession and general predominance of the consonances in the sounds produced. The metal of which a bell is made is a composition of tin and copper, or pewter and copper; the proportion one to the other is almost 20 pounds of pewter, or 23 pounds of tin to 100 pounds weight of copper. There are also bells of an inferior kind made entirely of iron.

BELL-FOUNDER. This business requires the art of properly mixing up and making the bell-metal, to form the mould in the ground, and to fix the core to fill up the hollow part of the inside, so as to give every bell the exact tone and sound intended, as the treble, tenor, bass, &c. Small bells are generally cast by brass-founders.

BELL-METAL, (Ger. *Glockengut.* Du. *Klokspys.* Da. *Klokkemalm, Klokkenspits.* Sw. *Klokgods, Klockmetall.* Fr. *Metal de fonte ou de cloches.* Sp. and Port. *Campanil.* Rus. *Koloklnaja mjed.* Pol. *Spiza, Spiz,*) a composition of tin and copper. Bell-metal and hawkbells are prohibited to be imported. *See* BELL.

BELLOWS, (Ger. *Blasbälge.* Du. *Blaasbalgen.* Da. *Blæsebælg.* Sw. *Blasbälgor.* Fr. *Soufflets.* It. *Soffietti, Mantici.* Sp. *Fuelles.* Port. *Folles.* Rus. *Mjechi.* Pol. *Miechy,*) a machine contrived so as to agitate the air with great briskness, inspiring and expiring the air by turns, and that only from enlarging and contracting its capacity. This machine is of various constructions, but in general is composed of two flat boards, sometimes of an oval, sometimes of a triangular figure: two or more hoops, bent according to the figure of the boards, are placed between them; a piece of leather, broad in the middle, and narrow at both ends, is nailed on the edges of the boards, which it thus unites together, as also on the hoops which separate the boards, that the leather may the easier open and fold again; a tube of iron, brass, or copper, is fastened to the undermost board; and there is a valve within that covers the holes in the under boards, to keep in the air. In founderies, and other great works, where a constant and vast heat is required, the bellows are made double, so that there is a constant blast produced by the upward and downward motion of the handle. The action of the bellows, however wrought, whether by water, steam, or men, depends on this; that the air which enters them, and which they contain when raised, is again compressed into a narrower space when they are closed, and it flows out of the pipe with a velocity proportional to the force by which it is compressed.

BEN-CAPED. A ship is said to be ben-caped when the water does not flow high enough to bring her off the ground, out of the dock, or over the bar.

BENDING, in the sea-language, the tying two ropes or cables together; thus they say, bend the cable: that is, make it fast to the yard.

BENDS, in a ship, the same as what is called *wails*, or *wales*; the outmost timbers of a ship's side, on which men set their feet in climbing up. They are reckoned from the water, and are called the first, second, or third bond. They are the chief strength of a ship's side, and have the beams, knees, and foot-hooks, bolted to them.

BEN-NUTS. (Ger. *Salbnüsse.* Du. *Behennooten.* Da. *Bennödder.* Sw. *Bennötter.* Fr. *Noix de behen.* It. *Noci di been. Ghiande unguentarie.* Sp. *Nueces unguentarias.* Port. *Nozes unguentarias.* Lat. *Nuces unguentariæ.*) The nut of the Ben-tree from which a fragrant oil is extracted, remarkable for its not growing rancid for a number of years. It is the produce of Egypt and Arabia.

BENZOEN, or Benjamin, (Ger. *Benzoe.* Du. *Benzoin, Benjuin.* Dan. and Sw. *Benzoe.* Fr. *Benjoin.* It. *Belgiuino, Belzoino.* Sp. *Benjui.* Port. *Beijoim.* Rus. *Ladon rossnoi.* Pol. and Lat. *Benzoim,*) brought to us in masses from the East Indies, particularly from the kingdom of Siam, and the islands of Java and Sumatra, an almost pure resin. *See title* GUM.

BERASNS, a coarse cloth, all made with cotton-thread, which comes from the East Indies, and particularly from Surat.

BERCHEROIT, or Berkcoits, a

weight used at Archangel, and in all the Russian dominions; it weighs about 364 pounds avoirdupois-weight.

BERGAMO, a coarse tapestry, manufactured with several sorts of spun thread, as flocks of silk, wool, cotton, hemp, ox, cow, or goat's hair. It is properly a weft of all those sorts of thread, the warp of which is commonly of hemp. It is woven on a loom, almost like linen cloth. Rouen and other parts of Normandy in France manufacture the largest quantities of *bergamos*.

BERGAMOT, the name of a fragrant essence extracted from a species of citron. As this oil exists pure in the peel, being simply deposited in small cells, the extraction is easy, either by expression or distillation. The former is the best, as the oil is not liable to be altered by heat; but more is produced by distillation than by expression: by this mode two ounces of the oil have been obtained from two pounds of the peel.

BERLIN-BLUE. Mix one ounce of the best powdered indigo with four ounces of sulphuric acid, in a glass body or matrass, and digest it for one hour, with the heat of boiling water, shaking the mixture at different times; then add twelve ounces of water to it, and stir the whole well, and when grown cold, filter it. This produces a very rich deep colour. *See* BLUE.

BERYL, called by our lapidaries *aquamarina*, is a pellucid gem of a bluish green colour, found in the East Indies and about the gold mines of Peru, and especially in Siberia and Tartary, where its crystals are sometimes a foot long. The beryl, like most other gems, is met with both in the pebble and columnar form, but in the latter most frequently. In the pebble form it appears of a roundish but flatted figure, and commonly full of small flat faces, irregularly disposed. In the columnar or crystalline form, it always consists of hexangular columns terminated by hexangular pyramids. It never receives any admixture of colour into it, nor loses the blue and green, but has its genuine tinge in the degrees from a very deep and dusky to the palest imaginable of the hues of sea-water. The beryl, when cut and polished, has a considerable lustre. It is ranked among gems; but its value is trifling, compared with the ruby, sapphire, topaz, &c.

BES, an ancient Roman weight; it is two-thirds of an integer, generally of a pound.

BESANT, or Bezant, a coin of pure gold of an uncertain value, struck at Byzantium, in the time of the Christian emperors; hence the gold offered by the king at the altar, is called *besant*, or *bisant*.

BESISTAN, or Bersten, a name given to those places at Constantinople, &c. where the merchants have their shops, and expose their goods for sale. A particular besistan belongs to each class of merchants.

BESORCH, a coin of tin or some alloyed metal, current at Ormus, at the rate of seven forty-ninth parts of a farthing sterling.

BETEL, or Betle, a kind of long pepper, found in Malabar and other parts of the East Indies.

BETTELLEES, a species of muslin, which comes from Madras. It is a thick sort of muslin, the finest resembling cambric, and the coarser sorts, calico.

BEVELLING, *in ship-building*, the art of hewing timber with a proper and regular curve, according to a mould which is laid on one side of its surface.

BEY, among the Turks, signifies a governor of a country or town. The Turks write it *begh*, or *bek*, but pronounce it *bey*.

BEZANS, cotton cloths, which come from Bengal; some are white, and others striped with several colours.

BENZOAR, BEZOAR, or Bezoard, (Ger. Da. Sw. & Lat. *Bezoar*. Du. *Bezoarsteen*. Fr. *Bezoard*. It. *Belzuar*, *Bezzuarro*. Sp. *Bezar*, *Bezoar*. Port. *Bazar*. Rus. *Bescar*. Pol. *Bezoar Kamien*,) formerly used as a medicine, to prevent the fatal effects of poison.

BEZOAR, *Oriental*, a moderately hard and heavy stone, very variable and uncertain in size, shape, and colour. It is generally of a round form, and its size is between that of a horse-bean and that of a small walnut, though there are some larger, and others smaller than peas. The ordinary colour is a duskish olive or greenish brown. It is always smooth and glossy on the surface; and, when broken, is found to consist of a great number of coats or crusts of stony matter, laid one over the other; and often formed upon a piece of stick, or seed of a fruit, or some such article, for a nucleus or basis. It is brought to us from Persia, and many parts of the East Indies; it is to be chosen entire, not in scraps or fragments, of a greenish or olive colour, with some mixture of grey in it, and such as, when rubbed on paper, before whitened with ceruse, gives a yellowish colour. There is also an occidental bezoar, which comes from Mexico.

Bezoars are generally supposed to be concretions formed in the stomach or intestines of different graminivorous animals; but it is not completely ascertained in what animal they are found, or how many species may yield them. Several writers attribute very great virtues to the oriental bezoar; but is probable that if it has any action at all, it is merely that of an absorbent earth, as chalk or magnesia.

BIA, a name given by the Siamese to those small shells, which are called cowries throughout almost all the other parts of the East Indies.

BICE, or Bise, among painters, a blue colour prepared from lapis armenus. Bice

bears the best body of all bright blues used in common work, as house-painting, &c. but it is the palest in colour. It works indifferently well, but inclines a little to sandy, and therefore requires good grinding. Next to ultramarine, which is too dear to be used in common work, it lies best near the eye of all other blues.

BICHET, a French dry measure, differing in quantity in several provinces; it being in some equal to thirteen, and in others to nineteen, bushels, Winchester measure.

BICKERN, (Ger. *Ein Speerhaken.* Du. *Speerhaak.* Da. *Sperhage.* Sw. *Sparrstäd.* Fr. *Bigorne.* It. *Bicornia.* Sp. *Bigornia.* Port. *Bigorna.* Lat. *Incus Bicornis,*) a two-pronged anvil. *See* ANVIL.

BIDON, a liquid measure containing about five pints of Paris, that is about five quarts English wine-measure. It is seldom used but among ships' crews.

BIGAMY, is the having two wives or husbands, but, correctly speaking, *one after the other,* and not two *at the same time,* for that is more properly *polygamy.* However, in colloquial language, the term is almost invariably used for the offence of marrying a second wife, or husband, the former one being living.

And by 1 Jac. 1. c. 11., if any person on being married, do afterwards marry again, the former husband or wife being living, it is felony. Except 1. where either party has been continually *abroad* for seven years, whether the party in England hath notice of the other's being living or no; 2. where either of the parties hath been absent from the other seven years *within* this kingdom, and the remaining party hath had no knowledge of the other's being alive within that time; 3. where there is a divorce, (or separation *à mensâ et thoro,* 1 *Hawk.* 174.) by sentence in the ecclesiastical court; 4. where the first marriage is declared absolutely void by any such sentence, and the parties loosed *à vinculo matrimonii;* or 5. where either of the parties was under the age of consent at the time of the first marriage.

And by 35 Geo. 3. c. 67., persons convicted under 1 Jac. 1. c. 11. in England of bigamy, are made subject to the penalties inflicted for larceny, *i. e.* transportation, and returning before the expiration of the term for which they are transported, to be guilty of felony without benefit of clergy, and may be tried in the county where convicted or found at large.

If one of the parties only be under the age of consent, the exception in 1 Jac. 1. extends as well to the party above the age as to the other; because the power of disagreeing was equal on both sides. 4 *Black. Com.* 163.

In these cases, the first and true wife is not an admissible witness against her husband, but the second woman is competent to prove the marriage, *for* she is not his wife so much as *de facto.* 1 *Hale,* 692, 693.

BIGONTIA, a liquid measure used at Venice, in French *bigot.* It is the fourth part of an amphora, and one-half of the botte. Four quarts, or quartons, make a *bigot,* and four tischanfera a quart. *See* WEIGHTS AND MEASURES.

BIIS, both a weight and measure used on the coast of Coromandel in the East Indies. It is the eighth of the maun, containing five seers, and one seer twenty-four tols. *See* WEIGHTS AND MEASURES.

BILANDER, a small flat-bottomed vessel, with only one large mast and sail, and its deck raised half a foot above the platboard.

BILBOES, a punishment at sea, answering to the stocks at land. The offender is laid in irons, or stocks, which are more or less ponderous, according to the quality of the offence of which he is guilty.

BILGE *of a ship,* the bottom of her floor, or the breadth of the place the ship rests on when she is aground. Therefore, bilge-water is that which lies on her floor, and cannot go to the well of the pump. A ship is said to be bilged when she has some of her timber struck off, as by a rock, and springs a leak.

BILL, a word of diversified signification, as the beak of a bird; an account of money due to a tradesman; a statute proposed to parliament for enactment; a suit, or complaint in a court of equity; a bill of parcels, or account of goods sent to a purchaser; an instrument made of iron, in use with certain trades; a bill of exchange; a bill of lading; a bill of sale; and a bill of store. Further notice will only be taken of the five last-mentioned descriptions.

BILL, an instrument made of iron, edged in the form of a crescent, and adapted to a handle. It is used by plumbers to perform several parts of their work; by basket-makers, to cut the largest pieces of chesnut-trees and other woods; and by gardeners to prune trees. When short, it is called a hand-bill; and when long, a hedge-bill.

BILL OF EXCHANGE. A bill of exchange is a security, originally invented among merchants in different countries, for the more easy remittance of money from the one to the other, which has since spread itself into almost all pecuniary transactions. 2 *Black.* 466.

It is *an open letter of request,* from one man to another, desiring him to pay a sum mentioned therein, either to his own order, or to a third person, on his account; by which means a man at the most distant part of the world may have money remitted to him from any trading country. *Ibid.*

In common speech, such a bill is fre-

quently called a *draft*, but a *bill of exchange* is the more legal as well as mercantile expression. *Ibid.* 467.

The person, however, who writes this letter, is called in law the *drawer*, and he to whom it is written, the *drawee;* and the third person, or negotiator to whom it is payable (whether specially named, or the *bearer* generally) is called the *payee*. *Ibid.*

These bills are either foreign or inland, foreign when drawn by a merchant residing abroad upon his correspondent, or *vice versa*, and inland where both the drawer and drawee reside within the kingdom. *Ib.* 467.

Promissory notes, or *notes of hand*, are a plain and direct engagement in writing, to pay a sum specified at the time therein limited to a person therein named, or sometimes to his order, or often to the bearer at large. *Ibid.*

I. *Bills and notes in general.*—The person who makes a bill is called the *drawer*, the person to whom it is addressed the *drawee;* and the person in whose favour it is made, the *payee;* if the drawee accepts the bill, he is called the *acceptor*.

The person who signs a promissory note, is called the *maker;* and the person to whom it is payable the *payee*.

When a bill or note is indorsed, the person indorsing it, is called the *indorser;* and the person to whom it is indorsed the *indorsee*.

A promissory note while in the hands of the payee resembles a bill of exchange, inasmuch as it is for the payment of a sum of money absolutely, and at all events, and when transferred, it is exactly similar to a bill of exchange. *Bayl.* 3. 4 *Term Rep.* 148. 5 *Term Rep.* 482.

No particular words are necessary to make a bill of exchange or promissory note; any order or promise, which from the time of making it cannot be complied with, or performed without the payment of money is a bill or note. *Ld. Raym.* 1397. *Str.* 629.

Thus an order or promise to deliver, or that J. S. shall receive money, or to be accountable or responsible for it to him or order is a good bill. *Ibid.*

A note was in these words, "Borrowed of J. S. 50*l.* which I promise not to pay," and per *Lord Macclesfield* the word *not* shall be rejected, for a man shall never say I am a cheat, and have defrauded. 2 *Atk.* 32.

But bills and notes must be for the payment of money *only;* and therefore an order, or promise to pay money, *and do some other act*, is not a bill or note. *Bull. N. P.* 272.

And they must be for the payment of money in specie: therefore an order or promise to pay money in *good East India bonds*, is not a bill or note.

And by 48 Geo. 3. c. 88., "All promissory and other notes, bills of exchange, or drafts, or undertakings in writing, for money or goods, for less than 20*s.* in the whole, shall be absolutely void, and persons uttering any such shall forfeit, not exceeding 20*l.* nor less than 5*l.* half to the informer, and half to the poor; to be recovered by a summary conviction, before one justice: on which parishioners may be evidence."

Also by 17 Geo. 3. c. 30., made perpetual by 27 Geo. 3. c. 16., "All negotiable notes, bills or drafts for more than 20*s.* and less than 5*l.* issued in England, and the indorsements thereon shall specify the names and places of abode of the persons to whom payable, shall bear date when given, and be made payable within 21 days, and the signing of every such bill or note and indorsement thereof, shall be attested by one witness, or else void. Persons publishing or negotiating any such bills or notes contrary to the method prescribed by this act, shall be subject to a penalty of not more than 20*l.* nor less than 5*l.* recoverable as under the first-mentioned act."

But by 37 Geo. 3. c. 32. and 45 Geo. 3. c. 25. so much of the stat. 17 Geo. 3. c. 30. as relates to the making void notes under 5*l.* *payable on demand to bearer* is suspended *until six months after the ratification of a definitive treaty of peace.* But if such notes are not paid within seven days after demand, the justices of peace may enforce payment thereof with costs.

A bill or note must purport that the money mentioned in it shall be payable absolutely and at all events: if it purports to make the payment depend on any uncertainty or contingency, the instrument is not a bill or note. *Bayl.* 8.

Therefore an order or promise to pay money, provided the terms mentioned in certain letters shall be complied with, provided J. S. shall not be surrendered to prison within a limited time; provided J. S. shall not pay the money by a particular day; provided J. S. shall leave me sufficient, or I shall otherwise be able to pay it; or when J. S. shall marry, is no bill or note on account of the contingency to which the payment is subjected *Bay.* 8. 3 *Ld. Raym.* 67. 8 *Mod.* 363. 4 *Vin.* 240. *Burr.* 323. *Str.* 1151.

So an order or promise to pay out of my growing subsistence or fifth payment when due, or out of money when received, is no bill or note, on account of the uncertainty, whether the subsistence or payment will become due, or the money be received. *Fort.* 281. 10 *Mod.* 294. 316. *Ld. Raym.* 1563. *Black.* 782. 3 *Wils.* 207.

So an order to pay a sum of money out of rents, or other money in the hands of the person to whom it is addressed, is no bill, because it may be, that he has not rent to other money in his hands sufficient to discharge it. *Ld.* 1362. *Str.* 592. *Fort.* 282.

So an order from the owner of a ship to the freighter, to pay money on account of

freight is no bill, because the quantum due for freight may be open to litigation, but such an order from the freighter is, because it is an admission that so much at least is due. *Str.* 1211. *Cowp.* 571.

And an order to pay money as the *drawer's quarter's half pay by advance*, before the pay will be due, is a good bill; because it will be payable, though the half pay shall never become due. *Str.* 762.

So an order or promise to pay money when J. S. shall come of age, specifying the day when that event is to happen, is a good bill or note, because it is payable, though J. S. die in the interim. *Burr.* 220.

And an order or promise to pay within a limited time after a man's death, is a good bill or note, because it must become payable at some time or other, though the exact period is uncertain. *Str.* 1217.

So an order or promise, to pay within a limited time, after the payment of money due from government, is a good bill or note, because it is morally certain that such payment will be made. *Str.* 24. 1 *Wils.* 262.

A bill or note payable to J. S. or order, is payable to order, a bill or note payable to J. S. or bearer, is payable to bearer, and in the latter case J. S. is a mere cypher. *Bayl.* 11. *Burr.* 1516.

It was for some time unsettled whether it was not essential, that a bill or note should be payable either to order, or to bearer, but it is now decided that it is not. 6. *T. Rep.* 123.

It was also for some time a matter of controversy whether it was not necessary that a bill or note should not express on the face of it to have been made for *value received*; but it is now settled, that it is not necessary. *Bayl.* 13. *Ld. Raym.* 1418.

The name of the person making it must be inscribed in the body, or subscribed at the bottom of every bill or note, and every bill must be written or signed by the person making it, or some one authorised by him for that purpose. *Bayl.* 13. *Ld. Raym.* 1484. 1542.

If any person signs his name, upon a blank paper, stamped with a bill stamp, and delivers it to another person to draw such bill as he may choose thereon, he is the drawer of any bill to which the stamp is applicable, which such person shall draw thereon. 1 *Hen. Black.* 313.

Bills are either *inland* or *foreign*: *inland*, when made and payable within this kingdom; and *foreign* when made or payable abroad—*inland* bills and notes seldom consist of more than one part: *foreign* bills in general consist of several—the several parts of a bill are called a set; and each part contains a condition, that it shall be payable only so long, as all the others remain unpaid: in other respects, all are of the same tenor. *Bayl.* 14, 15.

This condition should be inserted in each part, and should in each mention every other part of the set; for if a man with an intention to make a set of three parts, should omit the condition in the first, and make the second with a condition mentioning the first only, and in the third alone take notice of the other two, he might, perhaps, in some cases, be obliged to pay each; for it would be no defence to an action on the second, that he had paid the third, nor to an action on the first that he had paid either of the others: but an omission is not perhaps material, which upon the face of the condition must necessarily have arisen from mistake, as if in the enumeration of the several parts one of the intermediate ones were to be omitted, as for instance, "pay this my first of exchange, second and *fourth* not paid." *Bayl.* 15.

Where a bill consists of several parts, each ought to be delivered to the person in whose favour it is made, (unless one is forwarded to the drawee for acceptance, and in that case, the rest must be so delivered,) otherwise there may be difficulties in negotiating the bill, or obtaining payment. *Ibid.*

Bills and notes are also unavailable both at law and in equity, unless written on paper duly stamped according to the stat. 55 Geo. 3. c. 184. the stamp duties on bills of exchange are as follow:

Bill of Exchange, viz. *inland* bill of exchange, draft, or order, for payment to the bearer, or to order, either on demand or otherwise, *not exceeding two months after date, or sixty days after sight*, of any sum of money,

Amounting to 40*s.* and not exceeding 5*l.* 5*s.*	-	-	0	1	0
Exceeding 5*l.* 5*s.* not exc. 20*l.*	-		0	1	6
- - 20*l.*	-	30*l.* -	0	2	0
- - 30*l.*	-	50*l.* -	0	2	6
- - 50*l.*	-	100*l.*	0	3	6
- - 100*l.*	-	200*l.*	0	4	6
- - 200*l.*	-	300*l.*	0	5	0
- - 300*l.*	-	500*l.*	0	6	0
- - 500*l.*	-	1000*l.*	0	8	6
- - 1000*l.*	-	2000*l.*	0	12	6
- - 2000*l.*	-	3000*l.*	0	15	0
- - 3000*l.*	-	-	1	5	0

Inland bill of exchange, draft, or order, for the payment to the bearer, or to order, at any time *exceeding two months after date, or sixty days after sight*, of any sum of money,

Amounting to 40*s.* and not exceeding 5*l.* 5*s.*	-	-	0	1	6
Exceeding 5*l.* 5*s.* not exc. 20*l.*	-		0	2	0
- - 20*l.*	-	30*l.* -	0	2	6
- - 30*l.*	-	50*l.* -	0	3	6
- - 50*l.*	-	100*l.*	0	4	6
- - 100*l.*	-	200*l.*	0	5	0
- - 200*l.*	-	300*l.*	0	6	0
- - 300*l.*	-	500*l.*	0	8	6
- - 500*l.*	-	1000*l.*	0	12	6
- - 1000*l.*	-	2000*l.*	0	15	0
- - 2000*l.*	-	3000*l.*	1	5	0
- - 3000*l.*	-	-	1	10	0

Inland bill, draft, or order, for the payment of any sum of money, though not made payable to the bearer, or to order, if the same shall be delivered to the payee, or some person on his or her behalf, the same duty.

Foreign bills of exchange, drawn singly, and not in a set, the same as an inland bill of same amount.

Ditto, drawn in sets, for every bill of each set, when sum shall not exceed 100*l.*	0	1	6
Exceeding 100*l.* not exc. 200*l.*	0	3	0
- - 200*l.* - 500*l.*	0	4	0
- - 500*l.* - 1000*l.*	0	5	0
- - 1000*l.* - 2000*l.*	0	7	6
- - 2000*l.* - 3000*l.*	0	10	0
- - 3000*l.* - -	0	15	0

Exemptions. — All bills of exchange, or Bank post bills, issued by the bank of England. — All bills, under 53 Geo. 3. for payment of the wages and pay of officers belonging to the navy. — All bills drawn by the commissioners of the navy, victualling, or transport service, upon the treasurer of the navy. — All drafts or orders for the payment of money to the bearer on demand, and drawn upon any banker, or person acting as a banker, within ten miles of the place where such drafts shall be drawn; provided such place shall be specified in such drafts; and provided the same shall bear date on the day on which the same shall be issued; and provided the same do not direct the payment to be made by bills or promissory notes. — All bills for the pay of his majesty's land forces.

By 48 Geo. 3. c. 149. persons making, accepting, or paying bills or promissory notes not duly stamped, shall forfeit 50*l.* s. 11.

Persons issuing bills or drafts post dated, or without mentioning the place where drawn, without stamps, under the colour of bankers' checks, shall forfeit 100*l.* s. 12.

And persons receiving such bills or drafts, and bankers or others paying the same, shall forfeit 100*l.* *Ibid.*

And all other instruments, bearing the form of notes, but in law deemed special agreements; all which are to be liable to the proper duty.

A bill payable at sight, is not to be considered as a bill payable on demand, and the usual days of grace are to be allowed on such bills. *Bayl.* 24.

If a bill or note is altered, although with the consent of all parties, *after* it has once issued, or *after* the time when it was originally payable, it requires a new stamp. *Ibid.* 5 *Ter. Rep.* 537.

No bill or note can properly be made or indorsed by, nor can a bill be properly addressed to any person incapable of making himself responsible for the payment. *Bayl.* 24.

Therefore an infant cannot make himself responsible for the payment, unless it be given for necessaries. *Carth.* 160. 3 *Salk.* 197. 1 *Ter. Rep.* 40. Nor a feme covert, except in those instances in which she is considered as having an existence independent of her husband. *Bayl.* 25. As where the husband is under a civil incapacity of being here, in cases of attainder and the like: and there are cases, in which it has been decided, that she is to be considered as having an independent existence where she lives apart from her husband, and has a separate maintenance; but in the latter case in all actions brought against her, the husband must be joined for the sake of conformity. 1 *Ter. Rep.* 6. 9. 1 *H. Black.* 334. 350. 4 *Ter. Rep.* 766. 5 *Ter. Rep.* 679. 682. 6 *Ter. Rep.* 605.

And a feme covert may be, by particular custom, permitted to trade on her separate account. *Black.* 1081. 4 *Ter. Rep.* 361. *Burr.* 1776.

A bill may be drawn by the drawer at one place, and addressed to himself at another place, but this in legal operation is rather a note than a bill. *Burr.* 1077.

A bill or note cannot be made payable to any person who is incapable of suing for its payment — a feme covert cannot sue for the payment of a bill or note: an infant can. *Bay.* 26.

But a bill may be made payable to the drawer. *Salk.* 130. And if a bill or note is made payable to a *fictitious person* not *in esse*, or his order, and is issued with an indorsement in blank, purporting to be made by him thereon, it is as against the drawer or maker to be considered as a bill or note *payable to bearer*, and so is the bill as against the acceptor, if he knew at the time of the acceptance, that the payee was a *fictitious* person. 1 *Hen. Black.* 313. 316. 569. 3 *T. Rep.* 174. 182. 481.

If a note be signed by *several* persons, but begins, *I promise*, it is several as well as joint. *Peake*, 130.

The act of drawing bills implies an undertaking for the drawer to the payee, and every other person to whom the bill may afterwards be transferred, that the drawer is a person capable of making himself responsible for its payment, that he shall, if applied to for the purpose, express in writing upon the bill, an undertaking to pay it when it shall become payable, and that he shall then pay it, and subjects him, on a failure in any of these particulars, to an action at the suit of the payee or holder. *Bayl.* 29.

And the making of a note is an express engagement to the payee or person to whom it shall be transferred, to pay the money therein mentioned according to its tenor. *Ibid.*

II. *Indorsement of bills and notes.*—Bills or notes payable to *order* or to *bearer*, or containing any words to make them transferrable, may be indorsed or assigned over

so as to give the assignee a right against all the antecedent parties, whose names appear upon the bill or note: and bills or notes containing no words to make them negotiable, may be indorsed or assigned over, so as to give such indorsee or assignee, a right upon them against the immediate indorsor, but not so as to give him a right against any of the antecedent parties. *Bayl.* 30. *Salk.* 132.

Bills and notes are passed, either by delivery only, or by indorsement and delivery: bills and notes payable to order are transferrable by the latter mode only; bills and notes payable to bearer, and bills and notes originally payable to order, and indorsed, as they may be, so as to be payable to bearer, by either. *Bayl.* 31, 32.

On a transfer by *delivery*, the person making it, ceases to be a party to the bill, or note: but on a transfer by *indorsement*, he is to all intents and purposes chargeable as a new drawer. *Ld. Raym.* 442. 724. 929, 930. *Salk.* 128. *Str.* 478.

Upon bills and notes for the payment of less than *5l.* the indorsement must be attested by one subscribing witness, and such indorsement must mention the place and abode of the indorsee, and bear date at or before the making of it. 17 G. 3. c. 30.

But no particular words are essential on the indorsement of either bills or notes: the mere signature of the indorsee is in general sufficient. *Holt.* 117. 12 *Mod.* 192. 244. *Salk.* 126. *Ld. Raym.* 444.

An indorsement which mentions the name of the person in whose favour it is made, is called a full indorsement; an indorsement which does not, a blank one—a blank indorsement, so long as it continues blank, makes a bill or note payable to the bearer; and as long as the first indorsement continues blank, the bill or note, as against the payee, the drawer and acceptor, is assignable by mere delivery, notwithstanding it may have upon it subsequent full indorsements. *Bayl.* 31. *Doug.* 611. 633. *Peake*, 225.

A full indorsement may specially restrain the negotiability of a bill or note: and an indorsement is restrictive, which either has *express words* making it so, or is made in favour of a person who cannot make a transfer: thus an indorsement in these words, *pay the contents* to J. S. only, to *J. S. for my use*, or (at least when addressed to the drawee) *the within must be credited to J. S.* is restrictive. *Bayl.* 33. *Burr.* 1227. *Black.* 229. *Doug.* 615. 637.

But the mere omission of the words, *or to his order*, to give a power of transfer will not make an indorsement restrictive. *Bull. N. P.* 275. *Black.* 295. *Burr.* 1216.

A restrictive indorsement precludes the person in whose favour it is made from making a transfer, so as to give a right of action against the person making it, or any of the antecedent parties, and (where the restriction is expressed upon the bill or note) from retaining a payment to their prejudice. *Doug.* 615. 637.

An indorsement cannot be made for a part of, or less than the full sum, appearing to be due upon the bill or note, otherwise it would subject the party to a variety of actions. *Ld. Raym.* 360. 2 *Wils.* 262.

A transfer by *indorsement* will convey no title, except against the person making it, unless it is made by him who has a right to make the indorsement: therefore in case of a loss by theft or accident, if the bill or note be only transferrable by indorsement, the thief or finder cannot confer a title against the antecedent parties; for, unless the indorsement be made by the person to whom the bill is payable, it is a forgery, and can confer no title; but if such bill or note be payable to bearer, and therefore assignable by mere delivery, the thief or finder may confer a title against the antecedent parties, by transferring it. And consequently, an innocent holder thereof, for a fair and valuable consideration, may recover the amount thereof, though the party from whom he took it, having no title, cannot. 4 *Term Rep.* 28. *Burr.* 452. 1516.

And by 9 & 10 Will. 3. c. 17. "if any inland bill be lost, or miscarry within the time limited for its payment, the drawer shall on security given, upon request, to indemnify him, if such bill shall be found again, give another bill of the same tenor with the first." s. 3.

The right to transfer a bill or note, is in the payee, or in the person to whom it has been transferred from him: therefore an indorsement by a person of the same name, with the person entitled to transfer it, is void (except against the person indorsing it and the subsequent indorsors), though the person entitled to indorse it was not particularly described upon the bill or note. 4 *Term Rep.* 28.

On a bill or note payable to A. for the use of B., the right to indorse is in A. *Carth.* 5. 2 *Vent.* 307. *Skin.* 264.

On a bill or note payable to *several* persons, not in partnership, the right to indorse is in all collectively, and not in any individually. *Doug.* 653. *n.* 134. If a right to indorse a bill or note be in a feme sole, and she marry, it devolves upon her husband. *Str.* 516. 3 *Wils.* 5. If the person who has a right to indorse a bill or note die, it devolves upon his personal representative, and if he becomes bankrupt, on his assignees. 3 *Wils.* 1. *Str.* 1260. 2 *Barnes*, 137.

But if an executor or administrator indorse, he binds himself personally, and not the assets in his hands. 1 *Term Rep.* 487.

The indorsement of a bill or note may be made, either *before* the expiration of the time limited for its payment, or (unless the

sum payable thereby be under £5. 17 G. 3. c. 30.) at any time afterwards. 1 *Show.* 163. *Ld. Raym.* 575.

But where a bill or note is indorsed over after the time appointed for its payment, if there is any fraud in the transaction, it ought to be left to the jury, upon the slightest circumstance to presume that the indorsee knew of such fraud. 3 *Term Rep.* 83. *n.* And though he was ignorant of the fraud, any objection which might have been taken against the indorsee may be taken against him, if the bill or note appeared upon the face of it, when he took it, to have been dishonoured. 3 *Term Rep.* 80.

A bill or note dishonoured, cannot be indorsed or negotiated after it has been paid by the drawer, or first payee; for when it comes back to the drawer or first payee, and is taken up by him, its negotiability ceases. 1 *Hen. Black.* 89. *n.*

If a man indorse his name on a copperplate bill or note, made in blank, without any sum, date, or time of payment expressed therein, he will be precluded from saying that his indorsement was prior to the completion or issuing of the bill or note, even against a person who knew when he took it, in what state the bill was at the time of the indorsement. *Doug.* 496. 514.

Upon the transfer of a bill drawn in sets, each part must be delivered to the person in whose favour the transfer is made; otherwise the same inconveniences may follow, which would ensue upon a neglect to deliver each of them to the payee. *Bayl.* 41.

The indorsement of a bill or note, implies an undertaking from the indorsor, to the person in whose favour it is made, and every other person to whom the bill or note may afterwards be transferred, exactly similar to that which is implied by drawing a bill, except that in the case of a note, the stipulation with respect to the drawer's responsibility and undertaking does not apply; and a transfer by delivery only, if made on account of an antecedent debt, implies a similar undertaking from the person making it, to the person in whose favour it is made. *Ibid.*

III. *Acceptance of bills of exchange.*] An acceptance is an engagement to pay a bill according to the tenor of the acceptance, and a general acceptance is an engagement to pay according to the tenor of the bill. *Bayl.* 42.

This engagement is usually made by the person on whom the bill is drawn, but on his refusal, it may be by some other person, expressing it to be for the honour of the drawer, and in either case the acceptor will be bound. *Burr.* 1672. *Cowp.* 571. *Doug.* 284. 297.

This acceptance, or engagement to pay, may be made before the bill is drawn, or afterwards, and it may be either verbally or in writing, and is either absolute or conditional; and when made after the drawing of the bill, is according to, or varying from its tenor. *Bayl.* 44.

Thus a verbal promise, that *if the bill came back he would pay it,* was held a good acceptance. And in a variety of other cases, parol acceptances have been held good. *Burr.* 1662. 1 *Term Rep.* 182.

Also a conditional acceptance to pay *when goods consigned were sold, Str.* 1152.; *when in cash for the cargo of a ship,* 2 *Wils.* 9.; and that the bill would not be accepted till a navy bill was paid, *Cowp.* 572., have been deemed good acceptances.

So also a bill may be accepted, as already observed, varying from its tenor, as for instance, to pay 100*l.* instead of 127*l.* *Str.* 214., to pay at a date different from the time required by the bill, 11 *Mod.* 190., or to pay half in money and half in bills, *Comb.* 452., and the acceptor will be bound, if the holder, who may totally reject the same, acquiesce in such acceptances. *Comb.* 452.

An acceptance is seldom made, before the bill is drawn, by any other person than the drawee: afterwards for the purpose either of promoting the negotiation of a bill, when the drawee's credit is suspected, or to save the reputation, and prevent the prosecution of some of the parties, where the drawee cannot be found, is not capable of making himself responsible, or refuses acceptance, it is not uncommon; and it is called an acceptance for the honour of the person on whose account it is made, and enures to the benefit of all the parties subsequent to such person. *Bayl.* 45.

Such of these acceptances, as are made with the former view, are considered as made, on account of the previous possession of the bill, at the time they are made; and such as are made with the latter, unless they declare the contrary, on account of the drawer. *Ibid.*

If a bill is drawn on several persons, not connected in co-partnership, an acceptance by one will bind him, but him only. *Bull. N. P.* 279. But in the case of two joint-traders, the acceptance of one will bind both. *Mar.* 16. *Beawes,* 228. *Molloy, c.* 10. *s.* 18.

An acceptance after the bill is drawn, may be made even after the time appointed for its payment. And in such case, an acceptance to pay according to the tenor, will be considered as a general acceptance to pay on demand. *Ld. Raym.* 364. 574.

A written acceptance is either made upon the bill or elsewhere: and on a written acceptance by the drawee, his name need not appear; it is sufficient if he write upon the bill, not putting a direct negative upon its request, as, '*accepted,*' '*presented,*' 'sum,' 'the day of the month,' or 'a direction to a third person to pay it:' all these are *primâ facie* complete acceptances. 1 *Atk.* 611. *Bull. N. P.* 270.

An express refusal to accept, written on a

bill, is not an acceptance; though if the drawee intend it as a surprise upon the party, and to make him consider it as an acceptance, it seems, that it may be otherwise. *Bayl.* 48.

A promise to accept, if made upon an executed consideration, or if it influences any person, to take or retain the bill, is a complete acceptance, as to the person to whom the promise is made, in the one case, and the person influenced in the other, and all the subsequent parties in each. *Ibid.*

Thus, a promise to accept such bills as B. should, after the expiration of a month, draw on account of a debt from C. to B. was held a complete acceptance. *Burr.* 1663.

But a promise to accept, made upon an executory consideration, such as when a credit is given to the party, by another house, is not binding so long as such consideration remains executory, unless it influences some person to take or retain the bill. *Burr.* 1666. *Bayl.* 49.

So a verbal promise to accept, though the party expressly defer a written acceptance, as where he says *leave the bill and I will accept it*, is a complete acceptance. *Molloy, b.* 2. *c.* 10. *s.* 20. So a verbal promise to accept a returned bill, when it shall come back, is binding if it do come back. *Ann.* 75.

An answer by the drawee when a bill is called for, "there is your bill, it is all right," is no acceptance. *Espin.* 27.

But an acceptance to pay when remitted for, is a conditional acceptance. *Str.* 1211. So an answer by a drawee who lived in London, that a ship was consigned to him and a person in Bristol, and that till he should know to which port the ship would come, he could not accept, connected with a subsequent answer that the bill was a good one, and would be paid, though the ship should be lost, was held a conditional acceptance only; it being clear that the drawee looked for an opportunity of reimbursing himself, and had three events in contemplation, the ship's arrival at Bristol, her arrival at London, and her loss: in the two latter, he should have the opportunity, and therefore accepted; on the former he should not, and did not accept it. 1 *Term Rep.* 182.

But an answer by the drawee, that he would pay, if J. S. would not, but that he must first apply to him, not that he thought he would pay, but because he judged it right to put him to the trial, with an assurance to the holder, that he might rest satisfied of the payment, was held an absolute acceptance. *Str.* 648.

If a man intends to make a conditional acceptance only, and gives that acceptance in writing, he should be careful to express the conditions therein, for, of any verbal condition he may annex to the acceptance, he will not be at liberty to avail himself, against any subsequent party, if either such party, or any intermediate one, between him and the person to whom the acceptance was given, took the bill without notice of such condition, and gave a valuable consideration for it; and at all events, the *onus* of proving such condition will be upon the acceptor. *Bayl.* 51.

But if an agreement to accept is conditional, and a third person takes the bill, knowing of the conditions, he takes it subject to them. *Doug.* 286. 299.

A conditional acceptance becomes absolute, as soon as its conditions are performed. *Burr.* 1663. But if the drawee says he cannot accept without further directions from J. S., and J. S. afterwards desires him to accept, and draw upon A. B. for the amount, the mere drawing upon A. B. will not make this an acceptance, although the actual payment of the bill on him may. 1 *Term Rep.* 269.

An acceptance varying from the tenor, differs from it either in the *sum*, the *time*, the *place*, or *mode* of payment. *Bayl.* 52. But though any of these varied acceptances bind the person making them, yet the holder of the bill is entitled, from the undertaking of the drawer and indorsors, to expect an absolute acceptance by the drawee. *Marius*, 22. Or if there be several not connected in partnership, by each, *Molloy, b.* 2. *c.* 10. for the payment of the full sum of money, mentioned therein, according to its tenor, specifying, *Ld. Raym.* 575. if none be mentioned for the purpose, a place for its payment, and expressing, *Beawes*, 452. if the bill be payable within a limited time after sight, the time of its presentment for acceptance, and may reject any other. *Bayl.* 53.

And if upon the offer of any other acceptance, the holder does any act expressing a non-acquiescence therein, as if he gives notice to any of the antecedent parties generally, that acceptance is refused, or notes the bill for non-acceptance, the offer is not binding. 1 *Term Rep.* 182.

It has been supposed, that if the holder strikes out an acceptance which varies from the tenor of the bill, and substitutes an acceptance according to the tenor, he may afterwards restore the acceptance he struck out, and that such acceptance will continue binding; but it has been doubted, 4 *Term Rep.* 350. whether the determination went further than to decide, that the alteration in the acceptance (though it annulled the acceptance, and discharged the acceptor) did not destroy the bill as to other parties. *Bayl.* 54.

The obligation of a complete acceptance may be waived, and this waiver may be either express or implied. *Ibid.*

An agreement to consider an acceptance as at an end, *Doug.* 236, 237. 248, 249. or a message, *ibid.* to the acceptor upon an accommodation bill, that the business was settled with the drawer, and he need not give himself any further trouble, is an express

waiver: the receipt of the known consideration of the acceptance an implied one. *Doug.* 284. 297.

If the holder of the bill receives a part of the money from the drawer, and takes a promise from him upon the back of the bill for the payment of the residue, at an enlarged time, it is for a jury to say whether this is not a waiver of the acceptance; but it ought to be left to them with strong observations to shew that it is. *Doug.* 250.

But a neglect to call upon an acceptor, or the receiving a part from the drawer, or other indulgence shewn to any of the other parties, though for ever so long a time, shall not be considered as a waiver of the remedy against the acceptor. *Doug.* 235. 247.

IV. *Presentment of bills and notes.*] The party taking a bill or note, impliedly undertakes to the antecedent parties, who would be entitled to bring an action on paying it, to present in proper time the one, where necessary, for acceptance, and each for payment: to allow no extra time for payment, and to give notice without delay to such persons, of a failure in the attempt to procure a proper acceptance or payment; and a default in any of these respects will discharge such persons from all responsibility, on account of a non-acceptance or non-payment, and make the bill or note operate as a satisfaction of any debt or demand for which it was given. *Bayl.* 57. *Str.* 649. 792.

And by 3 & 4 *Ann. c.* 9. *s.* 7. (which also places promissory notes on the same footing as bills of exchange, *s.* 1.) it is enacted, that "if any person doth accept any such bill of exchange, for and in satisfaction of any former debt, the same shall be esteemed complete payment of such debt, if such persons, accepting of any such bill for his debt, doth not take his due course to obtain payment thereof, by endeavouring to get the same accepted and paid, and make his protest either for non-acceptance or non-payment."

The presentment is to be made where the bill or note is payable. *Bayl.* 58. And if the drawee or maker cannot be found at the place where the bill or note is payable, and it appears that he never lived there, or has absconded, the bill or note is to be considered as dishonoured. *Ld. Raym.* 743. If he has only removed, the holder must endeavour to find out to what place he has removed, and make his presentment there. *Str.* 1087.

If, on a presentment, it appears that the drawee or maker is dead, the holder should inquire after his personal representative, and, if he lives within a reasonable distance, present the bill or note to him. *Molloy, b.* 2. *c.* 10.

If a bill or note is made payable at a banker's, it is sufficient to present it for payment at the banker's; and if the banker is himself the holder, it is sufficient for him to see whether he has effects in hand. 2 *Hen. Black.* 509.

A presentment should be made at a seasonable time, *Bayl.* 59. and if by the known custom of any place, bills and notes are only payable within limited hours, a presentment *there* out of those hours is unreasonable. *Ibid.* And so is a presentment out of the hours of business to a person of a particular description, in a place, where, by the known custom of that place, all persons of his description, begin and leave off business at stated hours. *Ibid.*

A presentment for acceptance is not absolutely necessary, except upon bills payable within a limited time after sight. *Molloy, b.* 2. *c.* 10. *s.* 16. *Beawes, s.* 266.

No certain time is fixed, within which this presentment must be made, but it should be made within a reasonable time. 2 *Hen. Black.* 569, 570. And what shall be deemed a reasonable time, must depend upon the particular circumstances of each case, and it must always be left to the jury to say whether there has been an improper delay. 1 *Hen. Black.* 569.

No delay, warranted by the common course of business, is improper, nor is any delay, which is occasioned by keeping the bill in circulation, at a great distance from the place, where it is payable: but a delay by locking it up for any length of time is. *Hen. Black.* 565.

If a bill payable abroad at a certain time after sight, is taken in a course of negotiation, it is not necessary to send it, by the first opportunity, to the place where it is payable: and if a bill is payable in India 60 days after sight, it is not necessarily a neglect, to omit presenting it for acceptance for 26 days after its arrival. 2 *H. Black.* 565.

Upon a presentment for acceptance, the bill should be left with the drawee 24 hours, unless in the interim, he either accepts or declares a resolution not to accept. *Ld. Raym.* 281. But a bill or note must not be left (unless it is paid) on a presentment for payment; if it be, the presentment is not considered as made until the money is called for. *Strange,* 550.

A bill or note payable on demand, is payable immediately on presentment; and a bill payable at sight, is either payable immediately upon presentment, or within the days of grace afterwards; and each must be presented within a reasonable time after the receipt, or put into a course of negotiation. *Bayl.* 24. 62.

Upon bills or notes given by way of payment, or paid into a banker's, any time beyond that which the common course of business warrants, is unreasonable. *Str.* 416.

Upon a bill or note of this kind, given by way of payment, the course of business seemed formerly to allow the party to keep it, if it was payable in the place where it was given, until the morning of the next day of

business after its receipt, and till the next post, if payable elsewhere, but not longer.

Thus where a note of this kind, payable in London, was given there in the morning, a presentment the next morning was held sufficiently early: a presentment at two the next afternoon, too late. *Ld. Raym.* 928. *Str.* 415. 1248. 1175.

But in *Appleton* v. *Sweetapple, B. R. Mic. Ter.* 23 Geo. 3. where a similar note was given at one, and not presented till the next morning, two juries held the delay unreasonable; this, however, was against the opinion of the court, but being a second verdict upon a new trial, they refused to interfere. *Bayl.* 65.

A bill or note of this kind given by way of payment to a banker, must be presented by him, as soon as if it had been paid into his hands, by a customer. *Black.* 1. And a bill or note of this kind paid into a banker's, if payable at the place where the banker lives, must be presented the next time the banker's clerk goes his rounds. *Ibid.*

A bill or note importing to be payable within a limited time, or at sight, is not in fact payable, until the third day after the expiration of that time, unless it happens that the last of the three days is a Sunday or great holiday, such as Christmas day, upon which no money is used to be paid; in which case the party ought to demand the money upon the second day, otherwise it will be at his own peril. 4 *T. Rep.* 148. *Bayl.* 66.

And by 39 and 40 Geo. 3. c. 42. "where bills of exchange and promissory notes become due on *Good Friday,* the same shall be payable on the day before, and the holders thereof may protest the same, for non-payment on such preceding day."

And a presentment on the *second* day, where the third is not a day of rest, is a nullity. *Espin.* 261.

These extra days are called *days of grace;* but different countries vary in the number of days allowed by way of grace. *Beawes,* s. 260. *See title* GRACE, *days of,* where will be found the number of these days allowed in all the principal cities of Europe.

Upon the last day of grace, and within a reasonable time, before the expiration of that day, a bill or note must be presented for payment. *Bayl.* 67.

But if the holder makes a second presentment on that day, the drawer or maker is entitled to insist on paying it, when such presentment is made, without paying the fees of noting or protesting, notwithstanding such presentment is made, after the banking hours, and for the purpose of noting and protesting. 4 *Ter. Rep.* 170.

Upon a bill payable within a limited time after sight, the time must be computed from its presentment for acceptance. *Beawes,* s. 252. And upon a bill or note payable within a limited time after the date, where it has no date, from the day it issued. *Ld. Raym.* 1076.

Where the time, after the expiration of which, a bill or note imports to be payable, is limited by months, it is to be computed by *calendar* not lunar months. *Marius,* 19. Thus on a bill or note payable one month after date, and dated the 1st of Jan. the month will not expire till the 1st of Feb. *Beawes,* s. 253.

Where the time is computed by days, the day on which the event happens is to be excluded: thus on a bill or note payable 10 days after date, dated the 1st of Jan. the time does not expire till the 11th. *Ld. Raym.* 280. 1 *Barnard,* 303.

The bankruptcy or known insolvency of the drawee, or maker, is no excuse for a neglect to make a presentment, or to give notice. *Doug.* 497. 515.

Notice must be given of a failure, in the attempt to procure an acceptance, though the application for such acceptance might have been unnecessary. *Burr.* 2670. 1 *Ter. Rep.* 712.

So if the drawee offer a partial or conditional acceptance, or an acceptance at an extended period, or if any other person offer an absolute one, though the holder may be willing to acquiesce in such acceptance, he must give notice. *Bayl.* 71. In that case, however, if he wishes to have the power of availing himself of it, he should mention in his notice the acceptance offered: for a notice generally of non-acceptance, shews he did not acquiesce in such offer. 1 *Ter. Rep.* 182.

A neglect to give notice, upon the refusal of any thing more, than a conditional acceptance, is done away by the completion of those conditions before the bill becomes payable; and a neglect upon the refusal of any thing more, than a partial acceptance, discharges the persons intitled to it only from their responsibility, on account of the non-payment of the residue. *Bayl.* 71.

The notice must come from the holder, and though there is no prescribed form for it, ought to import, that the holder looks on the person, to whom it is given, as liable, and expects payment from him. 1 *Ter. Rep.* 167.

To give this notice, *in the case of a foreign bill,* effect, it is necessary that a minute of the non-acceptance or non-payment, and a solemn declaration on the part of the holder, against any loss to be sustained thereby, (which minute and declaration is called a *protest,* and must on an action against the drawer be proved. 2 *Ter. Rep.* 713. 5 *Ter. Rep.* 239.) should be regularly made. *See title* PROTEST.

Such protest may also be made on the *non-acceptance* of an *inland* bill, if such bill is for the payment of *5l.* or upwards, within a limited time after date, and the value is

expressed therein to have been received, 3 & 4 Ann. c. 9. or after an acceptance written on such a bill for its non-payment, 9 & 10 W. 3. c. 17. but a protest cannot properly be made on any other inland bills. 4 *Term Rep.* 170. And a protest upon an inland bill is never necessary where the bill is for the payment of less than 20*l.* 3 & 4 Ann. c. 9. And on such as are for the payment of more, a neglect to procure it, only precludes the holder from recovering against the drawer or indorsers entitled to notice any special damages, costs, or interest, occasioned by the non-acceptance or non-payment. *Str.* 649. 910.

To such of the parties as reside in the place where the presentment was made, the notice must be given, at the furthest, by the expiration of the day following the failure; to those who reside elsewhere by the next post. 1 *Term Rep.* 167. 2 *Hen. Bl.* 565.

Sending notice by the post is sufficient; though there is no proof that it was received, and where there is no post, it is sufficient to send by the ordinary mode of conveyance. 2 *Hen. Black.* 509. Therefore in the case of a foreign bill, it is sufficient to send it by the first regular ship bound for the place to which it is to be sent; and it is no objection, that if sent by a ship bound elsewhere, it would by accident have arrived sooner, though the owner wrote other letters by that ship to the place to which the notice was to be sent. 2 *Hen. Black.* 565.

The drawer of a bill, and (where the acceptance appoints the payment to be made elsewhere than at the acceptor's house) the acceptor, and every person who transfers a bill or note is, *primâ facie*, to be presumed entitled to bring an action on paying it, and therefore entitled to insist on a want of notice, or on a neglect to make a proper presentment, but the contrary may be proved. 1 *Ter. Rep.* 405. 712. and payment of part, *Str.* 1246. or a promise to pay, 2 *Term Rep.* 713. *Buller* 276. after full notice of the default, sufficiently evinces the contrary; but a payment or promise without such notice does not. *Burr.* 2670.

Proof that the drawer had no effects in the hands of the drawee from the time the bill was drawn until it became payable is sufficient, at least *primâ facie*, to shew, that the drawer would be entitled to bring no action on paying the bill, and has therefore no right to insist on notice, for in such case he cannot be injured by the want of notice. 2 *Term Rep.* 713. 1 *Term Rep.* 712.

If the payee of a note lends his name, merely to give it credit, and to enable the maker to raise money upon it, and knows at the time that the maker is insolvent, he is not entitled to notice, for under such circumstances, no loss could happen to him from the want of notice. 2 *Hen. Black.* 336. So if the payee lends his name to secure a composition from the drawer to a creditor, and takes effects of the drawer to answer it, he is not entitled to notice. *Espin.* 302.

But it is no excuse for *not having presented a note* in time for payment, that the defendant *indorsed* it to guarantee a debt from the maker, or that the defendant knew before it was due, that the maker could not pay it, and had desired a banker, at whose house it was made payable, to send it to him, and he would pay it: for, though the justice of such a case may be with the plaintiff, yet an indorsement by way of guarantee only, is liable to all the legal consequences of an indorsement, and the undertaking to pay, can only be taken to extend to such notes as are duly presented. 2 *Hen. Black.* 609.

Nor is it any excuse for not giving notice to the drawer of a bill, if he had effects in the hands of the drawee, that the drawee represented to the drawer when the bill was drawn, that he should not be able to provide for it, and that the drawer thereby understood that he should have to provide for it. *Espin.* 332.

Each party, immediately upon the receipt of notice, ought to give a fresh one to such of those persons who are liable over to him, against whom he must prove notice. *Bayl.* 83.

V. *Remedies for non-acceptance or non-payment.* — Upon non-acceptance or non-payment, the holder of a bill or note may sue all the persons liable to him, on account of such non-acceptance or non-payment, either at the same time, or successively one after the other. *Bayl.* 84.

An indorsor, an acceptor for the honor of an indorsor or drawer, or the drawer is, after payment by him, holder; but he holds in his original capacity, not as upon a transfer from the person he has paid. 1 *Wils.* 185. 4 *Bro. P. C.* 604.

So the bail of any of the parties who are sued, or any persons who pay the bill or note, on account of any of the parties, become, on payment, holders; and they hold as upon a transfer from the person for whom they made the payment, not as upon a transfer from the person they have paid. 4 *Ter. Rep.* 470. *Espin.* 112.

Thus if the maker of a note, or the acceptor of a bill, be sued by the indorsee, and the *bail* pay the debt and costs, this absolutely discharges the indorsor, as much as if the principal had paid the note or bill, and the bail cannot afterwards recover against the indorsor in the name of the indorsee. 1 *Wils.* 46.

An action may be brought upon a non-acceptance against the drawer before the expiration of the time limited by the bill for its payment. *Bull. N. P.* 269. *Doug.* 55.

And all the antecedent parties are liable to the holder, on account of a non-acceptance or non-payment, and if the bill or note

was transferred to him for a precedent consideration by delivery, the person who delivered it is also liable. *Bayl.* 86.

If the holder sues all the persons liable at the same time, it had been supposed that the court or a judge would not stay proceedings in one action, but upon payment of the money recoverable in that, and the costs in such of the rest in which judgment had not been obtained. *Black.* 749. But it has been determined that the acceptor is the only person against whom the plaintiff is entitled to the costs of *all* the actions, and that each of the other parties is entitled to a stay of proceedings upon paying the debt and costs in the action against him. 4 *Term Rep.* 691.

But though he may recover judgment in all the actions, he can only once recover the sum payable by the bill or note, and the costs; and if he rejects a tender of such sum and costs, the court will make an order to restrain him from taking out execution. 2 *Vez.* 115. *Str.* 515.

If the holder at first sue only some of the persons liable, he may at any time before satisfaction, sue all or any of the rest. *Bayl.* 87.

Obtaining a judgment is no satisfaction even as to the parties subsequent to him, against whom the judgment is obtained, for where to an action against the indorsor of a bill, the defendant pleaded that the plaintiff had recovered a judgment against the drawer, still in force, the court of *King's Bench* on demurrer, held the plea good; but the court of Exchequer-chamber, on a writ of error, held otherwise, and the judgment was reversed. 2 *Show.* 441. 494. *Lutw.* 882.

And the actual taking of a man in execution, and discharging him upon a letter of licence, is no satisfaction as to any of the antecedent parties. *Black.* 1235.

Nor is it a satisfaction, that one of the parties has been charged in execution, on the bill or note, and discharged as an insolvent, except as to the party at whose suit he was so charged. 4 *Term Rep.* 825.

Receiving dividends under a commission of bankrupt, is a satisfaction *pro tanto* only. *Bayl.* 88.

If more than one of the persons liable on account of the non-acceptance or non-payment of a bill or note become bankrupt, the holder may prove, under the separate commissions of each, the full amount of the money due to him upon the bill or note, at the time he makes his proof, and receive dividends under each upon the sums proved, until he shall in the whole have received such amount. 1 *Atk.* 109. 2 *Vez.* 113. *Cooke's B. L.* 170. But after the receipt of a dividend under one commission, he cannot prove under any of the rest, more than the sum remaining due, after deducting such dividend. *Ibid.* 1 *Atk.* 106. 2 *Peere Wms.* 89. 409.

So after a partial satisfaction, the holder must not in an action take a verdict for more than the sum remaining due; if he do, the court will either make him correct the verdict, and pay any expence the mistake may have occasioned, or grant a new trial. 1 *Hen. Black.* 88. *Cowp.* 571.

In an action upon a bill or note, the plaintiff is entitled to recover the money payable thereby, with interest in some cases from the date of the note, as where it appears on the face of it to be for money lent, or is expressed to be payable with interest; but, in general, the holder is entitled to interest from the time it became due, or ought to have been regularly paid, down to the time of final judgment, together with all incidental expences occasioned by the non-acceptance, or non-payment. *Burr.* 1077. 1 *Wils.* 105. 2 *Term Rep.* 52.

Thus upon a bill or note payable on presentment or demand, interest must be computed from the presentment or demand. *Black.* 761.

But a neglect to procure a protest upon any inland bill, for the payment of 20*l.* upon which a protest might have been made, may, it should seem, preclude the holder from recovering such interest or expences from any person entitled to notice of the non-acceptance or non-payment, from any other person not. 3 & 4 Ann. c. 9. s. 5. *Ld. Raym.* 992. 6 *Mod.* 80. *Salk.* 131. *Str.* 910. 9 & 10 W. 3. c. 17.

The only incidental expence, in the case of the person who made the presentment, is the charge of the notice: in the case of any antecedent party, that of the return of the bill or note must be added. *Bayl.* 92.

Upon a foreign bill, the re-exchange forms a part of the expence of the return. and let the bill be returned through ever so many hands, the drawer is liable for the re-exchange upon each return. 2 *Hen. Black.* 378.

And the drawer is liable for the re-exchange, and every other expence arising from the non-acceptance or non-payment, notwithstanding the dishonour of the bill is expressly ordered by the country on which it is drawn. *Ibid.*

On the return of a bill drawn here, for the payment of pagodas in the East Indies, the practice is to allow for the sum payable by the bill, interest, and all incidental charges, after the rate of 10*s.* for each pagoda, and 5*l.* per. cent. thereon, from the expiration of 30 days after the bill's dishonour; and it has been determined that this practice was lawful, even where the price allowed for each pagoda, on the discount of the bill, was only 6*s.* 6*d.* 1 *Term R.* 52.

Under a commission of bankrupt, the holder of a bill or note is not entitled to any interest or charges accrued or incurred after the commission issued, nor where the act of

bankruptcy, to which the commission relates, is ascertained, to any accrued or incurred after that act of bankruptcy. 1 *Atk.* 140. 2 *Bro. Ch. Ca.* 597.

A bill is *primâ facie* evidence of money lent by the payee to the drawer; and a *note* of money lent by the payee to the maker, and each consequently of money had and received by the drawer or maker to the use of the holder, and of money paid by the holder to the use of the drawer or maker. *Ibid.* and *Ld. Raym.* 758. 12 *Mod.* 380. *Burr.* 1516. 1525.

An acceptance is also evidence of money had and received by the acceptor to the use of the holder, and of money paid by the holder to the use of the acceptor; and an indorsement of money lent by the indorsee to the indorsor. 3 *T. R.* 174, 182. *Bayl.* 96.

VI. *Evidence on bills or notes.* — To recover in respect of a bill or note upon a count for money lent, money paid, or money had and received, the plaintiff must prove such of those facts which are not admitted, which he ought to state upon the usual declaration in special assumpsit; and upon a special assumsit, he must prove such of the facts which are not admitted, as appear upon the face of that declaration to be necessary. *Bayl.* 114.

An acceptance admits the ability of the drawer to make the bill, and, if made after sight of the bill, his signature: and though it may be a forgery of the drawer's hand, the acceptor is precluded from disputing it afterwards; for it is incumbent on him previously to satisfy himself that it is the drawer's hand. So also an indorsement admits the ability and signature of every antecedent party. *Black.* 390. 1 *Term Rep.* 655.

But an *acceptance*, though made after sight of an indorsement, does not admit the ability or signature of the indorsor. 1 *Ter. Rep.* 664. *Doug.* 630. 653.

In an action, therefore, against the acceptor of a bill, or maker of a note, the plaintiff must prove the defendant's signature, and the necessary indorsement; and in the former case, if the acceptance was made without sight of the bill, the signature of the drawer in an action against the drawer of a bill, or the indorsor of a bill or note, he must prove the defendant's signature, the necessary indorsements between him and the plantiff, the presentment, the non-acceptance, or non-payment, and the notice for not giving it. *Bayl.* 116.

In the case of a *foreign* bill, if the plaintiff is bound to prove notice, he must also prove a protest. *Ibid.*

After a transfer by delivery, by a person not entitled to make such transfer, any subsequent holder must prove that either he or some intermediate person between him, and the person who so transferred it, took the bill or note *bona fide*, and gave a valuable consideration for it. *Ibid.*

A confession of the signature, is sufficient evidence against the party making it, but not against any other party; and it is sufficient though made pending a treaty for a compromise. *Str.* 1051. 1 *Barnes* 317. *Espin.* 143.

In an action against the drawer of a lost bill, *Holt, C. J.* 12 *Mod.* 309., held proof that the defendant owned he had made the bill sufficient. So in an action against an indorsor, proof that the defendant admitted to have received a bill corresponding with that upon which the action was brought, that, after issue joined, he declared that he came to town to hasten the trial of a cause brought against him, on an indorsement he had made upon a bill, and that he carried the case down by proviso, was held sufficient. 1 *Barnard.* 199.

But in an action by the indorsee of a *bill* against the drawer, proof that one of the indorsors had confessed his signature, is insufficient, and in an action against several drawers, indorsors, or acceptors, an admission upon the pleadings by one of his signature, will not exempt the plaintiff from the necessity of proving it against the others, if they contest it. 1 *Barnes* 317. *Espin.* 125.

The signature of a *partner* or *servant*, importing to have been made on the partnership or master's account, is to be considered as the signature of the partnership or master. *Ld. Raym.* 175. 1484. *Doug.* 630.

But on a signature by a servant, the servant's authority must be proved. *Bayl.* 119. However, an authority by parol is sufficient. 12 *Mod.* 564. and subsequent assent is evidence of precedent authority. *Comb.* 450. Usual employ is also evidence of a general authority; and a general authority is supposed to continue until its determination is notorious, 12 *Mod.* 346. 10 *Mod.* 110. Therefore, after the discharge of a servant usually employed, a man will be bound by his signature until his discharge is generally known. *Beawes,* s. 231. *Molloy,* b. 2. c. 10. s. 27.

Where a notice is sent by the post, proof of putting it into the post is sufficient. 2 *Hen. Black.* 509. And production of the instrument is sufficient evidence of a protest. 12 *Mod.* 545.

On a judgment by default in an action upon a bill or note, it need not be proved by evidence. *Str.* 1149. *Bayl.* 120.

The court will therefore, upon such judgment, if the bill or note is for the payment of British money, refer it to the proper officer, to ascertain the sum due for principal, interest and charges, and give the plaintiff final judgment without a writ of enquiry; and this is now the constant practice in the King's Bench and Common Pleas, but not

in the Exchequer. 4 *Term Rep.* 279. 1 *Hen. Black.* 252. 529. 541.

However, the court will not refer it, if the bill or note is for the payment of foreign money, but leave it to be ascertained on a writ of enquiry. 5 *Term Rep.* 87.

VII. *Defence against bills and notes.*—The only species of defence to an action in respect of a bill or note necessary to be mentioned, is that which is founded upon the want of a consideration for giving or transferring it, or an illegality in the consideration upon which it is given or transferred. *Str.* 647. *Bayl.* 121.

The debt of a third person, or a debt barred by the statute of limitations, by a discharge under an insolvent act, by a bankruptcy and certificate, or by a composition, is a good consideration. *Str.* 264. *Ld. Raym.* 389. 6 *Mod.* 309. *Burr.* 2630. *Black.* 703. *Cowp.* 290.

But if given as the consideration of signing a bankrupt's certificate, or withdrawing a petition against it, or joining in the acceptance of a composition, it is illegal. 1 *Hen. Black.* 647. 2 *Term Rep.* 763. 4 *Term Rep.* 166. 6 *Term Rep.* 263.

A bill or note given for past seduction will be valid: but for future prostitution, bad. *Burr.* 1568.

Dropping a criminal prosecution, or suppressing evidence thereon, a recommendation to an office in the king's household, though of a private nature, and not within the stat. 5 & 6 Ed. 3. A smuggling, an usurious or a stock-jobbing contract, is an illegal consideration. 3 *Peere Wms.* 279. 2 *Wils.* 349. 1 *Bro. Ch. Ca.* 114. *Black.* 445.

So money lost by gaming, (except 9 Ann. c. 14. s. 9. in some part of a royal palace in which the king is then actually resident, the freehold and inheritance of which part is in the crown, and which is not in lease,) or betting on the sides of persons so gaming, money knowingly lent for such gaming or betting, or money lent at the time and place of such play to any person, either then gaming or betting, or who shall, during the play, play or bet, is an illegal consideration. 9 Ann. c. 14. s. 1.

Under this act, cricket, a horse-race, or a foot-race against time, hath been held a game. 1 *Wils.* 220. but insuring in the lottery, not being known at the time of passing the act, is not. 1 *Hen. Black.* 29.

No person can insist upon a want of consideration, who has himself received one, nor can it ever be insisted on, if the plaintiff, or any intermediate party between him and the defendant, took the bill or note *bonâ fide*, and upon a good consideration. *Bayl.* 123.

In those cases in which a defendant *might* insist upon a *total* want of consideration, if there really was none, he may shew that the consideration does not extend to all the money payable by the bill or note, and the plaintiff shall only recover for the residue. *Peake* 61.

Wherever the defendant might insist that there was no consent, he may insist that the consideration was illegal: and in those cases in which the legislature has declared that the illegality of the consideration shall make the bill or note *utterly void, frustrate, and of none effect* to all intents and purposes whatsoever, he may insist upon such illegality to defeat the plaintiff's action, though the plaintiff or any of the parties between him and the defendant may have become innocent indorsees, and taken the bill or note *bonâ fide* and given a valuable consideration for it. *Str.* 1155. *Doug.* 708. 736.

These cases are, where the consideration is either wholly or in part for signing a *bankrupt's certificate*, 5 Geo. 2. c. 30. s. 11. Money lost by *gaming* as aforesaid, or betting on the sides of persons so gaming, money knowingly lent for such gaming or betting, money lent at the time and place of such play, to any person either thus gaming or betting, or who shall, during the play, play or bet. 9 Ann. c. 14. or money lent on an *usurious* contract. 12 Ann. st. 2. c. 16.

But if at the time of the making the bill or note, the consideration upon which it was accepted or given, was not illegal, any illegality in the consideration upon which it was afterwards transferred or indorsed over, will be no defence, if the plaintiff is an innocent holder *bonâ fide*, and upon a good consideration—therefore where the drawer of a bill for a good consideration, had discounted it with another, who took for the same at the rate of 18*l.* per cent. discount, and it afterwards came into the hands of the plaintiff, a *bonâ fide* holder: it was held that, although the bill would have been void in the hands of even an innocent holder, yet if it had been originally given on an usurious transaction, the usury in the intermediate transaction on the discount of it, did not make it void in the hands of the plaintiff who was an innocent indorsee. *Espin.* 274.

And by suffering a judgment by default, the defendant loses the opportunity, if he has any grounds of objecting to the sufficiency of the consideration. 4 *Term Rep.* 279.

The negotiations of the commercial world being now almost entirely transacted by bills of exchange, we have been more than usually diffuse in our consideration of that subject, in order to establish the *principles*, to be collected from a long series of determinations, which govern the law of it. Its importance induces us also to add, by way of illustration, some leading cases, many of them recently decided, on the prominent points of the general law.

Acceptance absolute.

Pillans and another v. *Van Mierop, Burr.* 1663. White drew on the plaintiffs at Rotterdam for 800*l.* and proposed to give them credit upon the defendant's house in London. The plaintiffs paid White's bill, and wrote to the defendants to know, "whether they would accept such bills as they (the plaintiffs) should draw in about a month upon them for 800*l.* on White's credit." The defendants answered, that they would; but White having failed before the month had elapsed, the defendants wrote to the plaintiffs not to draw. The plaintiffs did however draw, and on the defendants' refusal to pay the bills, brought this action. The jury found a verdict for the defendants; but upon an application for a new trial, as upon a verdict against evidence, and two arguments upon it, the court was unanimous that the defendant's letter *was a virtual acceptance of* such bills as the plaintiffs *should draw* to the amount of 800*l.* and the rule was made absolute.

Wynne v. *Raikes, 5 E. R.* 514. A letter from the drawees of a bill of exchange in England, to drawer in America, stated that their prospect of security being improved they shall accept, *or* certainly pay the bill. This was held an acceptance in law; and this, although the drawees had before refused to accept; and although such letter, written *before*, was not received till *after* bill became due.

Clark v. *Cock, 4 E. R.* 57. A. in consideration of having commissioned B. to receive certain African bills payable to him, drew a bill upon B. for the amount payable to his own order. B. acknowledged by letter the receipt of the African bills, and that A. had drawn for the amount, and assured him that it would meet with due honour from him. This held an acceptance of the bill by B.

Powell v. *Jones, Espinasse* 17. In an action against the defendant as acceptor of a bill, the only evidence to prove the acceptance was, that when the bill was called for he returned it, and said, "There is your bill, it is all right." Lord Kenyon thought these words could by no implication amount to an acceptance, and non-suited the plaintiff.

And in *Smith* v. *Nesson, 1 T. R.* 269., where one requested A. to accept a bill, and to draw upon B. for the same sum, it was held that the mere act of drawing upon B. for such sum did not amount to an acceptance.

Acceptance conditional.

Julian v. *Shobrooke, 2 Wils.* 9. The defendant accepted a bill to pay, *when in cash, for the cargo of the ship Thetis;* and on being sued, moved in arrest of judgment that a conditional acceptance was not good; but the court held otherwise, and over-ruled the objection.

Pierson v. *Dunlop, Cowp.* 571. An answer that the bill would not be accepted till a navy bill was paid, was held a conditional acceptance to pay when the navy bill should be discharged.

Whether an acceptance be absolute or conditional, is a question of law entirely. *Sproat* v. *Mathews, 1 T. R.* 182.

Acceptance partial.

Wegersloffe v. *Keene, Str.* 214. A foreign bill for the sum of 127*l.* 18*s.* 4*d.* was drawn on the defendant, and he accepted it to pay 100*l.* part thereof; he was sued upon this acceptance, and on demurrer to the replication, insisted that a partial acceptance was not good within the custom of merchants: but the court held it otherwise, and judgment was given for the plaintiff.

Petit v. *Benson, Comb.* 452. A bill was accepted to be paid half in money, half in bills, and the question was, whether there could be a qualification of an acceptance; and it was proved by divers merchants that there might, for he that might refuse the bill totally might accept it in part, but that the holder was not bound to acquiesce in such acceptance.

Gammon v. *Schmall, 5 Taunt. R.* 344. If a person, to whom a bill is directed generally, accept it, payable at a particular place, the holder need not receive such *qualified* acceptance, but might resort to the drawer as for non-acceptance.

Acceptance waived.

Walpole v. *Pulteney,* cited *Dougl.* 236, 248. Walpole held a bill accepted by Pulteney, but agreed to consider his acceptance as at an end, and wrote in his bill-book, opposite the entry of this bill, "Mr. Pulteney's acceptance at an end." Walpole kept the bill from 1772 to 1775, without calling upon Pulteney, and then brought this action. The jury found a verdict for the plaintiff; but the court of Exchequer thought the verdict wrong, and granted a new trial, upon which the jury found for the defendant.

Black v. *Peele,* cited *Dougl.* 236. 248. Black arrested Peele as acceptor of a bill drawn by Dallas; but on finding that the acceptance was an accommodation one, his attorney took a security from Dallas, and sent word to Peele that he had settled with Dallas, and that Peele need give himself no further trouble, Dallas afterwards became a bankrupt, upon which Black again sued Peele; but it was held that as Black had in express words discharged Peele the action could not be maintained.

Mason v. *Hunt, Dougl.* 284. 297. Rowland Hunt agreed that his partner, Thomas

Hunt, should, on consignment of a cargo, and an order for its insurance, accept bills for 3600*l.* The cargo was consigned, the order for insurance given, and Thomas Hunt effected the insurance, but he refused to accept the bills; after some negotiation, the plaintiff being the holder, signed a memorandum, by which, after stating that the consignment had been made on account of the bills, and that the Hunts being apprehensive, that the net proceeds might not be sufficient to discharge them, had refused to accept, he accepted the bill of lading and policy, and undertook to apply the net proceeds, when in cash, as far as they would go, to the credit of the payee, in part payment of the bills the plaintiff afterwards sued the Hunts, and insisted that Rowland Hunt's agreement was an acceptance: but after a verdict for the defendant, and time taken to consider upon a rule to shew cause why there should not be a new trial, the whole court was clear, that by the memorandum the plaintiff had waived all right to insist on Rowland Hunt's agreement, for it was obvious that the whole consideration of the acceptance was the consignment, upon which there would be a commission and the policy, and these the plaintiff had taken to himself.

Ellis v. *Galindo*, B. R. M. 24 Geo. 3., cited *Dougl.* 250. note. James Galindo drew upon his brother for 30*l.* in favour of the plaintiff; when bill became due, James paid the plaintiff 3*l.* 15*s.* 4*d.* and indorsed a promise to pay the remainder in three months. Three years elapsed, and then the plaintiff sued the drawee upon his acceptance. Lord Mansfield thought the defendant discharged, and non-suited the plaintiff. An application was made for a new trial, and "the doubt was whether the question should not have been left to the jury, it being a question of intention arising out of the circumstances." Buller, J. said, "I should have left the question to the jury, but with very strong observations, and as the demand is so small I do not think there ought to be a new trial." Rule discharged.

One A., in June 1811, having agreed to purchase a house of B. for 1000*l.* paying 300*l.* down, full possession to be given by 1st June 1812. B. was arrested in June 1811, on which A. accepted a bill in favour of B.'s creditors, *payable* if the house *should be given up* on 1st of June 1812. At B.'s request, A. put his nephew into the house to take care of it, while B. remained in custody. B. having a bad title gave up all claim, and A. purchased it of the real owner, being allowed the 300*l.* he paid to B.; held that the possession which A. had of the house from B. was not such a compliance with the condition of the acceptance, as to support an action against A. *Swann* v. *Cox*, 1 *Marsh. R.* 175.

Dingwall v. *Dunster*, *Doug. R.* 235. Dunster lent Wheate his acceptance, which became due the 13th of December 1774; it was then in the hands of Dingwall, but he finding that Wheate was the real debtor, wrote to his attorney, in February and November 1775, for payment, received interest upon the bill from Wheate, and suffered several years to elapse, without calling on Dunster; on the 13th of February 1775, Dunster wrote to thank Dingwall for not proceeding against him, and said he had been informed by a person Dingwall had sent, that Wheate had taken up the bill; but Dingwall took no notice of this letter; he afterwards sued Dunster, for whom the jury found: but upon a rule to shew cause why there should not be a new trial, the whole court held that there was nothing in the plaintiff's conduct to discharge Dunster; that it meant nothing more than an indulgence to him, and that he would try to recover from the drawer if he could.

Bankruptcy of Parties to Bills or Notes.

Ex-parte Wildman, 1 *Atk.* 109. 2 *Vez.* 113. Wildman held bills drawn by Buckle, and accepted by Vanhylik; Vanhylik failed, and made a composition with his creditors, and Buckle became bankrupt. Wildman having received nothing under Vanhylik's composition, proved his whole debt under Buckle's commission, but before any dividend was made, he received 2*s.* 6*d.* in the pound, out of Vanhylik's estate. Buckle's assignees then contended, that he ought to deduct 2*s.* 6*d.* in the pound out of his proof, and take a dividend upon the balance only; but Lord Hardwicke held, that as the whole sum was due when he proved the debt, and the dividend and composition would not amount to 20*s.* in the pound upon his debt, he was entitled to a dividend upon his whole debt. To the same effect are the cases of *ex-parte Royd*, and *ex-parte Bennett*, cited 2 *Vez.* 114. and see Cooke's Bankrupt Laws. 170.

Cooper v. *Papys*, 1 *Atk.* 196. The holders of notes drawn by Reeves, and payable to Andree, accepted 6*s.* in the pound from Andree; and Reeves having become bankrupt, the question was, whether they might prove the whole debt under his commission; and Lord Hardwicke held they could not, but that the 6*s.* in the pound must go in discharge of so much of the debt, and they could only prove the remaining 14*s.* The same point was ruled in *ex-parte Ryswick*, 2 *P. Williams* 89, *ex-parte Lefebvre*, 2 *P. Williams* 409. See Cooke's Bankrupt Laws, 170.

Considerations Illegal.

Lowe v. *Waller*, *Dougl.* 708. 736. The defendant was acceptor of a bill, which he gave to Harris and Stratton, upon an usurious contract; Harris and Stratton en-

dorsed it to the plaintiff for a valuable consideration, and the plaintiff had no notice of the usury; upon a case reserved, the question was, whether the usury between Harris and Stratton, and the defendant, was a defence against an indorsee, who took the bill *bonâ fide*, and paid a valuable consideration for it; and after time taken to consider, the court held it was; and though Lord Mansfield expressed a wish that the law should turn out in favour of the plaintiff, the court found the words of the act too strong, and could not get over the case of *Bowyer* v. *Bampton, Str.* 1155.

Daniel v. *Cartony, Espinasse,* 274. Scott drew a bill on the defendant, payable to his own order, and discounted it with Greensill, who took 18*l.* per cent. discount. It was afterwards endorsed to the plaintiff, and defendant could not impeach *that* transaction; and per Lord Kenyon, "This is no defence; had the note been originally given on an usurious transaction, it would have been void, even in the hands of a *bonâ fide* holder; but usury in an intermediate transaction only cannot make it void in the hands of a *bonâ fide* indorsee."

Webb v. *Brooke, 3 Taunt. R.* 6. Plaintiff and defendant being taken prisoners in Portugal, jointly solicited, and obtained their liberation, and ransom of defendant's ship, contrary to 45 Geo. 3. c. 72., to effect which plaintiff lent money to defendant, who gave a bill for the amount; held that plaintiff could not recover on this bill.

Scott v. *Gilmore, 3 Taunt. R.* 226. A bill of exchange, part of the consideration for which was spirituous liquors sold in less quantities than 20*s.* value, was held totally void *ab initio,* though *part* of the consideration was money lent.

Cockshutt v. *Bennet, 2 T. R.* 763. If a note or bill be given, which, being fraudulent, is *void* in law, no subsequent promise to pay it will raise a consideration which will maintain an action; but if it were only *voidable,* it may be revived by a subsequent promise.

Thus an action on a note given as an apprentice fee on an indenture which was *void,* was held not maintainable, in *Jackson* v. *Warwick,* 7 *T. R.* 121.

But otherwise, where the indenture was only a voidable one. *Grant* v. *Welchman,* 16 *E. R.* 207.

Costs.

Golding v. *Grace, Black.* 749. The indorsee of a bill obtained a rule nisi to stay proceedings on payment of the debt and costs of the writ; the plaintiff insisted that he was entitled to be paid for both; but the court held that the application to pay debt and costs was made so early that the plaintiff was only entitled to the costs of the writ.

Windham v. *Withers, Str.* 515. The plaintiff having obtained judgments against the drawer and indorsor of a note, the principal in one, and the costs in both were offered him, which he refused; and the court granted a rule to restrain him from taking out execution, and intimated that they would have punished him, had he taken out execution upon both judgments.

Smith v. *Woodcock. Same* v. *Dudley,* 4 *T. R.* 691. The holder of a bill brought actions against the acceptor, the drawer, and two indorsors: the drawee and one of the indorsors obtained a rule nisi to stay proceedings against them, on payment of the bill and the costs of the actions against *them;* the plaintiff insisted that the costs of the other actions should be also paid: *sed per Cur.* "That is only necessary where the application comes from the acceptor, who is the original defaulter, and against whom all costs occasioned by his default may be recovered." Rule absolute.

Costs proveable under Bankruptcy.

Anon. 1 *Atk.* 140. The question was whether the costs and charges incurred by protesting bills after a commission of bankruptcy issued could be proved? And Lord Hardwicke ordered that the costs of the protests arising before the commission, should be proved, but no part of the costs arising afterwards.

Ex-parte Moore, 2 *Bro. Cha. Ca.* 597. Previously to the 5th of May, 1785, Mrs. Tyler accepted several bills drawn upon her by Moore, and on that day committed an act of bankruptcy, but no commission issued until the 9th of March, 1786; the bills became due between May, 1785, and March, 1786, and Mrs. Tyler not paying them, Moore did; he also paid 298*l.* for damages and charges, and the interest amounted to 46*l.* 10*s.* The commissioners allowed Moore to prove the sums for which the bills were drawn, but would not let him prove the interest, or the sum paid for charges, upon which he petitioned the Chancellor; but the Chancellor held, that as the time when the act of bankruptcy was committed was ascertained, he could not carry the damages beyond that; and the petition was disallowed.

Grace.

Coleman v. *Sayer,* 1 *Barnard, B. R.* In an action upon an inland bill, payable six days after sight, one question was, whether three days of grace are allowed, where a bill is payable at certain days after sight, as well as where it is payable upon sight? and Chief Justice Raymond said they were allowable in one case as well as in the other. Another question was, whether they were allowable upon inland as well as upon foreign bills? and the Common Serjeant and foreman of the jury said it was the constant practice in the city to allow them in both cases, upon which Chief Justice Raymond

said he would not alter it; but the plaintiff was non-suited on another point.

The three days' grace are allowed on all promissory notes as well as on bills. *Brown* v. *Harraden*, 4 *T. R.* 151. *Smith* v. *Kendal*, 6 *T. R.* 123.

Lost Bills, Notes, &c.

Miller v. *Race*, *Burr.* 452. A bank-note payable to William Finney, or bearer, was stolen out of the mail, in the night of the 11th December, 1756, and on the 20th came to the hands of the plaintiff, for a full and valuable consideration, in the usual course of his business, and without any knowledge that it had been taken out of the mail; he afterwards presented it at the Bank for payment, and the defendant being one of the clerks stopped it, upon which an action of trover was brought, and upon a case reserved upon the point, whether the plaintiff had sufficient property in the note to entitle him to recover, the court was clear in opinion that he had, and that the action was well brought.

Grant v. *Vaughan*, *Burr.* 1516. Vaughan gave Bicknel a draft from his banker, payable to "Ship Fortune or bearer." Bicknel lost it, and the plaintiff afterwards took it *bonâ fide*, in the course of trade, and paid a valuable consideration for it. The banker refused to pay it, upon which the plaintiff brought this action against Vaughan. Lord Mansfield left it to the jury to consider first, whether the plaintiff came to the possession of the bill fairly, and *bona fide*: and secondly, whether such draft was in fact and practice negotiable: and the jury found for the defendant. But upon an application for a new trial, and cause shewn against it, the court was clear that the second point ought not to have been left to the jury, because it was clear that such drafts were negotiable, and if the jury thought the plaintiff took the note fairly and *bona fide*, of which there appeared to be no doubt, he was entitled to recover. A new trial was accordingly granted, in which the plaintiff recovered the money.

Notice.

In *Russel* v. *Langstaffe*, *Dougl.* 497. 515. Lee said arguendo, it had frequently been ruled by Lord Mansfield at Guildhall, that it is not an excuse for not making a demand upon a note or bill, or for not giving notice of the non-payment, that the drawee or acceptor has become a bankrupt, as many means may remain of obtaining payment by the assistance of friends, or otherwise; and Lord Mansfield, who was in court, did not deny the assertion; this dictum was also referred to arguendo in *Bickerdike* v. *Bollman*, 1 *Term Rep.* 408.

Blesard v. *Hurst and another*, *Burr.* 2670. The defendants inclosed a bill to the plaintiff, and he indorsed it over; his indorsee presented it for acceptance a month before it was due, and acceptance was refused; it was afterwards presented for payment, and payment was refused, of which notice was given to the defendants, but they had no notice of the refusal to accept. The drawer was a bankrupt before the bill was due; but he continued in credit three weeks after the presentment for acceptance. Three days after the notice, one of the defendants called on the plaintiff at Bradford, on his way to Leeds, and said he would take up the bill as he returned; but on his return he said he was advised he was not bound to it, upon which this action was brought; and on a case reserved the court held, that though the holder might not have been obliged to present the bill for acceptance, yet, as he did, he ought to have given notice of the refusal, and that by not doing so he had taken the risk upon himself, and, notwithstanding the promise of one of them, the defendants had judgment.

Tindal v. *Brown*, 1 *T. R.* 167. A note which became due on the 5th of October was presented at ten in the morning, and the maker not being at home, word was left for him where it lay; the holders sent again on the sixth, when the maker promised to take it up within the banking hours, which were from nine to four; on the seventh the holder sent again to the maker, and the note not being paid, gave notice to the defendant, who was an indorsor, but the defendant said he had made it his own; the maker had told him on the sixth that he could not pay it, and desired the defendant would. All the parties lived at Bristol. The jury found for the plaintiff, but upon a rule to shew cause why there should not be a new trial, and cause shewn, the court granted a new trial. Lord Mansfield said, "What is reasonable notice is a question partly of fact, and partly of law; it may depend in some measure on facts, such as the distance at which the parties live, the course of the post, &c.; but whenever a rule can be laid down with respect to this reasonableness, *that* should be decided by the court, and adhered to for the sake of certainty." Buller, J. "*When* the post goes out is a matter of fact; when that is established, it is a matter of law what notice is reasonable; as to giving time, the holder does it at his peril, and that is enough to decide the case; the purpose of giving notice is to let the party know that he is looked to for payment, that he may have his remedy over by an early application." Upon the second trial there was contradictory evidence whether the notice from the maker was on the sixth or seventh, and the jury found for the plaintiff, but the court said it was a verdict against law, and granted another new trial.

Saunderson v. *Judge*. The holder of a note wrote to the defendant, who was one

of the indorsors, to say it was dishonoured, and put the letter in the post; but there was no evidence that it ever reached the defendant, and the court held, that sending the letter by the post was quite sufficient.

Rogers v. *Stephens*, 2 *Term Rep.* 713. In an action against the drawer of a foreign bill, an objection was taken that there was no protest; but it appearing that the defendant had no effects in the hands of the drawees when the bill was drawn or afterwards; and that on being pressed for payment by the plaintiff's agent, after the bill was dishonoured, he said it must be paid; Lord Kenyon thought a protest or notice unnecessary, and directed the jury to find for the plaintiff, which they did. A rule was afterwards granted to shew cause why there should not be a new trial, and it was stated *then*, and upon the shewing cause, that the defendant had really been prejudiced by the want of notice to the amount of the bill, that he had advanced money to one Calvert to the amount before the bill was drawn, that Calvert had desired him to draw on the drawees as Calvert's agents, that he did on a supposition that Calvert had effects in their hands, that he afterwards settled with Calvert, and upon a reliance that the bill was paid, delivered him up effects to more than the value of the bill, and that Calvert was since insolvent; that the defendant was prepared with evidence to this effect. All the court thought this answered by the defendant's admission that the bill must be paid, because *that* was an admission that the plaintiff had a resort to him upon the bill, and was a promise to pay. The rule was discharged.

Bickerdike and another, assignees of *Reichard*, v. *Bollman*, 1 *Term Rep.* 405. The only question upon a case reserved was, whether a bill the bankrupt had drawn in favour of the petitioning creditor, upon a man who then, and from that time till the bill became due, was one of the bankrupt's creditors, had discharged so much of the petitioning creditor's debt, no notice having been given of its dishonour to the bankrupt; and the court, after argument, was of opinion it had not, because the reason why notice is in general necessary is, that the drawer may without delay withdraw his effects from the drawee, and that no injury may happen to him from want of notice; but where the drawer has no effects in the hands of the drawee he cannot be injured, and is not entitled to any notice.

Goodall v. *Dolley*. In this case, upon an application for a new trial, the plaintiff's counsel offered an affidavit that the drawer had no effects in the hands of the drawee, but the court thought *that* made no difference, the action being brought against the payee. But by Judge Buller: "Had the action been against the drawer, I should have been willing to let in the affidavit; that would be like the case of Bickerdike v. Bollman; if the drawer had no effects in the hands of the drawee, he cannot be injured by want of notice."

De Bert v. *Atkinson*, 2 *H. Bl.* 336. In an action against the payee of a note, it appeared that the note was not presented for payment till the day after it became due, and that no notice was given to the defendant till five days after such presentment; but it also appearing that the defendant gave no value for the note, that he lent his name merely to give it credit, and that he knew at the time the maker was insolvent; Chief Justice Eyre directed the jury to find for the plaintiff, which they did. A rule to shew cause why there should not be a new trial was afterwards granted, and upon cause shewn, per Chief Justice Eyre; "If the maker is not known to be insolvent, insolvency will not excuse the want of an early demand; but knowledge excludes all presumption which would otherwise arise; here the money was to be raised upon the defendant's credit; he meant to guarantee the payment, and no loss could happen to him from the want of notice." And Per Buller J.; "The general rule is only applicable to fair transactions, where the bill or note has been given for value in the ordinary course of trade: it is said insolvency does not take away the necessity of notice; that is true, where value has been given, but no further; here the defendant lent his name merely to give credit to the note, and was not an indorsor in the common course of business." Heath and Rooke, Justices, concurring, the rule was discharged.

Corney v. *Da Costa*, *Espinasse*, 302. Da Costa and Co. compounded with their creditors, and to secure the composition, drew notes in favour of the defendant, which he indorsed to the creditors. The defendant took effects of Da Costa and Co. at the time to the amount of the composition; and an action being brought against him upon one of these indorsements, he insisted that he had no notice of the non-payment of the note until five weeks after it was due; but Buller J. held he was not entitled to notice, and the plaintiff had a verdict.

Staples v. *Okines*, *Espinasse*, 332. In an action against the drawer of a bill the defence was want of notice; the plaintiff thereupon called the acceptor, who proved that when the bill was drawn he was indebted to the defendant in more than the amount of the bill, but that he then represented to the defendant that it would not be in his power to provide for the bill when it should become due, and that it was therefore then understood between them that the defendant should provide for it; and it was contended that this superseded the necessity of giving the defendant notice; but Lord Kenyon held it did not, and non-suited the plaintiff.

Esdaile v. *Sowerby*, 11 *E. R.* 114. The indorsors of a bill of exchange had full knowledge of the bankruptcy of the drawer, and of the insolvency of the acceptor, before and at the time when the bill became due; and within a day after, notice might (but for a mistake of the holders) have reached them from the holders, communicating such their knowledge to the bankers of Liverpool, with whom they had discounted the bill, and from whom it had been transmitted to the holders in London, yet held, *that* did not dispense with such holders giving notice of the dishonour in due time to the indorsors.

Clagg v. *Cotton*, 3 *Bos. & Pull.* 239. A. the agent in America of B. residing in England, drew a bill upon him and indorsed it to C., also residing in America, who indorsed it over. Before it became due, A., having reason to think B. would fail, lodged property belonging to B. in the hands of C. to answer the bill in case it should be returned. C. undertook to restore the same whenever he should be exonerated from the bill. Acceptance, and also payment, were refused, but no notice was given to A. It was held that A. was altogether discharged.

Rucker v. *Hiller*, 16 *E. R.* 43. Bill of exchange drawn with reasonable expectation of having assets in the hands of drawee, having shipped goods on drawer's account, which were on their way to such drawee, but without bill of lading or invoice. Though the goods had not come to the hands of the drawee when the bill was presented for acceptance, and he returned it marked "no effects," yet the drawer was entitled to notice.

The want of due notice of the dishonour of a bill is answered by shewing the holder's ignorance of the place of residence. Whether he used due diligence to find it out is a question for a jury. *Bateman* v. *Joseph*, 12 *E. R.* 433.

Presentment for Acceptance or Payment.

Hoar v. *Da Costa*, *Str.* 910. The defendant paid the plaintiff a banker's note at twelve; he put it into the bank at one, and the next morning the runner from the bank carried it with other notes, and left them, as was then usual, to call again for the money; he called at eleven, and was told the banker's servant was gone to the bank; he called again at two, when the banker said he was going to stop, and refused payment, but he paid small notes till four o'clock. The defendant gave notice to the plaintiff the next morning: the question was, whether this note was payment to the plaintiff? It was insisted for the defendant, that if the note had been tendered by itself it would have been paid; and for the plaintiff, that if there had been no demand there would have been no laches, being within the day after the receipt. Chief Justice Raymond said there was no standing rule, and left it to the jury, who found for the plaintiff.

Manwaring v. *Harrison*, *Str.* 508. On Saturday the 17th of September, about two o'clock, Harrison gave Manwaring a banker's note, dated the 5th of September, and payable to Harrison or order on demand. Manwaring paid it away the same afternoon to J. S. and he presented it for payment on the Tuesday morning as soon as the shop was open; but the banker stopped payment at that time. Manwaring paid the money to J. S. and brought this action to recover it from Harrison. Chief Justice Pratt left it to the jury whether there had been any neglect, and observed, that as Harrison had kept it eleven days, he probably would not have demanded payment sooner than J. S. did. The jury wished to leave it to the court whether there had been a reasonable time; but the Chief Justice told them *they* were the judges of that; upon which they found for the defendant, and gave it as their opinion, that a person who did not demand a banker's note in two days, took the credit on himself.

Collins v. *Butler*, *Str.* 1087. The maker of a note shut up his house before the note became due, and in an action against the indorsor the question was, whether the plaintiff had shewn sufficient diligence in proving that the house was shut up? and Chief Justice Lee thought not, but that he should have given in evidence that he enquired after the maker, and endeavoured to find him out.

East India Company v. *Chitty*, *Str.* 1175. At half past eleven in the morning of the 18th of January, the defendant paid the East India Company's cashier, a banker's note, and they did not send it for payment till the next day at two, at which time the banker stopped payment. The question was, Who should bear the loss? and upon examining the merchants, it was held that the Company had made it their own, by not sending it out the afternoon they received it, or at furthest the next morning, and the jury found accordingly for the defendant.

Nicholson v. *Gouthit*, 2 *H. Bl.* 609. Gouthit and Burton undertook to guarantee an instalment on the debts of Greens, and for that purpose Greens drew notes payable to Gouthit, at Drury and Co.'s, which Gouthit and Burton indorsed, after which they were delivered to the creditors. Before they became due, Gouthit enquired at Drury and Co.'s if they had any effects, and on their saying they had not, he desired them to send the notes to him, and he would pay them; many notes were accordingly presented and paid, but the note in question, not being presented till three days after it was due. Gouthit refused to pay it. Burton had supplied him with money to take up all the notes, but as this was not presented when

due, he had returned the money destined to pay it. An action was brought against Gouthit, and upon the trial, Chief Justice Eyre thought, as he knew the note would not be paid at Drury and Co.'s, and had provided money for it, and as his indorsement was by way of guarantee, he was not injured by the delay: but on a rule to shew cause for entering a nonsuit, though justice was clearly with the plaintiff, he thought he could not recover; for though the indorsement was by way of guarantee, it was liable to all the legal consequences of an indorsement, and Gouthit's promise to pay was only to pay such as should be duly presented at Drury's. Heath and Rooke Js. were of the same opinion, and the rule was made absolute.

Mullman v. *D'Eguino*, 2 *H. Bl.* 565.—In debt on bond conditioned to pay certain bills drawn on India at sixty days after sight in case they should be returned protested, defendant pleaded that they were not presented for acceptance within a reasonable time after the drawing; it appeared that they were drawn on the 5th of March 1793, that they were indorsed on that day by defendant to plaintiffs, who procured them for a house at Paris; that plaintiffs sent immediate advice to the house at Paris, and on receiving their directions on the 30th of April, sent them to India, where they arrived 3d of October; on the 5th of October the holder wrote to the drawee, who was from home, desiring him to accept the bills, and on the 17th of October he sent an answer of refusal; some of the bills were thereupon protested on the 29th of October, and the rest the 18th of November. Chief Justice Eyre left the case to the jury, but told them he thought the bills had been sent to India in time, as they were put up here for negotiation, and were therefore liable to be delayed, and that they were presented in India in time after their arrival. The jury found for the plaintiff, and on a rule to shew cause why there should not be a new trial, and cause shewn, the court was satisfied with the verdict, and the plaintiff had judgment. Chief Justice Eyre said, "The courts have been very cautious in fixing any time for presenting for acceptance an inland bill payable at a certain period after sight, and it seems to me more necessary to be cautious with respect to a foreign bill payable in that manner. The holder is bound to present the bill in reasonable time, in order that the period may commence from which the payment is to take place; but the question, What is reasonable time? must depend upon the particular circumstances of the case; and it must always be for the jury to determine whether any laches are imputable to the plaintiff." Per Buller J. "The only rule I know of which can be applied to the case of bills of exchange is, *that due diligence must be used.* Due diligence is the only thing to be looked at, whether the bill be foreign or inland, and whether it be payable at sight, at so many days after, or in any other manner. But I think a rule may be thus far laid down as to laches with regard to bills payable at sight, or a certain time after sight, namely, that they ought to be put in circulation; and if a bill drawn at three days sight were kept out in that way for a year, I cannot say there would be laches; but if instead of putting it in circulation, the holder were to lock it up for any length of time, I should say that he would be guilty of laches; but farther than this, no rule can be laid down."

Anderton v. *Beck*, 16 *E. R.* 248. Plaintiff living in Yorkshire had received on the 26th of December a bill of exchange payable in London on the 28th, and *kept it in his own hands till the 29th*, when he sent it by post to his bankers at Lincoln, who duly forwarded it to London for presentment, and the bill was dishonoured. It was held in this case, that the Plaintiff, by *keeping it in his hands till the 29th*, was guilty of laches, and had made it his own.

Protest.

Leftley v. *Mills*, 4 *Ter. Rep.* 170., an inland bill for 20*l.* 7*s.* payable 14 days after sight, became due 24th April, 1790. A banker's clerk called with it for payment, in the morning, and the acceptor not being at home, left word where it lay; after six another of the clerks, who was a notary, noted it, and between seven and eight the first clerk went with it again; the acceptor tendered him the amount of the bill, and 6*d.* over, but he insisted on 2*s.* 6*d.* for the noting, and *that* sum not being paid, an action was brought against the acceptor, who pleaded the tender. Lord Kenyon thought a tender of the amount of the bill, at any time of the day it was payable, was sufficient, upon which the jury found a verdict for the defendant. A rule to shew cause why there should not be a new trial was afterwards granted; and upon cause shewn, Lord Kenyon thought the acceptor had till the last minute of the day of grace to pay the bill, and that it could not be noted or protested till the following day. Buller, J., thought the bills were payable at any time of the last day of grace, upon demand, so as such demand was made within reasonable hours, and that they might be protested on that day. But the whole court concurred that the bill in question could not be noted, because it was payable within a limited time *after sight*, and the statute authorises the noting of such inland bills only as are payable *after date*. Rule discharged.

In *Brough* v. *Parkins*, *Ld. Raym.* 993. 6 *Mod.* 80. *Salk.* 131. Chief Justice Holt says, "A protest on a foreign bill is part of the custom."

Brough v. *Parkins*, *Ld. Raym.* 992. 6 *Mod.*

80. *Salk.* 131. In an action against the drawer of an inland bill, it was insisted upon for error that it did not appear by the declaration that the bill had been protested; sed per Chief Justice Holt, "On an inland bill no protest was necessary by the common law, and the statute does not destroy or take away the party's action, where there is no protest; nor is the want of a protest any bar of the action; but the act seems only to take away from the plaintiff his interest and damages, where he has not made a protest, or to give the drawee a remedy against him, by way of action, for the costs and damages," and the judgment was affirmed.

Harris v. *Benson, Str.* 910. In an action against the drawer of an inland bill, after an acceptance, Chief Justice Raymond ruled, that for want of a protest, according to 9 and 10 W. 3. c. 17. the drawer could not be charged with interest.

Orr v. *Macginnis,* 7 *E. R.* 359. The drawer of a foreign bill of exchange had effects in the hands of the drawee, but took them out previous to the bill becoming due. It was held that a protest for non-acceptance, and notice thereof to the drawer by the drawee was necessary, in order to enable the payee to recover against the drawer; and that it is no excuse for not giving such notice that the drawee had no effects of drawer in hand at the time when bill was refused acceptance if afterwards he had *any* such effects in hand when the bill was drawn.

A bill of exchange, payable 60 days *after sight,* becomes due 60 days *after acceptance,* or *after protest* for non-acceptance, and may when due be protested for non-payment. *Campbell* v. *French,* in Error, 6 *T. R.* 200.

Re-Exchange.

Mellish v. *Simeon,* 2 *H. Black.* 378. A bill was drawn in London, upon Paris, and negotiated through Holland; before it became due, the French government prohibited the payment of any bill drawn in England, in consequence of which it was dishonoured, and sent back by the different hands through which it had before been negotiated to London; the re-exchange between Paris and Holland raised the bill from 603*l.* 19*s.* 10*d.* to 905*l.* 13*s.* 9*d.* and the re-exchange between Holland and London, to 913*l.* 14*s.* 3*d.*, which the plaintiff (the payee) paid; and upon an action by him against the drawer, Chief Justice Eyre left it to the jury, whether the defendant was liable for the re-exchange occasioned by returning the bill through Holland; and they found that he was.

An application was made for a new trial, upon the ground that the defendant was not liable for the re-exchange, because there was no default in him, the payment being prohibited by the government of France; but the court held it immaterial why the bill was not paid: that as it was not paid he was liable to the consequences, of which the re-exchange was one, and the rule was refused.

Auriol v. *Thomas,* 2 *Ter. Rep.* 32. Upon executing a writ of enquiry, on a bill for the payment of 800 star pagodas returned protested from India, it appeared that the usage was to charge 10*s.* per pagoda for bills returned from India protested, and five per cent. after the expiration of thirty days from the notice to the defendant, of the bill's dishonour, which included all incidental charges, and that the defendant had agreed to pay accordingly; upon which the jury assessed the damages at 10*s.* per pagoda, with the five per cent., though the plaintiff discounted the bill at the rate of 6*s.* 6*d.* a pagoda; that being then the current price. A rule *nisi* was obtained, to set aside the inquisition, on the ground that this allowance was exorbitant, and the agreement for it usurious; but the court, on cause shewn, thought otherwise, and discharged the rule.

Transfer of Negotiable Instruments.

Smallwood v. *Vernon, Str.* 478. In an action against the indorsor of a note, the declaration stated, that he became chargeable according to the tenor of the indorsement; and it was objected that the indorsement might appoint the payment at a time different from that mentioned in the note, *sed per Cur.* if it did, it would charge the indorsor, for every indorsement is the same as making a new note. *Vide* 2 *Show.* 501. *Comb.* 32. *Skinn.* 255, 256. 342. 411. 3 *Mod.* 87. 12 *Mod.* 36. *Ld. Raym.* 181. 444. 744. *Salk.* 125. 132, 133. 3 *Salk.* 68. *Str.* 442. 479. 1 *Atk.* 282. 2 *Atk.* 102 *Burr.* 670. 675. *Dougl.* 613.

Peacock v. *Rhodes, Dougl.* 611. 633. A bill was drawn by the defendant, payable to Ingham or order. Ingham indorsed it in blank, after which it was stolen; the plaintiff took it *bonâ fide,* and paid a valuable consideration for it; and acceptance and payment being refused, gave notice to the defendant, and brought this action. A case was reserved for the opinion of the court, and it was contended that this bill was not to be considered as payable to bearer, and that the plaintiff had no better right upon it than the person of whom he took it; but the court said there was no difference between a note indorsed in blank, and one payable to bearer, and the plaintiff had judgment. *Francis* v. *Mott, N. P.* before Lord Mansfield, cited *Dougl.* 612., was a similar case, and the Attorney-General, who was for the defendant, after attempting, unsuccessfully, to shew that the plaintiff *knew* the bill was obtained unfairly, gave up the cause.

Smith v. *Clarke, Peake,* 225. A bill was

indorsed in blank by the payee, and after some other indorsements was indorsed to Jackson or order; Jackson sent it to Muir and Atkinson, but did not indorse, and Muir and Atkinson discounted it with the plaintiffs; the plaintiffs struck out all the indorsements, except the first, which continued blank. This was an action against the acceptor, and it was objected that the plaintiffs could not recover without an indorsement by Jackson; but Lord Kenyon held otherwise, and the plaintiffs recovered. The plaintiffs afterwards proved that Jackson desired Muir and Atkinson to discount this bill; but Lord Kenyon thought the plaintiff's case made out without this evidence.

Wilmot, J. Burr. 1227. *Blackst.* 299. The payee may check the currency of a bill or note, by giving a bare authority to receive the money, as "Pay to A. for my use," and per Lord Hardwicke, in *Snee* v. *Prescott*, 1 *Atk.* 249. Bills and notes are frequently indorsed in this manner, "Pray pay the money to my use," in order to prevent their being filled up with such an indorsement as passes the interest.

Ancher v. *Bank of England, Dougl.* 615. 637. A bill was drawn by the plaintiffs, upon Claus, Heide, and Co. payable to Jans Mæstue or order. Mæstue endorsed it to this effect: "The within must be credited to Captain M. L. Dahl, value on account," and sent it to Claus, Heide, and Co., who credited Dahl for the amount, and gave notice to Dahl, and the plaintiffs, that they had done so; an indorsement, by Dahl, was afterwards forged upon the bill, and the Bank discovered it. Claus, Heide, and Co. having become insolvent, Fulberg paid it for the honour of the plaintiffs; and upon the ground that the indorsement had restrained the negotiability of the bill, they brought an action for money had and received against the Bank. Lord Mansfield directed a nonsuit; but upon a rule to shew cause, why there should not be a new trial, and cause shewn, Lord Mansfield, and Willes and Ashurst, Js., thought the indorsement restrictive, and that the plaintiffs were entitled to recover; but Buller, J., thought otherwise; upon which Lord Mansfield said, the whole turned on the question, Whether the bill continued negotiable? and if they altered their opinion they would mention it again, but it never was mentioned afterwards; and upon a new trial, Lord Mansfield directed the jury to find for the plaintiffs, which they did.

Moore v. *Manning, Com.* 311. A note was drawn by the defendant, payable to Statham or order: Statham indorsed it to Witherhead, but did not add, "or to his order," and Witherhead indorsed it to the plaintiff. The defendant contended, that as there were no express words to authorise Witherhead to assign it, he had no such power; but the whole court resolved that as the bill was at first assignable by Statham, as being payable to him or order, and as all Statham's interest was transferred to Witherhead, the right of assigning it was transferred also, and the plaintiff had judgment.

Russel v. *Langstaff, Dougl.* 496. 514. The defendant, to accommodate Galley, indorsed his name on five copper-plate checks, made in the form of promissory notes, but in blank, without any name, dates, or times of payment being mentioned therein, and delivered them to Galley; Galley filled them up as he thought fit, and the plaintiff discounted them: the plaintiff knew the notes were blank at the time of the indorsement, Galley not paying them when they became due, the plaintiff brought this action. Hotham, B., before whom the cause was tried, was of opinion that as the notes were incomplete when defendant indorsed them, no subsequent act of Galley could make them otherwise, because that would alter the effect of the defendant's indorsement, and he accordingly directed a verdict for the defendant; but upon an application for a new trial, Lord Mansfield said, "Nothing is so clear as the point, the indorsement on a blank note is a letter of credit for an indefinite sum; the defendant said, Trust Galley to any amount, and I will be his security; it does not lie in his mouth to say the indorsements were not regular." A new trial was accordingly granted, and a verdict having been found for the plaintiff in a similar action before Lord Mansfield, the defendant submitted in this without going to a second trial.

In *Crutchley* v. *Clarence*, 2 *M. & S.* 90., it was determined, that a bill of exchange drawn and issued in blank, or the name of the payee filled up by a *bonâ fide* holder with his own name, will bind the drawer.

And in *Robertson* v. *Kensington*, 4 *Taunt. R.* 30., that if the payee of a bill annex a condition to his indorsement before acceptance, the drawee who afterwards accepts it, is bound by that condition; and if the condition be not performed, the property in the bill reverts to the payee, and he may recover the contents against the acceptor.

Transfer in case of Death.

Rawlinson v. *Stone*, 3 *Wils.* 1 *Str.* 1260. 2 *Burr.* 137. A note was payable to A. B. or order; A. B. died intestate, and his administrator indorsed it to the plaintiff. These facts appearing upon the declaration, the defendant demurred, and contended that the personal representative of the payee had no power to indorse a note; but the Court of Common Pleas, after three arguments, and the Court of King's Bench, upon error brought, were unanimously of opinion that he had; and each court said it was every day's practice, and the constant usage for executors and administrators to indorse bills

and notes, payable to the order of the testator or intestates.

King v. *Thomas*, 1 *Term Rep.* 487. The court held, that upon a bill payable to several, as executors, they might sue as executors; and per Judge Buller, no inconvenience can arise from their indorsing the bill; for if they indorse, they are liable personally, and not as executors; for this indorsement would not give an action against the effects of the testator.

BILL OF LADING, is an acknowledgement signed by the master of a ship and delivered to a merchant, proprietor, or factor of the goods. It contains an account of the articles received on board, and a promise to deliver them in good condition at a certain place, for a specified sum.

These bills of lading are transferrable and negotiable by the custom of merchants. And there is no distinction between a bill of lading indorsed in blank and an indorsement to a particular person. *Lickbarrow* v. *Mason*, 2 *T. R.* 63.

A bill of lading is negotiated and transferred by the shipper's indorsement; and when such bill of lading is transmitted from abroad, it is usual for merchants to accept bills in consequence, before the arrival of the goods. *Haille* v. *Smith*, 1 *B. & P.* 564.

Where several bills of lading of different import were signed, no reference is to be had to the *time when* they were signed by the captain; but the person who first gets legal possession of one of them by delivery from the owner or shipper has a right to the consignment; and though there may be a difference on the face of them, if the captain have acted *bonâ fide*, a delivery according to such legal title will discharge him from them all. *Caldwall* v. *Ball*, 1 *T. R.* 205.

A freighter of "a ship *to Spain or Portugal, or either*, as the master should be directed by the freighter or his agents," first ordered the master to proceed to Lisbon, in consequence of which the master *had taken in goods and signed bills of lading to that port*, could not afterwards countermand that order, and order him to proceed to Gibraltar, without first recalling the bills of lading, or at least tendering sufficient indemnity to the master against the consequences of his liability thereon. *Davison* v. *Gwynne*, 12 *E. R.* 381.

The usual clause in a bill of lading engaging the master of the ship to deliver the goods to the consignee or his assigns, *he or they paying* freight for the said goods, is introduced for the benefit of the master only, and not for that of the consignee; and therefore the master is not bound to the consignor to withhold the delivery of the goods unless the consignee or his assigns pay the freight. *Shephard* v. *Bernales*, 13 *E. R.* 565.

Bills of lading are made out in sets of three or four, one of which is retained by the shipper of the goods, another sent *per packet*, to the consignee, the third forwarded to the same *per ship*, and the fourth given to the master of the ship, as his voucher for the goods on board. In the United Kingdom, at least one bill of lading out of every set must be on stamped paper, otherwise the whole are invalid.

The form of a Bill of Lading is as follows:

D. O. 1 *a* 10 } Shipped, by the grace of God, in good order and well conditioned, by John Oakey and Co. in and upon the good ship called the Thetis, whereof is master under God, for this present voyage, Thomas Hinckley, now riding at anchor in the river Thames, and by God's grace bound for New York, that is to say, ten bales of merchandise, being marked and numbered as per margin, and to be delivered in like good order and well conditioned at the aforesaid port of New York, (the king's enemies, dangers of the seas, fire, and every danger and accident of seas, rivers, and navigation whatsoever excepted), unto Messrs. Daniel Oakey and Henry Watkinson, or their assigns, they paying for the said goods per ton freight, with primage and average accustomed. In witness whereof the master of the said ship hath affirmed to three bills of lading of the same tenor and date, one of which being accomplished, the other two to stand void; and so God send the good ship to her desired port in safety. Amen.

(Signed) THOMAS HINCKLEY,
Master of the ship Thetis.

London, 20th Jan. 1818.

The stamp-duties on bills of lading are as follow:

Bill of lading, for goods to be exported or carried coastwise	0	3	0
Bond, as a security for the payment of any certain sum not exceeding 50*l.*	1	0	0
Exceeding 50*l.* and not exc. 100*l.*	1	10	0
- - 100*l.* - - 200*l.*	2	0	0
- - 200*l.* - - 300*l.*	3	0	0
- - 300*l.* - - 500*l.*	4	0	0
- - 500*l.* - - 1000*l.*	5	0	0
- - 1000*l.* - - 2000*l.*	6	0	0
- - 2000*l.* - - 3000*l.*	7	0	0
- - 3000*l.* - - 4000*l.*	8	0	0
- - 4000*l.* - - 5000*l.*	9	0	0
- - 5000*l.* - - 10,000*l.*	12	0	0
- - 10,000*l.* - - 15,000*l.*	15	0	0
- - 15,000*l.* - - 20,000*l.*	20	0	0
- - 20,000 - -	25	0	0

BILL OF SALE, is a solemn contract, under seal, whereby a man conveys or passes away the right and interest which he has in goods or chattels.

All conveyances of lands, goods, and chattels, to avoid the debt or duty of another, shall, as against the party whose debt or duty is so endeavoured to be avoided, be utterly void; except grants made *bonâ fide* upon good and valuable considerations.

If a man make a bill of sale of all his goods, in consideration of blood and natural affection to his son or any other relation, such conveyance shall be void against creditors; and if a man, being indebted to two persons, make a secret conveyance to one of them, of all his goods and chattels, in satisfaction of his debt, but notwithstanding continues in possession, and sells some of them, and sets his mark upon others, this will be fraudulent, and will not prevent another *bonâ fide* creditor from having execution.

The owner continuing in possession after this conveyance is a badge of fraud, as is also a general conveyance of all, without exception, as also a secret manner of transacting such bill of sale; or unusual claims in it, are considered as marks of fraud and collusion.

Bill of Sale of Goods.

Know all men by these presents, That ——— of ———, for and in consideration of the sum of ———, of lawful money of Great Britain, to me in hand, at and before the sealing and delivery of these presents, paid by ——— of ——— (the receipt whereof, I do hereby acknowledge), have bargained, sold, and delivered, and by these presents do bargain, sell, and deliver unto the said ——— viz. ——— and all and singular other the goods, chattels, and effects, of me the said ——— in and about the said dwelling-house (as the case may be), to have and to hold the said bargained and sold premises, unto the said ———, his executors, administrators, and assigns, to the only proper use and behoof of the said ———, his executors, administrators, and assigns, for ever. And the said ———, for himself, his executors and administrators, the said hereby bargained premises, unto the said ———, his executors, administrators, and assigns, against all persons, shall and will warrant, and for ever defend by these presents. In witness, &c.

Sealed and delivered, being first duly stamped, and livery and seisin of the goods and premises above bargained and sold, delivered by the said ——— giving and delivering the said ———, in the name of the whole goods and premises, in the presence of ———.

It is a general rule in the transfer of chattels, that the *possession* must accompany and follow the deed; and an *absolute* conveyance of such, without possession, is in law fraudulent, and not merely evidence of fraud. But if the conveyance be conditional, then, indeed, it will not be rendered void by vendor's continuing in possession, *till the condition be performed*. *Edwards* v. *Harber*, 2 *Ter. Rep.* 587.

But a bill of sale *made for a valuable consideration*, though not accompanied with possession, is valid *as against the vendor*; and also as against a creditor with whose assent it was given. *Steel* v. *Brown & Al.* 1 *Taunt. R.* 381.

BILL OF STORE, is a licence granted by the Custom-house, to merchants, to carry such stores and provisions as are necessary for a voyage, free of duty.

BILLET-WOOD, is small wood for fuel, which must be three feet and four inches long, and seven inches and a half in compass, &c. Justices of peace shall enquire by the oaths of six men of the assize of *billet*, and being under size, it is to be forfeited to the poor. Stat. 43 Eliz. 9 Ann. c. 15.

BILLON, *in coinage*, a kind of base metal, either of gold or silver, in which copper is the predominent metal. Mr. Boutterouc says, that all gold under twenty-one carats fine, is properly *billon* of gold; and all silver under ten penny-weights, is *billon* of silver.

BILLOT, or Billo, bullion of gold and silver in the mass, before it is coined. *Cowel.*

BILLS OF MORTALITY, are returns which express the numbers of each sex which have died within the period specified. This phrase is used colloquially, and even legally, to designate a certain district, comprehending London and its vicinity, within which these returns are made.

BIND OF EELS, a quantity, consisting of two hundred and fifty; or ten strikes, each containing twenty-five eels.

BING, in the alum-works denotes a heap of alum thrown together, in order to drain.

BINOCULAR TELESCOPE, a kind of dioptric telescope, fitted with two tubes, joined in such a manner, that one may see a distant object with both eyes at the same time.

BIRCH, (Ger. *Birke*. Du. *Berke*. Da. *Birk*. Sw. *Biörke, Börk*. Fr. *Bouleau*. It. *Betulla, Maio*. Sp. *Abedul, Betulla*. Port. *Betula, Betulla*. Rus. *Beresa*. Pol. *Brzoza*. Lat. *Betula*,) a tree universally known in the north of Europe. The wood of the white birch is used for making carriages, and wheels, being hard, and of long duration. In France it is generally used for making wooden shoes, and in Great Britain, for making women's shoe-heels, packing cases, brooms, hoops, &c. It also makes very good fuel, and is planted along with hazel, to make charcoal for forges.

The bark of the birch seems in a manner incorruptible. In Sweden the houses are covered with it, and it lasts many years. It frequently happens that the wood is entirely rotten, when the bark is perfectly sound and good. In Kamtschatka, it is used for making drinking cups. It abounds with a resinous matter, to which its durability is certainly owing. In consequence of this, it is highly inflammable: and in the northern countries torches are made of this bark sliced and twisted together. The bark itself consists of two different substances; a thick brittle brownish red one; and several very thin, smooth, white, transparent membranes; in which the inflammable property resides. The thick part is less resinous, and has a roughish taste.

Upon deeply wounding or boring the trunk of the tree in the beginning of spring, a sweetish juice issues, sometimes in so large a quantity, as to equal the weight of the whole tree and root; one branch will bleed a gallon or more in a day.

This juice is recommended in scorbutic disorders, and other foulness of the blood. Its most sensible effect is to promote the urinary discharge. By proper fermentation, with the addition of sugar, this juice makes a pleasant wine. The bark of the Canada birch is very light, tough, and durable; and the inhabitants of America use it for canoes.

BIRCH-OIL, (Ger. *Daggert.* Du. *Berkenöli.* Da. *Birkolie.* Sw. *Björkolja, Ryssolja.* Fr. *Huile ou Goudron de bouleau.* It. *Oleo di betulla.* Sp. *Accite de betulla.* Port. *Oleo de betulla.* Rus. *Degot, Degt.* Pol. *Dziegiet.*) *See* OIL.

BIRD CAGES, (Ger. *Vogelbauer, Käfichte.* Du. *Vogelkouwen.* Da. *Fuglebuur.* Sw. *Fogelbur.* Fr. *Cages.* It. *Gabbie.* Sp. *Jaulas.* Port. *Gaiolas,*) are manufactured of iron or brass wire, wicker-work, &c. and having been long principally made in Crooked-lane, on exportation, they are termed Crooked-lane ware.

BIRDLIME, (Ger. *Vogelleim.* Du. *Vogellym.* Da. *Fuglelim.* Sw. *Fogellim.* Fr. *Glu.* It. *Pania.* Sp. *Liga.* Port. *Visco.* Rus. *Ptitschei Klei.* Pol. *Lep.*) The best birdlime is made of the bark of holly, boiled seven or eight hours in water, till it is soft and tender; then laid in heaps in pits in the ground, and covered with stones, the water being previously drained from it; and in this state left for two or three weeks to ferment, till it is reduced to a kind of mucilage. This being taken from the pit, is pounded in a mortar to a paste; washed in river water; and kneaded, till it is free from extraneous matters. In this state it is left four or five days in another vessel, to ferment and purify itself, when it is fit for use. It may likewise be obtained from the misletoe, the viburnum lantana, young shoots of elder, and other vegetable substances.

It is sometimes adulterated with turpentine, oil, vinegar, &c.

Birdlime should be of a greenish colour, and sour flavour; gluey, stringy, and tenacious; and in smell resembling linseed oil.

BIRDS' NESTS, (Ger. *Indianische Vogelnester.* Du. *Indiaansche Vogelnestjes* Da. *Indianske fuglereder.* Fr. *Nids de Tunkin.* It. *Nidi di Tunchino.* Sp. *Nidos de la China.* Port. *Ninhos da China,*) the nest of a species of swallow, very much esteemed in China, and throughout all the East Indies, and to be found in Tonquin, and in Cochinchina, but more particularly in the kingdom of Campo or Champa, which is situated between both. Those birds' nests are formed in the same manner as our swallow's nests are, and when a great quantity of them are collected together, they are dried and brought to China for sale. They are principally composed of a gelatinous matter, secreted by the stomach of the bird, and when dissolved in water, form a jelly, considered a great dainty as an article of food.

BIRMINGHAM-WARES, (Ger. *Kurze waaren.* Du. *Yzerkramery.* Da. *Isenkramvarer.* Sw. *Järnkram.* Fr. *Clinquaillerie, Quincaillerie.* It. *Chincaglie.* Sp. *Quinquilleria.* Port. *Quincalharia.* Rus. *Mjelotschnüe towarü,*) are all sorts of toys in gold, silver, steel, brass, &c.; buttons, buckles, &c. &c. *See Manufactures of Birmingham, under the head of* EUROPE.

BIRTH, in the sea language, a convenient place to moor a ship in, also a due distance observed by ships lying at anchor, or under sail; and a proper place on board for a mess to put their chests, &c. is called the birth of that mess.

BIS, twice, used in accounts, to denote duplicates of folio, or of accounts.

BISA, Biza, or Bize, a coin of Pegu, which is current there for half a ducat. It is also a weight used in that kingdom.

BISMUTH, (Ger. *Wismuth.* Du. *Bismuth, Bergsteen.* Da. and Sw. *Vismut.* Fr. *Bismuth.* It. *Bismutte.* Sp. *Bismuth, Piedra inga.* Port. *Bismutho.* Rus. *Wismut.* Pol. *Markazyt cynowy.* Lat. *Bismuthum,*) a considerable heavy semi-metal, of a much harder and firmer texture than antimony, not being easily pulverized in a mortar, as that is, though not yielding to the hammer, nor shewing the least token of ductility. It is very susceptible of rust, and in itself is scarcely sonorous, yet mixed with other metals, it adds to their sonorous quality, at the same time that it renders them more brittle; these two properties depending, in a great measure, on the same principles. It is of a fine bright silver colour, and of remarkable structure, being composed of

small fasciæ of plates or laminæ, dispersed irregularly amongst one another. It gives evident tokens, on trial, of a sulphur contained in abundance in it, and after the action of an acid, it lets go a bituminous matter. It requires but an extremely small degree of fire to fuse, melting almost before any other metallic substance, and it is not fixed in the fire, but evaporates with a very moderate degree of heat. It very readily amalgamates with mercury, and has this peculiar quality, that when mixed with other metals in amalgamation with that body, though but in a very small quantity, it makes them run thinner in the amalgama, and occasions a great part of them to be carried through leather, in straining together with the mercury.

Bismuth causes the metals that are difficult of fusion to melt with a much smaller degree of fire than they otherwise would do. It very freely and readily mixes with any metal, and, according to the proportion in which it enters the composition, renders them more brittle, white, and approaching to the nature of the regulus of the semimetal. But some cautions are to be used in the making of those mixtures; for as the *bismuth* easily burns away, if the matters be difficult of fusion, and require a strong and intense fire, they must be fused before the *bismuth* is added, and the vessel then covered, and the whole kept no longer in the fire, than just while the mixture is made.

Bismuth is very readily dissolved in vinegar, and communicates a saccharine taste to it; it may also be dissolved in the stronger acids, as the spirit of sea-salt, spirit of nitre and aqua fortis; from those solutions in the stronger acids, it is easily precipitated, and forms a fine white powder, called magistery of *bismuth*, much used as a cosmetic.

BISSEXTILE, in chronology, a year consisting of three hundred and sixty-six days, being the same with our leap year.

BISTI, a small coin of Persia; some say it is among the current coins of Persia, and worth only a little above three farthings British; others speak of it again as a money of account.

BISTERE or Bister, (Ger. *Bister*. Fr. *Bistre*. Port. *Bistre*,) among painters, denotes a glossy soot, pulverized and made into a kind of cakes, with gum water. It is used to wash their designs. *Bistre* is made by putting soot of dry wood, as beech, into water, in the proportion of two pounds to a gallon, and boiling them half an hour. After the fluid has settled, pour off the clearer part, while it remains hot. Evaporate the fluid to dryness, and what remains is good *bistre*.

BIT, an essential part of a bridle. There are many kinds of bits; the most simple is a short rod of iron, made rather wider than the mouth of the horse, and provided with a hook or ring at each end, for fastening the reins to. The next is a rod similar to the former, in two pieces, and connected by a joint in the middle; the former is intended for heavy draft horses, the latter for those of light draft. The next is the snaffle, which is provided with two cross pieces that rest against the lips or sides of the mouth: for as the snaffle is intended for the saddle-horse, and the reins go to the hands, so the cross pieces are useful in preventing the bit from being drawn through the mouth. The number of parts of which the mouth-piece of the snaffle is composed, may be increased to any extent, as it may be made with one, two, or several joints; and hence it acquires new properties and effects which require attention; its gentleness or rigour will depend almost wholly on these conditions.

Another is the curb bit, the mouth-piece of which is usually provided with an upset or arch in the middle, as, if perfectly straight, it would rest upon the tongue, and occasion an unpleasant restrainst. It has been sometimes called the liberty bit, on account of the freedom which it allows to the tongue: by others it has been called the porte-mouth bit, vulgarly the *Portsmouth-bit*; and by a supposed opposite expression, we got the *Weymouth-bit*.

BIT, also denotes the iron part of a piercer, augre, and such like instruments used by coopers, carpenters, &c.

BIT, *of a key*, that part which contains the wards.

BIT, a piece of silver money, current in the British West Indies; value five-pence three-eighths.

BITCHEMARE, a kind of fish, which is salted and dried like cod. It is taken in some places on the coast of Cochinchina, and gives rise to a considerable trade with China.

BITS, or Bitts, in ship-building, the name of two great timbers, usually placed abaft the manger, in the ship's loof, through which the cross-piece goes: the use of it is to belay the cable thereto, while the ship is at anchor.

BITTACLE, on ship-board, a square box standing before him that steers the ship, with the compass placed in it, to keep and direct the ship in her course.

BITTER, a sea-term, signifying any turn of the cable about the bits, so as that the cable may be let out by little and little; and when a ship is stopped by a cable, she is said to be brought up by a bitter. Also that end of the cable which is wound about the bits, is called the bitter end of the cable.

BITTER-APPLES. (Ger. *Koloquinten*. Du. *Bitterappelin*. Da. & Sw. *Coloquinter*. Fr. *Coloquintes*. It. *Coloquintida*. Sp. *Coloquintidas, Tueras, Calabacillas*. Port. *Coloquintidas, Cabacinhas*. Rus. *Kolozintü*.

Pol. *Kolokwintyda.* Lat. *Colocyntidum poma.*) *See* COLOCYNTHIS.

BITTERN, in the salt-works, the brine remaining after the salt is concreted; this they lade off, that the salt may be taken out of the pan, and afterwards put in again; when being farther boiled, it yields more salt. *See* SALT.

BITUMEN, (Ger. *Judenpech.* Du. *Jodenlym.* Da. *Jodebeeg.* Sw. *Judebeck.* It. *Asfalto.* Sp. *Asfalto.* Port. *Asphalto.* Rus. *Asfalt.* Pol. *Kley ziemsky.* Lat. *Asphaltum, Bitumen judaicum,*) is a tenacious mineral substance, or fossil body, not soluble in water. There are a great number of substances ranked under the general head of *bitumens;* as amber, ambergris, jet, asphaltum, phisasphaltum, pit-coal, mineral pitch and tar, &c. *See each under its proper head.*

BLACK, *German,* called also *Frankfort black,* is made with the lees of wine, burnt, washed afterwards in water, then ground in mills made for that purpose, with ivory, bones, or peach-stones, also burnt. It comes from Frankfort, Mentz, and Strasburg, either in lumps or powder; and must be chosen moist, without having been wetted, of a fine black, soft, friable, light, and with as few shining grains as possible. This black is the principal ingredient used by copper-plate printers, for working their engravings.

BLACK-IVORY, otherwise called velvet-black, is burnt ivory or bones, which, becoming quite black, and being reduced to thin plates, are ground in water, and made into troches, to be used by painters, and by jewellers, who set precious stones, to blacken the ground of the collets, and give the diamonds a taint or foil. *Ivory Black* should be chosen tender, friable, and thoroughly ground.

BLACK, *harts'*, that which remains in the retort after the spirits, volatile salt, and oil, have been extracted from hartshorn. It answers the purpose of painters, almost as well as ivory black.

BLACK, *Spanish,* is nothing but burnt cork: it is used in several works. It should be light, and have as few grains of sand mixed with it as possible.

BLACK, *Lamp,* is generally prepared resin or pitch, in iron vessels, then setting fire to it under a chimney, or other place made for the purpose, lined with sheep-skins, &c. to receive the vapour or smoke; in this way vast quantities of it are prepared at Paris. In England it is prepared at the turpentine-houses, from the dregs of the resinous matters which are manufactured there, but the greater part of lamp-black is brought from Germany, Sweden, and Norway; where the process, in the preparation is dependent on the manufacturer of common resin. The goodness of lamp-black depends on its lightness, and on the fulness of its colour. It is used on various occasions, particularly in printers' ink, for which it is mixed with oils of turpentine and linseed. A patent was taken out some years ago, for manufacturing lamp-black from pit-coal, or any kind of mineral and fossil coals.

BLACK, *Currier's.* *See* CURRYING.

BLACK AMBER, (Ger. *Gagat.* Du. *Git.* Da. and Sw. *Gagat.* Fr. *Jais, Jayet.* It. *Gagata, Lustrino.* Sw. *Azabache.* Port. *Azeviche.* Rus. *Gagat.* Pol. *Gagatek.* Lat. *Gugas, Gagates.*) *See* JET.

BLACKING, (Ger. *Schuhschwärze, Wichse.* Du. *Schoenzwartsel.* Da. *Skoesværtæ.* Sw. *Skosvärta.* Fr. *Noir (de cordonnier).* It. *Nero da ugner le scarpe.* Sp. *Negro de zapatos.* Port. *Negro de sapatos.*) Shoe blacking. This has been an article of no inconsiderable export. It is prohibited by the Russian Tariff of 1816. The usual way of manufacturing it is as follows: Dissolve in 1 quart of hot vinegar 1½ ounce of brown sugar-candy, and let it stand to be quite cold; rub 4 ounces of ivory black with 1 ounce of olive oil in a mortar till quite dry; mix all these ingredients together, and stir them frequently for 24 hours; *then* add to them (but not before, or it will spoil the whole) 1 ounce of vitriolic acid, and stir the mixture well. Instead of the olive oil, and the vitriolic acid, common vendors of blacking use oil of vitriol, as being a cheap substitute; but it renders the stitches of the shoes rotten, and even in time injures the leather itself.

BLACK LEAD, (Ger, *Pottloth, Reissbley.* Du. *Potloot.* Da. *Blyant.* Sw. *Blyerts.* Fr. *Mine de plomb noir, Plomb de mine, Potelot.* It. *Miniera di Piombo, Piombaggine, Corezolo.* Sp. *Piedra mineral de plomo.* Port. *Pedra mineral de Chumbo.* Rus. *Tschrrnoi krandasch.* Pol. *Otowek.* Lat. *Plumbago.*) This mineral is found in great abundance, and of very fine quality, at Keswick in Cumberland, as also in many parts of Spain, particularly in the neighbourhood of Malaga; its colour is rather a deep shining bluish grey, than a black, may be diluted a little in the black melting pots. It is smooth, and rather unctuous to touch, and hence is sometimes used for preventing attrition in machines. Acids neither dissolve it, nor alter its colour or unctuosity. It is not found to contain any of the metal from which it receives its name, and its composition appears to be of a singular kind.

Black lead is used in the manufacture of pencils, also for blackening the front of stoves, grates, &c. &c.

Every person who shall unlawfully break into any wad-hole of wad, or black cawke, commonly called black lead, or shall unlawfully take and carry away thence any wad, black cawke, or black lead, or shall aid or employ others so to do, shall be guilty of felony. 25 Geo. 2. c. 10.

BLACK LEAD PENCILS, (Ger.

Bleystifte. Du. *Potlootpennen.* Da. *Blyantspenne.* Sw. *Blyertspennor.* Fr. *Crayons noirs.* It. *Lapis nero.* Sp. *Lapiz negro.* Port. *Lapis negro.* Rus. *Karanaschii.* Pol. *Bleyczyk,*) are formed of black lead alone, sawed into slips, which are fitted into a groove made in a piece of wood, and another slip of wood glued over them: the softest wood, as cedar, is made choice of, that the pencil may be the more easily cut; and a part at one end, too short to be conveniently used after the rest is cut away, is left unfilled with the black lead, that there may be no waste of so valuable a commodity. As there is great room for fraud in the pencil-making, persons frequently take the finer pieces of black lead, which they saw into slips, and fix for use in port-crayons.

BLACKWELL-HALL. By Stat. 8 & 9 W. 3. c. 9. s. 1. The governors of Blackwell-hall, and their deputies, shall strictly keep the following times and rules, viz. the public market of *Blackwell-hall* shall be held every Thursday, Friday, and Saturday, from eight o'clock in the forenoon till twelve, and from two in the afternoon till five. The said hours of beginning and ending the said market, shall be known by ringing the market bell in the hall. The same to be continued weekly throughout the year, except days of humiliation or thanksgiving; and the keepers of the hall shall not permit any buying or selling of any woollen cloth at the hall, upon any other days and hours, upon the penalty of 100*l.*

Sect. 2. The said governors, &c. shall appoint to the country clothiers the most convenient room in the hall, for the sale of their cloth, and warehouse for keeping the same, paying the ancient duties of the hall.

Sect. 3. No factor or other person, other than the owner of the cloth, shall sell, or expose to sale, out of the said market of *Blackwell-hall,* any cloth directed to be brought to the said market, or any factor there, upon penalty of 5*l.* for every piece of cloth so sold.

Sect. 4. regulates the hall-keepers, clerks, and master-porters.

Sect. 5. All penalties imposed by this act, may be sued for by actions of debt, &c. one moiety to the king, and the other to the informer.

Sect. 6. If the owner of the cloth neglect to sue for any of the penalties for the space of six months, then any other person may sue for the same, and one moiety shall be to the king, and the other to the informer.

BLACKWELL-HALL FACTOR. Those of this business act by commission from the manufacturers of woollen cloth in the country, but more particularly for the merchants and dealers in cloth in town; to supply them, they contract for large quantities of the various kinds of cloth, in the counties where they are made, which they deposit in *Blackwell-hall,* Basinghall street, where there are separate places appointed for each factor; and where they sell them to the merchants and retail dealers.

BLADDERS. (Ger. *Blasen.* Du. *Blaazen.* Da. *Blærer.* Sw. *Bläsor.* Fr. *Vessies.* It. *Vesciche.* Sp. *Vejigas.* Port. *Bexigas,*) a thin membraneous substance, found in several parts of an animal, used by painters, for holding oil, &c. and also by druggists and chemists for a variety of purposes.

BLADE (*Blades,* Ger. and Du. *Klingen.* Da. *Klinger.* Sw. *Blader, Klingor.* Fr. *Lames.* It. *Lame.* Sp. *Hojas.* Port. *Folhas.* Rus. *Klinki.* Pol. *Glownie,*) a thin piece of metal, extended either in length or breadth, beaten with a hammer, or cast into a mould. It is said particularly of that part of a sword, dagger, bayonet, or other offensive weapon, that pricks or cuts. We also say the *blade* of a knife, the *blade* of a razor, to signify that part of those instruments which cuts or shaves. All those sorts of *blades* are of very fine tempered steel, or at least of iron, very well sharpened. The *blades* of Damascus and England are most valued. Those of Toledo are highly esteemed. In England blades are prohibited from being exported.

BLAFART, a small coin current at Cologn, worth something more than a farthing of our money.

BLANC, a small copper coin, which was formerly current in France, for five deniers Tournois. It is now only a money of account; and they still say six blancs, to signify eighteen deniers; but the latter is much more in use than the former.

BLANCHING, in coinage, the operation performed on the planchets or pieces of silver, to give them the requisite lustre and brightness. They also blanch pieces of plate, when they would have them continue white, or have only some parts of them burnished.

Blanching, as it is now practised, is performed by heating the pieces on a kind of peel, with a wood fire, in the manner of a reverberatory, so that the flame passes over the peel. The pieces being sufficiently heated and cooled again, are put successively to boil in two pans, which are of copper: in these they put water, common salt and tartar of Montpellier. When they have been well drained of this water in a copper sieve they throw sand and fresh water over them; and when dry they are well rubbed with towels.

BLANK. Thus merchants and traders call void all unwritten places, which are sometimes left in their waste-book, or journals, which is a very dangerous practice, on account of the ill use that may be made of it. Merchants books are to a certain extent vouchers in courts of justice, because they are supposed to have been written successively from day to day: but as soon as

there is any *blank*, or void space, found in them, were it but two lines, as it sometimes happens at the bottom of a page, the book deserves no longer any credit. Arbitrators appointed to examine merchants' books, ought carefully to observe whether the disputed articles be not set down at the bottom of the pages, which is very suspicious; and in the report they make of the condition in which they found the books delivered to them, they are to declare, whether they found any *blanks* in them or not, and whether there is any probability that there were *blanks* left, which may have been filled up afterwards.

BLANK, is also a piece of paper, at the bottom of which a person has signed his name, the rest being void. *Blanks* are commonly entrusted in the hands of arbitrators or friends, to be filled up as they shall think proper, to terminate any dispute or law-suit. A man must be thoroughly certain of the honesty of those whom he trusts with such a blank.

A *blank letter of attorney* is one in which a void space is left to be filled up with the name of the person who is to act.

A blank indorsement on bills of exchange, when one only writes his name on the back of it, leaving an empty space sufficient to write either an order or a receipt.

Blank is also a term used to denote an unfortunate chance in games of hazard, as lotteries, &c.

BLANKETS, a coverlet for a bed: a stuff commonly made of white wool, and wrought in a loom like cloth; with this difference, that they are crossed like serges. When they come from the loom, they are sent to the fuller; and after they have been fulled and well cleaned, they are napped with a fuller's teazle. Blankets made of sheep's wool, are divided into several sorts: of the head and bay wool the widest are made; and narrow ones of the middling and common sort.

There are also blankets made with the hair of several animals; as that of goats, dogs, and others.

There is a great manufactory of blankets about Whitney in Oxfordshire, &c. Blankets may be made in any place where they were used to be made, by stat. 4 Jac. 1. c. 2. s. 16.

Blankets imported into Russia pay a duty of 25 per cent.

BLANQUIL, or Blanquille, a small silver coin of Morocco, equal to about twopence sterling.

BLARE, the penny of Bern in Switzerland.

BLASPHEMY, is an injury offered to God, by denying that which is due and belonging to him, or attributing to him what is not agreeable to his nature. And blasphemies of God, as denying his being, or providence, and all contumelious reproaches of Jesus Christ, &c. are offences by the common law, punished by fine, imprisonment, pillory, &c. 1 *Hawk. P. C.* 87.

Likewise by 3 Jac. 1. c. 21. persons jestingly or prophanely using the name of God, or of Jesus Christ, or of the Holy Ghost, or of the Trinity, in any stage play, &c. incurs a penalty of 10*l.*

BLAST, a term used at iron-founderies to denote the column of air introduced into the furnace for the purpose of combustion.

BLASTING, a term used by miners, for the tearing up rocks which lie in their way by the force of gunpowder. In order to do this a long hole is made in the rock, which being charged with gunpowder, is filled up; a touch-hole being left, with a train or match to fire the charge.

BLEACHING. This art is naturally divided into two distinct branches; the bleaching of vegetable, and of animal substances. These, being of very different natures, require different processes for whitening them. Vegetables consist of oxygen, hydrogen, and carbon, of which the latter is in the greatest proportion; whilst animal substances, besides these, contain also a large quantity of azote, and also phosphorus and sulphur.

Bleaching of flax and hemp. If ripe flax be examined, it will be found to be composed of fibres or filaments united together by the sap, enveloping a semiligneous substance, and covered with a thin bark. It is the fibrous part only that is used for making cloth, and it must therefore be previously separated from the other matters.

The sap or succulent part is composed of extractive principle and water, and the first process is to separate this substance, which holds the filaments together. As soon as the flax is pulled, it is steeped in soft water until the putrefactive fermentation takes place. This degree of fermentation begins with the succulent part, as being more susceptible of decomposition than the rest. Were the flax to be continued long in this state, the whole substance of it would be decomposed or destroyed, upon the same principle that malt is injured by too long steeping, or that wort loses its substance by too long a fermentation. It must therefore be taken out of the water while yet green, and before the whole of its sap is separated. Well-water and brackish water must be carefully avoided, as well as that which flows over gypseous soil. Such water accelerates putrefaction, and hurts the quality of the hemp and flax.

The flax, when taken from the water, is spread out upon the grass to dry. During the fermentation and decomposition which thence result, there is a speedy combination of oxygen and carbon. Exposure on the grass facilitates the escape of the carbonic acid into the atmosphere, and the plants become of a whitish grey colour.

It is known that a ley very slightly alka-

line may be substituted with advantage, for this long and noxious operation: a chamber from 20 to 30 feet in length, into which the steam of alkaline caustic water, of the strength of one-fourth of a degree only, is introduced, will be sufficient to produce the same effect as watering on an immense quantity of hemp and flax suspended on basket-work, in less time, and with less expense than are required for the different manipulations of watering. The losses occasioned by the negligence of workmen, who, by suffering the hemp and flax to macerate too long, give time to the decomposition to reach the filaments, which renders them brittle, and occasions a considerable waste, will also be avoided. In one process, the artist can follow every moment the progress of his operation, and stop it at the favourable period. Nothing now remains but the wood, and the flax or fibrous part. The wood is a hollow tube, covered over very compactly with the flax. To separate the wood, it must be kiln-dried in order to render it frangible or brittle; but care must be taken not to apply too much heat, for fear of injuring the flax. It is next to be beaten or broken, by which means the flax is not only divided into small fibres, but most of the wood is separated, and the part which adheres is reduced to small fragments. To separate these again, the flax is to be scutched or thrashed, in some small parcels at a time, either by manual labour, or mills contrived for the purpose. Hackling is the last process; which is nothing more than drawing or combing the flax in small parcels at a time, through a pile or group of polished and sharp iron spikes, placed firmly in wood through an iron plate. The spikes are placed pretty close together: the first hackle (for different hackles must be used) is coarse, the second finer, and the third finer still.

The process of hackling answers a double or triple purpose; first, it divides the fibres of the flax, as much as this can be effected by mechanical means; secondly, it separates the minute fragments of wood which escaped the process of scutching; and lastly, it separates the short coarse flax, commonly called tow.

It would appear from the new process of Mr. Lee, who separates the woody matter from the fibre of flax without steeping it, by means of mechanical action, and then bleaches the flax by simply washing it in warm water, that the colouring matter is not chemically united with the fibrous matter, while the plant is vegetating, or after it is pulled, but that the chemical combination takes place while the plant is steeped: therefore such a mode of separating the flax fibre must be a great improvement; as saving the expense of bleaching, and preserving the strength of the linen. This mode was adopted by Mr. Lee, at Old Bow, on whole fields of flax, with the most perfect success. It was attempted in Ireland, but has not been adopted in that country.

Spinning and weaving are too well known to need description. The linen coming from the loom is charged with what they call the weaver's dressing, which is a paste of flour boiled in water; and as this is brushed into the yarn of the warp before it is woven, it is somewhat difficult to separate it when dry. To discharge this paste, the linen must be steeped in water for about forty-eight hours; when this extraneous substance undergoes a kind of fermentation, which does not extend to the substance of the linen itself, upon the same principle, that the green sap is disengaged from the flax without injury to its texture.

When the linen is well washed after this last process, it contains nothing that water can separate; it is of a greyish white colour, although the fibres of which it is composed, when divested of every adventitious substance, are naturally very white.

The matter which thus colours the linen is of a resinous nature, insoluble in water, and from its intimate union or dissemination through the very fibres of the flax, is difficult of separation, even by those substances which have a solvent power over it. To disengage it, however, in as cheap and expeditious a manner as possible, without injuring the texture of the fabric, is the sole object of the process of bleaching.

Potash is the first menstruum which should be used in bleaching. This is done by adding quick lime to the mild potash, the former having a stronger affinity for the carbonic acid than the latter. But care must be taken not to use the alkaline too strong, otherwise it will attack and destroy the fibrous part. The potash, from its solvent power over the colouring matter, dissolves and separates the part immediately exposed to its action; that is, the parts of it which rest superficially upon the fibres of the flax or thread; for it requires ten or twelve repeated boilings, at least, with the alternate agency of the atmosphere, to separate the whole of the resin.

It might be asked, why such an active solvent as potash should not carry away the whole of the resin at once, or at least as much as it alone could in any way separate? This requires an explanation. What appears to us to be a single ultimate fibre of flax in grey linen, is composed of a bundle of minute filaments closely cemented or agglutinated together by the resinous matter; the potash first used therefore acts only upon the resin of the external coating of filaments; by which means they are loosened or separated, and exposed to the further action of the air. The second boiling in potash opens a second layer, and thus, suc-

cessively, layer after layer, until the whole is divided and opened to the centre. Were the solution of potash sufficiently strong to force its way at once to the centre, it would act upon the filaments themselves, and destroy the texture of the cloth. Each filament, after the process of potash, retains an impregnation of colouring matter, so intimately united, as to resist the further action of it. This can only be removed by the slow and gradual influence of oxygen gas. From the properties of oxygen gas and potash, their manner of operating is very obvious. The oxygen gas dissolves in each boiling a certain quantity of the colouring matter, with which it forms carbonic acid gas, and partly divides the filaments that eluded the action of potash. The carbonic acid gas, from its volatility, flies off and mixes with the atmosphere. Thus alternately, the one dissolving, and the other burning out (for bleaching is slow combustion), the linen is whitened.

Mankind have at all times employed free air as the most convenient menstruum for bleaching. When tired with the slowness of its action, they assisted it by detersive leys, which abridged the process a little: and this union of boiling and exposure on the grass, formed the whole of the ancient art of bleaching. Formerly when it was necessary to bleach cloth, it was customary to immerse it in pure water, to free it from the dressing. This preliminary operation was sometimes hastened by a cold ley; the cloth was then rinsed in running water, and spread out on a meadow, round which ran a stream of limpid water that served for watering the different pieces. After being exposed in this manner some time, the cloth was washed and boiled in a fresh ley: it was then again spread out on the grass, and this operation was several times repeated, until the required whiteness was obtained. It was still necessary to wind it through soapy water, not only to give it softness and pliability, but to bleach completely the borders, which oppose the longest resistance. It was brought to its ultimate state of whiteness, by drawing it through whey, or diluted sulphuric acid. By this short description it may be seen, that a considerable time was necessary before the absorption of oxygen could take place; to hasten this operation of nature appeared impossible, until modern chemistry had demonstrated, that oxygen might be extracted, and combined with water, to be afterwards applied to substances where its influence might be necessary. To promote the speedy action of atmospheric air, or rather the oxygenous part of it, in its ordinary elastic state, is well known to be impossible. The oxygenated muriatic acid combined with water, forms the oxygenated muriatic acid gas, which is therefore only a combination of muriatic acid and oxygen; but this principle adheres but weakly to the muriatic acid. All vegetable colours are attacked by this acid, and whitened with more or less celerity, which depends on their greater or less facility of combining with oxygen. The colouring matter undergoes a real slow combustion, which terminates by the formation of carbonic acid, which escaping under the form of elastic fluid, produces what we call bleaching. In whatever manner the oxygenated muriatic acid is procured, it is evident that the oxygen adheres to it only weakly; and it is on this property that the possibility depends of producing speedily, in manufactories, that action which the atmosphere produces but slowly, and of bleaching in a space of time proportionably short. The oxygenated muriatic acid is employed in four different ways for the purpose of bleaching; first, in the state of gas alone; secondly, in the state of gas combined with water, or what is called acid; thirdly, potash is mixed with the acid to condense the gaseous vapour and destroy its suffocating odour; fourthly, oxygenated muriates, dissolved in water, are employed. The first method, viz. employing the gas, was never used but for the purpose of experiment; as the vapour is of so noxious a quality, that to breathe it is fatal, and several people fell a sacrifice to their attempts in employing it. When condensed in water, or in the state of oxygenated muriatic acid, it was found inconvenient in the large way, on account of the expence and difficulty in constructing the necessary apparatus, and the suffocating vapour which escaped.

For the discovery of the oxygenated muriatic acid, its effects on colouring matter, and its inestimable advantages, the arts are indebted to the justly celebrated Scheele. M. Berthollet lost no time in applying this curious and highly interesting substance to the most important practical uses. His experiments of bleaching by oxygenated muriatic acid proved completely successful, and he did not delay to communicate his valuable labours to the public. The new method of bleaching was quickly and successfully introduced into the manufactories of Manchester, Glasgow, Rouen, Valenciennes, and Courtray; and it has since been gradually adopted in almost all parts of Great Britain, Ireland, France, and Germany. The advantages that result from this method, which accelerates the process of whitening cottons, linens, paper, &c. to a surprising degree, in every season of the year, can be justly appreciated by commercial people only, who experience its beneficial effects in many ways, but particularly in the quick circulation of their capitals.

To save the expence of first preparing the muriatic acid, the usual practice is to mix with the oxyde of manganese muriate of soda or common salt, and sulphuric acid di-

luted with water. The sulphuric acid acts upon the salt, and disengages from it the muriatic acid, which is oxygenated by the oxyde of manganese. The proportions observed when cotton is to be bleached, are, viz.

Manganese	-	30 parts
Common salt		80
Sulphuric acid		60
Water	-	120

For linen cloth the proportions are as follow:

Manganese	-	60 parts
Salt	- -	60
Sulphuric acid		50
Water	- -	50

The better these substances are combined together, the more easily will the acid gas be disengaged by the action of the sulphuric acid.

It was found, however, that the use of the oxygenated muriatic acid alone weakened the cloth, and various methods of preventing its noxious effects upon the health of the workmen were tried without success: till it was discovered that an addition of alkali to the liquor deprived it of its suffocating effects, without destroying its bleaching powers. The process began then to be carried on in open vessels, and has been continued in this manner to the present period. The bleacher is now able to work his pieces in the liquor, and to expose every part of them to its action, without inconvenience.

Potash was at first used for this purpose; and although this advantage was unquestionably great, it was diminished by the heavy expence of the potash, which was entirely lost. Also the potash which was added to the liquor, though it did not destroy its power of bleaching, diminished it; because a solution of the oxygenated muriate of potash, which differs from this bleaching liquor in nothing but in the proportion of alkali, will not bleach at all. This is a well known fact, from which we might infer, that the oxygenated muriatic acid will lose its power of destroying the colouring matter of vegetable substances, in proportion as it becomes neutralized by potash.

It was afterwards discovered that the oxygenated muriatic acid might be combined with the alkaline earths, as lime and barytes, and also with magnesia; by this means forming oxymuriates, which were soluble in water, and had the property of bleaching. The oxymuriate of lime is at present used in almost all the bleaching-grounds. For the manner of preparing it, Mr. Tennant took out a patent; but this was contested, and determined not to be valid. It is now prepared and used by all the bleachers through the country.

If the oxygenated muriatic acid is passed through lime-water, it will combine with the lime, and form oxymuriate of lime; but as the water can only retain a small portion of lime, this was not found of much use. To cause a larger quantity of lime to combine with the oxymuriatic acid gas, the lime is mechanically suspended in the water, into which the gas is made to pass, and agitated, so as to present fresh matter to the gas. By this means, the oxymuriate of lime is formed in a very convenient manner; it is dissolved in water, and used as a bleaching liquor.

The oxymuriate of lime, in a dry state, is most commonly used for this purpose, as it can be conveniently transmitted to different parts of the country, and obtained ready prepared at a moderate expense. This is rendered fit for use in the following manner: — Two wine pipes, or any equally large vessels, are placed on end, and a plug inserted into each about ten inches from the bottom. Twenty pounds, or upwards, of the bleaching powder are to be well stirred into this tub, first with a little water, and afterwards it is to be nearly filled. It is then suffered to rest until the insoluble part of the powder falls below the plug-hole. The clear liquor, called the *stock liquor*, is now drawn off. Repeated portions of the powder are used until the insoluble part accumulates to the plug-hole: the other pipe is then used; but instead of pure water, that which has been stirred over the sediment in the former vessel is employed.

The strength of this liquor is determined by means of a graduated glass tube, called the *test-tube*. One part of indigo is dissolved in nine parts of strong sulphuric acid: this solution is to be mixed with 990 parts of water. Of this liquor, a quantity is to be poured into the test-tube, so as to fill it up to O, or the commencement of the scale. The bleaching liquor is then to be dropped gradually in, and mixed with the blue liquor by shaking the tube from time to time, till the blue is changed into a clear brown. As soon as this takes place, the degree of the scale to which the mixture reaches is observed, and the figure marked at that degree indicates the strength of the bleaching liquor; observing that the lowest degree marks the strongest. The liquor, whose strength is thus obtained, is denominated *steep-liquor*, of 1, 2, 3, 4, 5, or 6 degrees.

In all the processes of bleaching which have been hitherto described, we have seen that potash acts a distinguished part, either as an auxiliary, or as a principal agent. To find a detersive substance which might be a substitute for it, was an object of the utmost importance. Mr. Kirwan suspected that it would be found in the sulphuret of lime, and his opinion was confirmed by Dr. Higgins. Sulphur and lime are both cheap articles; they are very easily combined, and this combination completely answers the purposes of potash, without any danger

of injuring the linen. The sulphuret of lime is prepared in the following manner, for the purpose of bleaching: sulphur or brimstone, in fine powder, four pounds; lime, well slaked and sifted, twenty pounds; water, sixteen gallons; these are to be well mixed, and boiled for about half an hour in an iron vessel, stirring them briskly from time to time. Soon after the agitation of boiling is over, the solution of the sulphuret of lime clears, and may be drawn off free from the insoluble matter, which is considerable, and which rests upon the bottom of the boiler. The liquor in this state is pretty nearly of the colour of small beer, but not quite so transparent.

Sixteen gallons of fresh water are afterwards to be poured upon the insoluble dregs in the boiler, in order to separate the whole of the sulphuret from them. When this clears (being previously well agitated), it is also to be drawn off, and mixed with the first liquor; to these again thirty-three gallons more of water may be added, which will reduce the liquor to a proper standard for steeping the cloth. Here we have (an allowance being made for evaporation, and for the quantity retained in the dregs,) sixty gallons of liquor from four pounds of brimstone. Although sulphur, by itself, is not in any sensible degree soluble in water, and lime but sparingly so, water dissolving only about one seven-hundredth part of its weight of lime; yet the sulphuret of lime is highly soluble.

When linen is freed from the weavers' dressing, it is to be steeped in the solution of sulphuret of lime (prepared as above), for about twelve or eighteen hours, then taken out and very well washed. When dry, it is to be steeped in the oxymuriate of lime for twelve or fourteen hours, and then washed and dried. This process is to be repeated six times, that is, six alternate immersions in each liquor, which has been found to whiten the linen.

The use of this substance is, however, objectionable; as if the goods to be bleached contain any metallic substances, they may thus be so firmly united with them, as to occasion much time and trouble for their separation.

Having thus given an account of the general principles of bleaching, we shall particularly describe each step of the process, for the benefit of the manufacturer, who may not be sufficiently versed in the knowledge of chemistry, to apply the above principles with the necessary precision.

The bleaching of linen may be considered as comprising four distinct processes.

1st. To remove the spittle it becomes imbued with in the act of spinning; and the weaver's dressing, which is a paste of flour and water. This, as before mentioned, may be effected by immersing it for a short period in warm water, or a warm alkaline ley.

2. Immersion in strong alkaline ley. The alkali, universally employed by bleachers in Great Britain, is Russian, or American, potash. There are two methods of employing the alkaline ley, termed *boiling*, and *bucking*. The boiling consists in merely putting the goods in the ley, and letting it boil for a certain time: bucking consists in making the alkaline ley, raised to a boiling heat, pass repeatedly through the goods. There are various ways of doing this, but the following are those most generally practised:

A. The goods are placed loosely in a proper vessel, the ley in the state of boiling is suffered to pass over and run through them; this passes out at the bottom of the vessel, and is returned to the boiler.

B. The alkaline solution is put into a large boiler, having a platform of wood with holes in it, placed a little above the surface of the ley. A pipe is inserted through the middle of the platform, the lower end of which reaches near the bottom of the boiler, the upper as high as the mouth of it. The goods are placed on the platform. The steam from the boiling solution is prevented escaping, by the platform and the goods; it therefore, by its compression, forces the boiling fluid through the pipe. A kind of umbrella is placed above the pipe, which makes the boiling liquid spread all over the goods.

C. Another process is a modification of the last mentioned. The platform and its ascending pipe are placed, not in the boiler, but in a convenient separate vessel. The ley is put into this vessel below the platform; a tube passes into it, which conveys steam from a steam boiler. This raises the heat of the ley to the boiling point; and it is forced through the pipe, and spread over the goods in the manner before mentioned.

The quantity of potash required, will be about one-tenth, or one-twelfth the weight of the goods It should not be all employed at once, but in three or four distinct portions, to the same goods. The *boiling* is usually continued from four to six hours; the *bucking* until all the liquid is evaporated; which will usually be in five or six hours.

The *third* process, is to expose the goods to the action of the oxygenated muriatic acid prepared in the mode already directed. In conducting this process, it may be observed, that the whole of the solution which may be required, should not be employed on the goods at once. Those which are tolerably white may be steeped in a portion of the solution; after which they may be placed in some fresh: but the solution thus used need not be thrown away; it will do, with the

addition of a little *stock-liquor*, for goods which are not so clean.

One pound of oxymuriate of lime is capable of forming from ten to twelve gallons of liquor of one degree. The quantity required will be, from one-twelfth to one-twentieth of the weight of the goods. It is usual to repeat the process of steeping three times, in which case about $\frac{5}{12}$ of the powder should be employed in the first, $\frac{3}{12}$ in the second, and $\frac{4}{12}$ in the third. The steeping should alternate with the last two boilings or buckings.

Steeping, or immersion of the goods in this liquor, is generally used; but *wincing*, or merely passing them through it, is sometimes adopted in its stead. When wincing is used, a solution two or three times the ordinary strength may be employed.

Immersion is generally continued from six to twelve hours.

The *fourth* process consists in steeping the goods in an acid solution: this is repeated two or three times after the last two or three immersions in the oxymuriate of lime. For this purpose, a quantity of strong sulphuric acid is required, equal to about $\frac{1}{14}$ or $\frac{1}{15}$ the weight of the goods; it is diluted with sixty or eighty times its weight of water; and the steeping is continued from eight to twelve hours.

When linens are intended for printing, they require two or three additional processes in the alkaline ley, and one in acid; and the acid solution is generally used one-third stronger when they are intended for the madella copper.

It may be necessary to observe, that the goods should be washed after each process, and then pressed nearly dry; for this purpose the press of Mr. Bramah is generally employed.

Bleaching of Cotton. Cotton is a filamentous substance, or a kind of down which envelopes the seeds of the cotton plant. This plant or shrub comes originally from the East, and grows only in warm climates. This substance, after being separated from the seeds, is always charged with a coarse colouring matter, which soils it, and renders it opaque. The presence of this unctuous matter is proved by the slowness with which cotton absorbs water before it is scoured, and by the force with which it absorbs it after the operation; by which means, from being opaque, it is rendered clear and transparent. Cotton varies a great deal in its qualities, according to the different kinds, the climate where produced, and the culture employed. Its colour is sometimes yellow, and sometimes white; but in general it is of a dirty yellow.

The same general principles are applied to the bleaching of cotton, as linen. But there is a difference in applying the *second* process. Cotton goods are generally exposed to the action of lime diffused through water, so as to constitute what is called *milk of lime*. The liquid is heated to 200°, and the immersion continued from four to six hours. Two or three alkaline processes will then, generally, be sufficient. The quantity of potash required will be about $\frac{1}{30}$ the weight of the goods.

In the *fourth* or *acid* process, the quantity of acid required will be about $\frac{1}{60}$ or $\frac{1}{20}$ the weight of the goods; and it may be more diluted than for linen.

Bleaching Wool. We shall here confine ourselves to the examination of wool and silk, as the animal substances most generally employed for clothing.

Wool is a finer kind of hair with which the bodies of several animals are covered. It is composed of filaments or tubes, filled with an oily or medullary substance. The sides of these tubes are perforated with a multitude of small pores, which communicate with a longitudinal tube. By chemical analysis, wool gives a great deal of oil, and carbonate of ammonia; caustic alkaline leys dissolve it entirely. It experiences no change in boiling water; it alters very little when preserved in a place well aired; acids have very little action on it; when exposed to a strong heat it enters into fusion. An examination of these chemical facts, is necessary for understanding the principles which ought to direct the artist in the bleaching of this substance. The little action which acids have upon wool, and its unalterableness in water even when aided by heat, render it necessary to have recourse to alkaline or saponaceous leys; but its solubility in these salts shews, that great prudence and caution must be employed. In regard to acids, none have been hitherto used but the sulphureous acids obtained in the gaseous state by combustion.

In the preliminary operations to which wool is subjected, it is customary to leave a little of its grease, to secure it from insects. Wool is often freed from the grease by the farmers, when they wish to sell it at a high price; but in the subsequent manipulations, it is greased or oiled before it is combed, spun, &c.; and as this fat matter attracts dust, it dirties and thickens the stuffs. The first kind of bleaching to which wool is subjected, is to free it from these impurities. This operation is called scouring. In manufactories, it is generally performed by means of an ammoniacal ley, formed of five measures of river water, and one of stale urine; the wool is immersed for about twenty minutes in a bath of this mixture, heated to fifty-six degrees; it is then taken out, suffered to drain, and then rinsed in running water; this manipulation softens the wool, and gives it the first degree of whiteness; it is repeated a second, and even a third time, after which the wool is fit to be employed. In some

places scouring is performed with water slightly impregnated with soap; and indeed. for valuable articles, this process is preferable, but it is too expensive for articles of less value. Fulling the cloth adds still to the whiteness, and if an increased degree be necessary, it may be procured by the action of the sulphureous acid; that is to say, of the fumes of sulphur in a state of combustion, or the vapour of that acid condensed and combined with water.

Sulphuring is generally performed in an arched or very close chamber, constructed in such a manner, that the articles to be exposed to the action of the sulphur can be suspended on poles. The chamber being filled, a certain quantity of sulphur is put in a state of combustion in flat dishes, having a large surface with very little depth; the entrance is speedily shut, and all the interstices around the door are carefully stopped, to prevent the access of the atmospheric air. The acid generated by the combustion of the sulphur, penetrates the stuffs, attacks the colouring matter, destroys it, and effects the bleaching. The stuffs are left in the store some time after the deflagration has ceased. This time varies from six to twenty-four hours. They are then taken out, and made to pass through a slight washing with soap, to remove the roughness they have acquired by the action of the acid, and to give them the necessary softness. This process is imperfect at first, the acid of the sulphur acts only on the surfaces, and does not penetrate. This aerial immersion is not sufficient; the gas cannot introduce itself to a sufficient depth into the stuffs, and the superficies only are whitened. A superior method has been lately invented, which is by making use of the sulphureous acid. The sulphureous acid, or that acid generated by the imperfect combustion of sulphur, differs from the sulphuric acid (oil of vitriol), by its containing less of the acidifying principle.

Sulphureous acid gas unites very easily with water, and in this combination it may be employed for bleaching wool and silk. The sulphureous acid in this state of liquidity, may be prepared by making it traverse water in an apparatus nearly similar to that used for preparing oxygenated muriatic acid. The most economical method of obtaining it, is to decompose sulphuric acid (oil of vitriol), by the mixture of any combustible matter capable of taking from it a part of its oxygen. In exact experiments of the laboratory, when the chemist is desirous of having great purity, it is obtained by means of metallic substances, and particularly by mercury; but for the purpose of which we are treating, where great economy is required, we should recommend the most common substances. We shall therefore give the following process. Take chopped straw, or sawdust, and introduce it into a mattrass; pour over it sulphuric acid, applying at the same time heat, and there will be disengaged sulphureous acid gas (vapour of sulphur), which may be combined with water in the apparatus.

The pieces are rolled upon the reels, and are drawn through the sulphureous acid by turning them, until it is observed that the whiteness is sufficiently bright.

They are then taken out, and are left to drain on a bench covered with cloth, lest they should be stained in consequence of the decomposition of the wood by the sulphureous acid; they are next washed in river water, and Spanish white is employed, if it should be judged necessary. This operation is performed by passing the pieces through a tub of clear water, in which about eight pounds of Spanish white have been dissolved. To obtain a fine whiteness, the stuffs, in general, are twice sulphured.

According to this process, one immersion, and reeling two or three hours, are sufficient. Azuring, or bluing, is performed by throwing into the Spanish-white liquor, a solution of one part of Prussian-blue to 400 parts of water; shaking the cloth in the liquid, reeling it rapidly. The operation is terminated by a slight washing with soap, to give softness and pliability to the stuffs. The final operations of dyeing, stretching, pressing, &c. are foreign to the present subject.

Bleaching of Silk. Silk is a semi-transparent matter, spun by a caterpillar, and formed of a substance contained in its body, which becomes hard in the air. This insect inhabits warm climates, being indigenous in Asia; it was naturalized in Europe about the time of the downfall of the Roman empire. The filaments prepared by the silkworm are rolled up in a cod or ball. In this state we find it covered with a yellow varnish, which destroys its brilliancy, and renders it rough. Silk by chemical analysis gives carbonate of ammonia and oil; water at a boiling heat produces no effect upon it; alcohol makes it experience no change; but concentrated-alkaline-leys attack and dissolve it. To give splendour to silk, it must be freed from its varnish. This covering is soluble in alkaline leys. Silk is generally scoured by means of soap, by which it loses one-fourth of its weight. The matter disengaged from it is very fetid, and if the silk is not rinsed in plenty of water, putrid fermentations will take place. Even when the best soap is used, it is generally suspected that it injures the whiteness of the silk. The splendour of the Chinese silk is greater than that of the European, and the Chinese employ no soap in their operations. A slightly alkaline ley will dissolve the varnish of the

silk without using soap, and this has also been effected by the action of boiling water at a very high temperature.

The method which has been used successfully in France is as follows:

Take a solution of caustic soda, so weak as to mark only a fourth of a degree, at most, of the arcometer for salts, and fill with it the boiler of the apparatus for bleaching with steam. Charge the frames with skeins of raw silk, and place them in the apparatus until it is full; then close the door, and make the solution boil. Having continued the ebullition for twelve hours, slacken the fire and open the door of the apparatus. The heat of the steam, which is always above 250°, will have been sufficient to free the silk from the gum, and to scour it. Wash the skeins in warm water; and, having rung them, place them again on the frames in the apparatus, to undergo a second boiling. Then wash them several times in water, and immerse them in water, somewhat soapy, to give them a little softness. Notwithstanding the whiteness which silk acquires by these different operations, it must be carried to a high degree of splendour by exposing it to the action of sulphureous acid gas, in a close chamber, or by immersing it in sulphureous acid, as before recommended for wool.

Bleaching Prints, and printed Books. An application has been made of the new mode of bleaching, to the whitening of books and prints that have been soiled by smoke and time. Simple immersion in oxygenated muriatic acid, letting the article remain in it a longer or shorter space of time, according to the strength of the liquid, will be sufficient to whiten an engraving: if it is required to whiten the paper of a bound book, as it is necessary that all the leaves should be moistened by the acid, care must be taken to open the book well, and to make the boards rest on the edge of the vessel, in such a manner that the paper alone shall be dipped in the liquid: the leaves must be separated from each other in order that they may be equally moistened on both sides. The liquor assumes a yellow tint, and the paper becomes white in the same proportion; at the end of two or three hours, the book may be taken from the acid liquor, and plunged into pure water, with the same care and precaution as recommended in regard to the acid liquor, that the water may exactly touch the two surfaces of each leaf. The water must be renewed every hour, to extract the acid remaining in the paper, and to dissipate the disagreeable smell. By following this process, there is some danger that the pages will not be all equally whitened; either because the leaves have not been sufficiently separated, or because the liquid has had more action on the front margins than on those near the binding. On this account, the best way is to destroy the binding entirely, that each leaf may receive an equal and perfect immersion; and this is the second process recommended by M. Chaptal.

"They begin," says he, "by unsewing the book, and separating it into leaves, which they place in cases formed in a leaden tub, with very thin slips of wood or glass, so that the leaves, when laid flat, are separated from each other by intervals scarcely visible. The acid is then poured in, making it fall on the sides of the tub, in order that the leaves may not be deranged by its motion. When the workman judges, by the whiteness of the paper, that it has been sufficiently acted upon by the acid, it is drawn off by a cock at the bottom of the tub, and its place is supplied by clear fresh water, which weakens and carries off the remains of the acid, as well as the strong smell. The leaves are then to be dried, and after being pressed, may be again bound up. The leaves may be placed also vertically in the tub; and this position seems to possess some advantage, as they will be less liable to be torn. With this view I constructed a wooden frame, which I adjusted to the proper height, according to the size of the leaves which I wished to whiten. This frame supported very thin slips of wood, leaving only the space of half a line between them. I placed two leaves in each of these intervals, and kept them fixed in their place by two small wooden wedges, which I pushed in between the slips. When the paper was whitened I lifted up the frame with leaves, and plunged them in cold water, to remove the remains of the acid, as well as the smell; this process I prefer to the other.

"By this operation books are not only cleaned, but the paper acquires a degree of whiteness superior to what it possessed when first made. The use of this acid is attended also with the valuable advantage of destroying ink-spots. This liquor has no action upon spots of oil or animal grease; but it has been long known that a weak solution of potash will effectually remove stains of that kind. When I had to repair prints so torn that they exhibited only scraps pasted upon other paper, I was afraid of losing those fragments in the liquid, because the paste became dissolved. In such cases I inclosed the prints in a cylindric glass vessel, which I inverted on the water in which I had put the mixture proper for extracting the oxygenated muriatic acid gas. This vapour, by filling the whole inside of the jar, acted upon the prints, extracted the grease as well as ink-spots, and the fragments remained pasted to the paper."

Easy method of preparing the oxygenated Muriatic Acid.—To oxygenate the muriatic acid, nothing is necessary but to dilute it, and mix it in a very strong glass vessel with manganese, in such a manner that the mix-

ture may not occupy the whole of the glass. Air-bubbles are formed on the surface of the liquor: the empty space becomes filled with a greenish vapour, and at the end of some hours the acid may be farther diluted with water and then used. It has an acid taste, because the whole is not saturated with oxygen; but it possesses all the virtues of the oxygenated muriatic acid. This process may be followed when there is no time to set up an apparatus for distilling, in order to procure the oxygenated acid.

BLOCKS, (Ger. *Blöcke*. Du. *Blokken*. Da. *Blokke*. Sw. *Block*. Fr. *Poulies*. It. *Bozzelli*. Sp. *Montones*. Port. *Moutoes*,) on ship-board, the usual name for what we call pullies on land. They are thick pieces of wood, some with three, four, or five shivers in them, through which all the running-ropes run. Blocks, whether single or double, are distinguished and called by the names of the ropes they carry, and the uses they serve for. Double blocks are used when there is occasion for much strength, because they will purchase with more ease than single blocks.

BLOCK *Engraving*. *See* ENGRAVING.

BLOCK-TIN, pure unmixed tin, of the best quality. *See* TIN.

BLOND-LACE, (Ger. & Du. *Blonden*. Da. & Sw. *Blonder*. Fr. *Blondes*. It. *Biondi*. Sp. & Port. *Blondas*,) is manufactured of silk, in imitation of thread lace, and large quantities of it are made in different parts of France and Flanders. *See* LACE.

BLOOD-STONE, (Ger. *Blutstein*. Du. *Bloedsteen*. Da. *Blodsteen*. Sw. *Blodsten*. Fr. *Pierre Sanguine à crayon*. It. *Sanguigna*. Sp. *Piedra Sanguinaria*. Port. *Pedra Sanguinaria*. Rus. *Krowowik*. Pol. *Krwawnik*. Lat. *Hæmatites*,) or the *lapis hæmatatites*, is a mineral of a reddish colour, hard, ponderous, with long pointed needles. It is found among iron ore in great abundance. These stones are to be chosen of the highest colour, with fine striæ or needles, and as much like cinnabar as possible. Goldsmiths and gilders use it to polish their works, and in medicine it was formerly used to stop bleeding. It is also in use for trinkets.

BLOOD-WOOD, (Ger. *Blutholz*. Du. *Bloedhout*. Da. *Blodtræe*. Sw. *Blodträ*. Fr. *Bois de Sang*. It. *Legno Sanguigno*. Sp. *Palo de Sangne*. Port. *Páo Sanguinho*.) *See* NICARAGUA WOOD.

BLOOM, a mass of iron after having undergone the first hammering, called blomary.

BLOOM RASINS. *See* RASINS.

BLOTTING PAPER, (Ger. *Lösch papier*. Du. *Vloej papier*. Da. *Svöb papier*. Sw. *Planpapper*. Fr. *Papier brouillard*. It. *Carta sugante*. Sp. *Estraza, Teleta*. Port. *Papel passento or Mataborrao*. Rus. *Propuszknaja bumaga*. Pol. *Bibiela*. Lat. *Charta emporetica*,) is a paper not sized, and in which ink readily sinks: it is used in books of accounts, &c. in lieu of sand to absorb ink. It is also used by apothecaries for filtering. *See* PAPER.

BLOW-PIPE, or *Blowing-pipe*, a hollow tube, used by several artificers: as enamellers, glass-makers, jewellers, &c. It is a wind instrument for the purpose of increasing the heat of a candle or lamp, as common bellows are employed for raising the temperature of a fire or furnace. The blow-pipe is of great use in practical chemistry. The most powerful is that made by Mr. Newman (of Lisle-street, Leicester-square, London), by which a stream of a mixture of oxygen and hydrogen gasses, in a state of compression, is thrown on the object to which its influence is to be applied. It consists of a strong square box of copper, to which an apparatus for condensing the gasses in the box is attached; a bladder is affixed to the extremity of the condensing tube, by a screw-pipe with a stop-cock, for the purpose of supplying the condenser. A jet-pipe with a stop-cock is attached to the upper part of one side the box, through which the gasses issue. They are ignited at the orifice by a taper, and the subject of experiment is here introduced; there is a cylindrical cell made, extending from the top of the box or reservoir, reaching nearly to the bottom of it, and connected with it by means of a safety-valve; a piece of wire gauze terminates the base of the cell or cistern above the valve; and a similar piece is fitted to the top. A little water, to the depth of about half an inch, is placed in the cistern, the ebullition of which forms an index of safety.

BLOWING *of Glass*, one of the methods of forming the divers kinds of works in the glass manufacture. It is performed by dipping the point of an iron blow-pipe in the melted glass, and blowing through it with the mouth, according to the circumstances of the glass to be blown. *See* GLASS.

BLOWING *of Tin*, denotes the melting its ore, after being first burnt to destroy the mundic.

BLUBBER, (Ger. *Thran, Fischtran*. Du. *Thraan*. Da. & Sw. *Tran*. It. *Olio di pesce*. Sp. *Grassa, Aceite de pescado*. Port. *Azeite de pixe*. Rus. *Salo worwannoe, Worwan*. Lat. *Oleum piscinum*,) the fat of whales and other large sea-animals, of which is made train oil. The blubber is the *adeps* of the animal: it lies under the skin, and over the muscular flesh: it is about six inches in thickness, but about the under lip it is two or three feet thick. *See* FISHERY, *Greenland*.

BLUE, (Ger. *Blaussel*. Du. *Blaauwzel, Blaauw*. Da. *Bla a farve, Blau, Blausel*. Sw. *Blausell*. Fr. *Bleu démpois*. It. *Turchino d' amido*. Sp. *Polvos azules*. Port. *Azul, Azul de esmalte*. Rus. *Skorbilo*. Pol.

Lazur,) likewise called Powder Blue, or Starch Blue. *See* BLUE MAKERS.

PAINTER's BLUE is made differently, according to the different kinds of painting. In limning, fresco, and miniature, they use indifferently ultramarine, blue ashes, and smalt: these are their natural blues, excepting the last, which is partly natural and partly artificial. In oil and miniature they also use indigo prepared, as also a factitious ultramarine.

Enamellers and painters upon glass have also blues proper to themselves, each preparing them after his own manner.

BLUE, *Turnsol*, is used in painting on wood, and is made of the seed of that plant: the way of preparing it is to boil four ounces of turnsol in a pint and a half of water, in which lime has been slacked. *See* TURNSOL.

BLUE, *Flanders*, is a colour bordering on green, and seldom used but in landscapes.

BLUEING *of Metals* is performed by heating them in the fire till they assume a blue colour; particularly practised by gilders, who blue their metals before they apply the gold and silver leaf.

BLUE, *to dye skins*. Boil elder-berries or dwarf elder, then smear and wash the skins therewith, and wring them out; then boil the berries as before in a solution of alum water, and wet the skins in the same manner once or twice; dry them, and they will be very blue.

A BLUE *for painting or staining Glass*. Take fine white sand twelve ounces, zaffer and minium of each three ounces; reduce them to a fine powder in a bell-metal mortar, then putting the powder into a very strong crucible, cover it and lute it well, and, being dry, calcine it over a quick fire for an hour, take out the matter and pound it: then to sixteen ounces of this powder add fourteen of nitre powder; mix them well together, and put them into the crucible again; cover and lute it, and calcine it for two hours on a very strong fire.

BLUE, *Prussian*. This blue is next to ultramarine for beauty, if it is used in oil: this colour does not grind well in water.

BLUE-BICE is a colour of good brightness, next to Prussian blue, and also a colour of a body, and will flow pretty well in the pencil.

BLUE, *Saunders*, serves as a shade to ultramarine, or the blue-bice, where the shades are not required to be very deep; and is of itself a pleasant blue, to be laid between the light and shades of such a flower as is of a mazarine blue.

BLUE, *a fine one from Mr. Boyle*. Take the blue leaves of rue, and beat them a little in a stone mortar with a wooden pestle; then put them in water, juice and all, for fourteen days or more, washing them every day till they are rotten; and at last beat them and the water together till they become a pulp, and let them dry in the sun. This is a fine blue for shading.

BLUE, *Indigo*. This makes the strongest shade of blues, and is of a soft warm colour, when it has been well ground, and washed with gum-water, by means of a stone and muller.

BLUE, *Lacmus* or *Litmus*. This is a beautiful blue, and will run in a pen as freely as ink. It is made of lacmus, and prepared thus. Take an ounce of lacmus, and boil it in a pint of small beer wort, till the colour is as strong as you would have it; then pour off the liquor into a gallipot, and let it cool for use. This affords a beautiful colour, has extraordinary effects, and is a holding colour; if it be touched with aqua-fortis, it immediately changes to a fine crimson little inferior to carmine.

BLUE, *Japan*. Take of gum-water, what quantity you please, and of white lead a sufficient quantity; grind them well on a porphyry; then take of isinglass size, what quantity you please, of the finest and best smalt a sufficient quantity, mix them well; to which add, of your white lead before ground, so much as may give it a sufficient body; mix all these together to the consistence of a paint.

BLUE-MAKERS, make *blue* of indigo mixed with cheap materials, for the use of calico-printers, dyers, &c.; but have nothing to do with the fine colours used in painting.

BLUE-VITRIOL. *See* VITRIOL.

BLUFF-HEAD, among sailors. A ship is said to be bluff-headed that has an upright stern.

BOARD, among seamen. To go aboard signifies to go into the ship. To slip by the board, is to slip down by the ship's side.

Board and Board, is when two ships come so near as to touch one another, or when they lie side by side. To make aboard, is to turn to windward; and the longer your boards are, the more you work into the wind. To board it up, is to beat it up sometimes upon one tack, and sometimes upon another.

"She makes a good board;" that is, the ship advances much at one tack. The weather board, is that side of the ship which is to windward.

BOARDS, (Ger. *Breter*. Du. *Borden*. Da. *Bræder*. Sw. *Bräder*. It. *Assi*. Sp. *Tablas*. Port. *Taboas*. Rus. *Doski*. Pol. *Deski*. Lat. *Axes, Tabulæ*,) long pieces of timber, sawed thin for building, and several other purposes. The trees of which boards are chiefly made, are the walnut, beech, oak, fir, pear-tree, and poplar. Deal boards are imported from Memel, Norway, Narva, Stockholm, &c.

BOAT, a small open vessel, commonly wrought by oars.

The structure, and even the names of boats, are different, according to the dif-

ferent uses they are designed for, and the places where they are to be used.

The several boats, and their names, are as follow: A long-boat, a jolly-boat, a skiff, a pinnace, a water-boat, a yawl; the preceding six are boats for ships. Other boats are, a gondola, a Greenland boat, a Bermudas boat, a ballon of Siam, a horse-boat, a periaga, a pleasure-boat, a ponton, a canoe, a crucle, a curry-curry, a deal hooker, a fellucca, a ferry-boat, a praw, a flying-praw, a punt, a tilt-boat, a tod-boat, a well-boat, a wherry, &c.

The boats or wherries plying about London, are either scullers, wrought by a single person with two oars, or oars wrought by two persons, with each an oar. All boats rowed with more than four oars, above or below London-bridge, are forfeited.

BOAT, *Life*, a boat invented by one Henry Greathead, of South Shields, for the purpose of preserving the lives of shipwrecked persons. The first was launched in 1799, and so well has it answered, and indeed exceeded every expectation, in the most tremendous broken sea, that since that time many thousand lives have been saved, which otherwise must have been lost; and in no instance has it ever failed.

BOAT-SWAIN, a ship-officer, to whom is committed the charge of all the tacklings, sails and rigging, ropes, cables, anchors, flags, pendants, &c. He is also to take care of the long-boat and its furniture, and to steer her, either by himself or his mate. He calls out the several gangs and companies on board, to the due execution of their watches, works, spells, &c. He is likewise provost-martial, who sees and punishes all offenders sentenced by the captain, or a court-martial of the fleet.

BOB, or *Ball*, is a metallic weight, attached to the lower extremity of a pendulum rod, by means of a tapped adjusting nut, at such a distance from the point of suspension, as the time of a given vibration requires.

BOBBIN, or *Lace Bobbins*, (Ger. *Spitzenklöppel*. Du. *Klossen*. Da. *Kniple-stokke*. Sw. *Knoppel pinner*. Fr. *Fuseaux*. It. *Mazette, Trafusole*. Sp. *Bolillos*. Port. *Bilros*. Rus. *Bokliuschki*) a small piece of wood turned in the form of a cylinder, with a little border jutting out at each end, bored through to receive a small iron pivot. It serves to spin with the spinning-wheel, or to wind thread, worsted, hair, cotton, silk, gold, and silver.

BOCAL, or Boccale, a liquid measure used at Rome. It is equal to about half a gallon (English) wine measure.

BOCKING, or Bokking. Thus they call in Holland, what we call red-herring in English; and the French *hareng fumé*, or *soret*, smoked herring.

BOHEA, black tea, which comes from China. *See* TEA, and ASIA.

BOLE-ARMENIAC, is an earthy substance of a pale yellowish colour, inclining somewhat to red. It is ponderous, pinguious, easily friable, and of a styptic taste. It is found in the mines in Turkey, and thence brought to us. The only use of the Bole-Armeniac at present, is as a coarse red ingredient, for which purpose it is calcined and levigated, and is sold in Germany under the name of Berlin, or English red.

BOLLITO, a name by which the Italians call a sea-green colour, or artificial crystal. To prepare this colour, you must have in the furnace a pot filled with forty pounds of good crystal, first carefully skimmed, boiled, and purified, without any manganese: then you must have twelve ounces of the powder of small laves of copper, thrice calcined; half an ounce of zaffer, in powder; mix them together, and put them at four times into the pot, that they may the better mix with the glass; stirring them well each time of putting in the powder, for fear that it should swell two much and run over.

BOLLOS, in the mines of Peru, a denomination given to the ingots or bars of silver procured there from the ore, by the operation of fire, and the use of aquafortis.

BOLOGNIAN STONE, is a kind of mineral stone, found near Bologna, which when duly prepared by calcination, makes a species of phosphorus. The property of this stone is, that though it has no lucid appearance in the dark, until it undergoes a particular calcination, it becomes capable, by previous preparation, of imbibing, when exposed for a few minutes to the light of day, or even the flame of a candle, such a quantity of light, that it afterwards shines in the dark for several minutes, like a glaring coal, but without any sensible heat.

BOLSTERS, in the sea language, small cushions, or bags filled with tarred canvas, or rope-yarn, &c. and placed under the shrouds and stays, to prevent their chafing against the trestle-trees, by the motion of the mast, when the ship rocks at sea.

BOLT, among builders, an iron fastening fixed to doors and windows. Bolts are gerally distinguished into three kinds, viz. plate, round, and spring bolts.

BOLTS, in a ship, are iron pins, of which there are several sorts, according to their different makes and uses. Such as *drive bolts*, used to drive out others: *ray bolts*, with jags or barbs on each side, to keep them from flying out of their holes: *clench bolts*, which are clenched with rivetting hammers: *forelock bolts*, which have at the end a forelock of iron, driven in to keep them from starting back: *set bolts*, used for forcing the planks, and bringing them close together: *fend*, or *fender bolts*, made with long and thick heads, and struck into the uttermost bens of the ship, to save her sides from bruises: and *ring bolts*, used for

brinking to the planks, and those parts whereto are fastened the breeches and tackles of the guns.

BOLT *of Canvass*, is the quantity of 28 ells.

BOMB, in the military art, a hollow iron ball or shell filled with gunpowder, and furnished with a vent for a tube filled with combustibles, to be thrown out from a mortar.

BOMBAZINE, a kind of silk stuff originally manufactured at Milan, and thence sent into France and other countries. Since the finest wools have been encouraged in Great Britain, it is in no place manufactured better, or in larger quantities than in this kingdom.

BOMB-KETCH, a vessel carrying two ten inch mortars, four sixty-eight pounders and six eighteen pound carronades; and the mortars may be fired at as low an angle as 20 degrees: their principal use being to cover the landing of troops, and to protect our coasts and harbours. A bomb-ketch is from 60 to 70 feet long and draws eight or nine feet water.

BOND, a bond, or obligation, is a deed whereby the obligor, or person bound, binds himself, his heirs, executors, and administrators, to pay a certain sum of money, or do some other act; and there is generally a condition added, that if he do perform such act, the obligation shall be void, or else remain in full force; as performance of covenants, standing to an award, payment of rent, or re-payment of a principal sum of money with interest, which principal sum is usually half the sum specified on the bond. 2 *Black.* 340.

All persons who are enabled to contract, and whom the law supposes to have sufficient freedom and understanding for that purpose, may bind themselves in bonds and obligations. 1 *Rol. Abr.* 340.

But if the condition of a bond is impossible, at the time of making it, if it is to do a thing contrary to some rule of law, or to do a thing that is *malum in se*, the obligation itself is void. The bond of a feme covert is void, as is that of an infant. If a person is illegally restrained of his liberty, and during such restraint enters into a bond to a person who causes the restraint, the same may be avoided for duress of imprisonment. 2 *Inst.* 482.

To avoid controversies, three things are necessary to making a good obligation, signing, sealing, and delivery.

Interlineations or erasures, if in a material part, will render a bond void.

If several days are appointed for payment of money in a bond, the obligation is not forfeited, nor can be sued until all the days are past.

By 4 Ann. c. 16. " if at any time pending an action upon any bond with a penalty, the defendant shall bring into court where the action is depending, all principal money and interest due on such bond, and also all such costs as have been expended in any suit or suits in law or equity upon such bond, the said money so brought in shall be deemed and taken to be in full satisfaction and discharge of the said bond; and the court shall and may give judgment to discharge every such defendant of and from the same accordingly." sect. 14.

An example of a common bond of the simplest kind, will be sufficient for illustration, and more than that would only lead to experiments, which might be dangerous to the parties making them.

Bonds from one or more Obligors to one or more Obligees.

Know all men by these presents, That I (we), A. B. of, &c. (C. D. of, &c. and so on, if more obligors) am (are) held and firmly bound to E. F. as, &c. (and G. H. of, &c. and so on, if more obligees) in ——— pounds, (double the condition) of lawful money of Great Britain, to be paid to the said E. F. (G. H. &c. if two obligees, add or either of them; but if three or more, say, or any of them) or his (their) certain attorney, executors, administrators, or assigns, for which payment, to be well and truly made, I (we) bind myself (ourselves and each of us, by myself), my (our and either of our, when two; or our and every of our, when three) heirs, executors, and administrators, firmly by these presents, sealed with my (our) seal (seals), dated the ——— day of ———, in the ——— year of the reign of our Sovereign Lord, George the ———, by the grace of God, of the United Kingdom of Great Britain and Ireland, King, Defender of the Faith, &c. and in the year of our Lord ———.

The condition of this obligation is such, that if the above bounden ———, his heirs, executors, or administrators, do and shall well and truly pay, or cause to be paid, unto the above-named ———, his executors, administrators, or assigns, the full sum of ———*l.* of lawful money of the United Kingdom of Great Britain and Ireland, current here in England, with interest for the same, at and after the rate of 5*l.* per cent. per annum, on the ——— day of ——— next ensuing, the date of the above-written obligation, without fraud or further delay; then this obligation to be void: otherwise to remain in force, virtue, and effect.

Sealed and delivered, being first duly stamped, in the presence of }

An obligation is good though it wants a date, or hath a false or impossible date; for the date is not of the substance of the deed; and the day of the delivery of deed or obligation is the day of the date, though there is no day set forth. 2 *Co.* 5.

86. *Hob.* 249. *Stil.* 97. *Cro. Jac.* 136. 264. *Yelv.* 193. 1 *Salk.* 76.

If A. and B. enter into a bond, and set but one seal to it, and A. execute it for himself and B., with the authority and in the presence of B., it is obligatory on both. Sir *W. Jones*, 268. 4 *Term Rep.* 313.

It is to be observed that the condition of a bond must be to do a thing lawful; and therefore bonds restraining trade in general in any part of the kingdom, are unlawful and void, for they are against the good of the public, and the liberty of a freeman, and tend to a monopoly; but a condition, restraining a man from exercising a particular trade in a certain *place*, or within certain limits, if done fairly, and upon a good and lawful consideration, is good. 1 *Bac. Abr.*

Conditions of bonds are to be not only lawful but possible; and when the matter or thing to be done, or not to be done by a condition is unlawful, or impossible, or the condition itself repugnant, insensible or uncertain, the condition is void, and in some cases the obligation also. 10 *Rep.* 120. But sometimes an obligation may be single, to pay the money, where the condition is impossible, repugnant, &c. 2 *Mod.* 285. If a thing be possible at the time of entering into the bond, and afterwards becomes impossible by the act of God, the act of the law, or of the obligee, it is become void; as if a man be bound to appear next term, and dies before, the obligation is saved. *Co. Lit.* 206.

Thus a condition of a bond was, that A. L. should pay such a sum upon the 25th of December, or appear in Hilary term after in the court of *B. R.*; he died after the 25th of December, and before Hilary term, and had not paid any thing: in this case the condition was not broken for non-payment, and the other part is become impossible by the act of God. 1 *Mod. Rep.* 265. And when a condition is doubtful it is always taken most favourably for the obligor, and against the obligee.

Beside bonds to secure the payment of money, there are bonds of surety and indemnity, and these are so diversified, according to the subject matter, that it is impracticable here to do more than offer a few recently decided cases on the most common and important occurrences relating to this general title.

A. gave B. a bond to secure an annuity, and before any payment became due, A. lent B. a sum of money; on which it was agreed that B. should retain the payments of the annuity as they became due till that sum was discharged. Then B. became bankrupt: the agreement to retain was held a good plea to an action on the bond by B.'s assignees for the payments accruing after the bankruptcy. *Sturdy* v. *Arnold*. 3 *T. R.* 599.

To action of debt on bond, the defendant pleaded, that the bond was given to secure payment of the price of goods agreed to be sold and delivered in London by plaintiff to defendant, to be by the latter shipped to Ostend, and thence re-shipped to the East Indies, and there trafficked with clandestinely. Held a sufficient bar to the action, as being within stat. 9 Geo. 1. c. 21., which avoids contracts for supplying cargoes for foreign ships engaged in such a trade. *Lightfoot* v. *Tenant*. 1 *Bos.* & *Pull.* 351.

A bond with a condition that a clerk shall faithfully save and account for all monies, &c. *to the obligee and his executors*, does not make the obligor liable for money received by such clerk *in the service* of the executors of the obligee who *continue the business, and retain the clerk in the same, with other employment*. *Parker* v. *Barker*. 1 *T. R.* 287.

But such bond is not discharged by the obligees *taking in another partner*, but they may recover money received by such clerk after taking in such partner. *Bartlay* v. *Lucas*. 1 *Term Rep.* 291.

And a bond given to trustees to secure the faithful services of a clerk to a company, may be put in force notwithstanding the individuals of such company may have been charged, so as to be no longer a body consisting of the same persons. *Metcalf* Bart. v. *Bruin*. 12 *E. R.* 400.

The conditions of an indemnity bond may be restrained by the recitals, though the words of the condition import a larger liability than the recitals contemplate. *Pearsall* v. *Somerset*. 4 *Taunt. Rep*, 593.

BOND, *post obit*, one and the main condition is, that it only becomes payable after the death of some person, whose name is therein specified. They are, at best, securities of a very doubtful nature. *Lushington* v. *Waller*. 1 *H. B.* 95.

BOND, *in carpentry*, is fastening two or more pieces together either by tenanting, mortising, or dovetailing, &c.

BOND, *in masonry and bricklaying*, is when bricks or stones are so interwoven, that the joints are not made over or upon other joints, but reach at least six inches both within the wall and on the surface, as the art of building requires.

BONE-BLACK, (Ger. *Knochenschwarz*. Du. *Beenzwart*. Da. *Beensværte*. Sw. *Bensvart*. Fr. *Noir d'os*. It. *Nero d'osso*. Sp. *Negro de hueso*. Port. *Negro de osso*,) a sort of ivory-black made from burnt bones. *See* BLACK.

BONE-LACE, (Ger. *Klöppelspitzen*. Du. *Kanten*. Da. *Kniplinger*. Sw. *Spetsar*. Fr. *Dentelles* (*au fuseau*). It. *Merletti*, *Merli*. Sp. *Encajes*. Port. *Rendas*,) a thread lace manufactured in different parts of France and Flanders, with bones on a cushion, instead of bobbins, whence it takes its name. *See* LACE.

BONNET, in a ship, are small sails, fastened or laced to the bottom of the main-sail and fore-sail, in light winds, to make them larger.

BONTANS, a kind of stuff or covering, the ground being cotton interwoven in stripes with red worsted, fabricated at Cantor on the river Gambia, and forming an article of commerce, being bought up by the Europeans, who exchange them for other commodities with the inhabitants of the other coasts of Africa.

BONTIA, the wild olive of Barbadoes. This species is generally cultivated in the gardens at Barbadoes, for hedges, for which it is exceedingly proper, being an ever-green of very quick growth.

BOOK, BOOKS, (Ger. *Bücher*. Du. *Boeken*. Da. *Böger*. Sw. *Böcker*. Fr. *Livres*. It. *Libri*. Sp. *Libros*. Port. *Livros*. Rus. *Knigi*. Pol. *Ksiazki, Ksiegi*. Lat. *Libri*,) a writing or treatise on some branch of literature, composed for the instruction or amusement of the reader. The term is likewise applied to blank books, such as account and memorandum books sold by stationers, &c.

By 25 Hen. 8. c. 15. none shall buy, to sell again, printed books, ready bound, imported from beyond sea, under penalty of 6*s*. 8*d*. a book, and none shall buy any books by retail, imported by any stranger, under the like penalty.

By 3 and 4 Edw. 6. c. 10. popish books, missals, legends, and antiphoners, shall be abolished.

By 17 Car. 2. c. 4. a printed copy of every book shall be sent to the king's library, and to each of the two universities.

University printers shall deliver one copy of books printed there to the king's library, and to the vice-chancellor of each university, and two others for the public libraries there, on pain of 5*l*. each book. *Ibid.*

By stat. 7 Ann. c. 14. s. 10. if any book shall be taken, or otherwise lost out of any parochial library, any justice may grant his warrant to search for it; and if it shall be found, it shall by order of such justice be restored to the library.

By 8 Ann. c. 19. authors of books and their assigns shall have the sole right of printing them for fourteen years from the day of publishing; and others printing the same without their consent, shall forfeit the books, and one penny for every sheet.

The titles of copies shall be entered before publication, in the register-book of the company of stationers, for inspection; the clerk of the company shall give a certificate thereof for sixpence. *Ibid.*

Nine copies of each book shall be delivered to the warehouse-keeper of the company of stationers, for the use of the royal library, the libraries of Oxford and Cambridge, the libraries of the four universities in Scotland, of Sion College, and the library of the advocates at Edinburgh, within ten days after demand, on pain to forfeit the value of the books, and 5*l*. *Ibid.*

This act shall not restrain the importing of books in Greek, Latin, or any foreign language, printed beyond sea; nor extend to the right of the universities. *Ibid.*

The general issue may be pleaded by defendants, having acted under this act. *Ibid.*

After the first fourteen years the right of printing shall return to the author, if living, for other fourteen years. *Ibid.*

The author of any pamphlet shall lose all property therein if the stamp-duties are not paid; and they shall have the printer or publisher's name thereon, on pain of 20*l*. *Ib.*

By 12 Geo. 2. c. 36. the penalty of 5*l*. and double the value is inflicted on persons importing for sale books first written and printed in this kingdom, and re-printed abroad; but books not printed or re-printed in this kingdom within twenty years are excepted.

This shall not extend to books printed in England, and inserted in other larger tracts printed abroad. *Ibid.*

This act, by the last continuation of 22 Geo. 3. c. 13. was to continue in force till the year 1788, and is now expired, other provisions having been made by subsequent statutes.

By 15 Geo. 3. c. 53. the two universities in England, and four in Scotland, and the colleges of Eton, Westminster, and Winchester, shall have the sole right, for ever, of printing books which have or (not having been published or assigned) shall be bequeathed, or otherwise given by authors to any of the said universities, unless given for a term of years, or other limited time; and others printing such books forfeit the same, with one penny per sheet, half to the king, and the other to the prosecutor: but this act shall not give an exclusive right, longer than such book is printed at the universities or college press; and they are not to grant away their right, but may sell the copy, as authors can by 8 Ann. c. 19.

None are subject to penalty for printing books already given to the universities, unless entered at Stationers' Hall before 24th June, 1775, and if hereafter given they are to be entered in two months after bequest known, and sixpence paid for each entry, which is to be inspected *gratis*, and sixpence for the certificate. The whole title to be entered. *Ibid.*

By 41 Geo. 3. (U.K.) c. 107. authors of books and their assigns shall have the sole right of printing them for 14 years, and booksellers in any part of the united kingdom, or British European dominions, who shall print, re-print, or import any such books, without the consent of the proprietor, shall be liable to an action for damages, and shall also forfeit the books to the proprietor, and 3*d*. *per* sheet, half to the king, and half to the informer; and authors shall have a second 14 years' term, if living at the end of the first. Sect 1.

Trinity College, Dublin, shall for ever

have the sole right of printing books given or bequeathed to them, unless they are given for a limited time only; and persons printing such books are liable to the same penalty as in the last clause; but this is to extend only to books printed at the college press; and the college may sell their copy-rights. Sect. 3.

Booksellers shall not be liable to the penalty of 3*d.* per sheet, unless the title to the copy-right be entered by the proprietor at Stationers' Hall, London, nor if the consent of the proprietor be so entered, of which entries the clerk of the company is to give certificates, and make a half-yearly list of the books so entered for the use of Trinity College. Sect. 4.

If the clerk refuses to make entries, parties may give notice in the London Gazette, and the clerk shall forfeit 20*l.* Sect. 5.

Two additional copies of books entered at Stationers' Hall shall be delivered there for the use of the libraries of Trinity College, and the King's Inns, Dublin. Sect. 6.

No person shall import into any part of the United Kingdom, for sale, any book first composed and printed within the United Kingdom, and re-printed elsewhere; and persons importing, selling, or keeping for sale, any such books, are to forfeit the same, and also 10*l.* and double the value, which books may be seized by officers of customs or excise, and made waste paper of, and the commissioners may reward them with not exceeding their value; but this clause is not to extend to books not printed in the United Kingdom for 20 years, or books re-printed abroad, and inserted in larger works. Sect. 7.

The 54 Geo. 3. c. 156. recites the statute of the 8 Ann. c. 19., as also that of 41 Geo. 3. c. 107.; and enacts, that so much of the said several recited acts as requires that any copies of any books which shall be printed or published, or reprinted and published with additions, shall be delivered by the printers thereof to the warehouse-keeper of the said company of stationers, for the use of any of the libraries in the said act mentioned, and as requires the delivery of the said copies by the said warehouse-keeper for the use of the said libraries, and as imposes any penalty on such printer or warehouse-keeper for not delivering the said copies, shall be repealed.

And that eleven printed copies of the whole of every book and of every volume thereof, upon the paper upon which the largest number or impression of such book shall be printed for sale, together with all maps and prints belonging thereto, which, from and after the passing of this act, shall be printed and published, on demand thereof being made in writing to or left at the place of abode of the publisher or publishers thereof, at any time within twelve months next after the publication thereof, under the hand of the warehouse-keeper of the company of stationers, or the librarian or other person thereto authorised by the persons or body politic and corporate, proprietors or managers of the libraries following; *videlicet*, the British Museum, Sion College, the Bodleian Library at Oxford, the Public Library at Cambridge, the Library of the Faculty of Advocates at Edinburgh, the Libraries of the Four Universities of Scotland, Trinity College Library, and the King's Inns Library at Dublin, or so many of such eleven copies as shall be respectively demanded, shall be delivered by the publishers thereof respectively, within one month after demand made thereof in writing as aforesaid, to the warehouse-keeper of the said company of stationers; which copies the said warehouse-keeper shall receive, for the use of the library for which such demand shall be so made; and he is hereby required, within one month after any such book or volume shall be so delivered to him, to deliver the same for the use of such library: And if any such publisher, or warehouse-keeper, shall not observe the directions of this act, he and they so making default shall forfeit, besides the value of the said printed copies, the sum of five pounds for each copy not so delivered or received, together with the full costs of suit; to be recovered by action in any court of record in the United Kingdom.

Provided always, that no such copy shall be so demanded or delivered, &c. of the second, or of any subsequent edition of any such book, unless the same shall contain additions or alterations: And in case any edition after the first shall contain any addition or alteration, no printed copy thereof shall be demanded or delivered, if a printed copy of such additions or alterations only, printed in an uniform manner with the former edition of such book, be delivered to each of the libraries aforesaid: Provided also, that the copy of every book that shall be demanded by the British Museum, shall be delivered of the best paper on which such work shall be printed. Sect. 2. & 3.

And whereas by the said recited acts it is enacted, that the author of any book, and the assigns of such author, should have the sole liberty of printing and re-printing such book for the term of fourteen years. &c.; and it was provided, that after the expiration of the said term of fourteen years, the right of printing or disposing of copies should return to the authors thereof, if they were then living, for another term of fourteen years: And whereas it will afford further encouragement to literature, if the duration of such copyright were extended, the author of any book or books composed and not printed and published, or which shall hereafter be composed, and be printed and published, and his assigns, shall have the sole liberty of printing and reprinting such book or books, for the full term of *twenty-*

eight years, to commence from the day of first publishing the same, and also, if the author shall be living at the end of that period, for the residue of his natural life; and if any bookseller or printer, or other person whatsoever, in any part of the United Kingdom of Great Britain and Ireland, in the Isles of Man, Jersey, or Guernsey, or in any other part of the British dominions, shall, from and after the passing of this act, within the times granted and limited by this act, print, reprint, or import, or shall cause to be printed, &c. any such book, without the consent of the author, or other proprietor of the copyright; or, knowing the same to be so printed, &c. without such consent shall sell, publish, or expose to sale, or cause to be sold, &c., or shall have in his possession for sale, any such book, without such consent first had and obtained, such offender shall be liable to a special action, at the suit of the author, or other proprietor of such copyright: And every such author, or other proprietor, may, in such special action, recover damages, with double costs; and every such offender shall also forfeit such book, and every sheet of such book, and shall deliver the same to the author, or other proprietor; and shall also forfeit the sum of three-pence for every sheet thereof, either printed or printing, or published or exposed to sale; the one moiety thereof to the king, and the other moiety thereof to any person who shall sue for the same. Sect. 4.

And in order to ascertain what books shall be from time to time published, the publishers of every book demandable under this act, shall, within one calendar month after the day on which any such book shall be first sold, published, advertised, or offered for sale, within the bills of mortality, or within three calendar months in any other part of the United Kingdom, enter the title to the copy of every such book, and the names, and place of abode of the publisher, in the register book of the company of stationers in London (for every of which several entries the sum of two shillings shall be paid, and no more), under a penalty of the sum of five pounds, together with eleven times the price at which such book shall be sold or advertised, to be recovered, together with full cost of suit, by persons authorised to sue, and who shall first sue for the same. Provided that in the case of magazines, reviews, or other periodical publications, it shall be sufficient to make such entry in the register book of the said company, within one month next after the publication of the first number or volume. Provided that no failure in making any such entry shall in any manner affect any copyright, but shall only subject the person making default to the penalty aforesaid under this act. Sect. 5.

Provided always, that if any publisher shall be desirous of delivering the copy of such book or volume, on behalf of any of the said libraries, at such library, it shall and may be lawful for him to deliver the same at such library; and such delivery shall be held as equivalent to a delivery to the said warehouse-keeper.

And if the author of any book, which shall not have been published fourteen years at the time of passing this act, shall be living at the said time, and if such author shall afterwards die before the expiration of the said fourteen years, then the personal representative of the said author, and the assigns of such personal representative, shall have the sole right of printing and publishing the said book for the further term of fourteen years after the expiration of the first fourteen.

And if the author of any book which has been already published shall be living at the end of twenty-eight years after the first publication, he or she shall for the remainder of his or her life have the sole right of printing and publishing the same.

But all actions and suits shall be commenced within twelve months next after such offence committed, or be void and of no effect. Sect. 7, 8, 9, 10.

Respecting the composition and manufacture of books, *see titles* BOOK-BINDING and PRINTING.

BOOK-BINDING, the art of gathering and sewing together the sheets of a book, and covering it with a back, &c. which is performed thus: The leaves are first folded with a folding-stick, and laid over each other in the order of the signatures, which are the letters with the numbers annexed to them at the bottom of the pages of the first one, two, or more leaves in each sheet. The leaves thus folded are then beaten on a stone with a hammer, to make them smooth and open well, and afterwards pressed. Whilst in the binder's press they are sewed upon bands, which are pieces of cord or pack-thread; six bands to a folio book, five to a quarto, octavo, &c. which is done by drawing a thread through the middle of each sheet, and giving it a turn round each band, beginning with the first and proceeding to the last. After this the books are glued, and the bands opened and scraped, for the better fixing the paste-boards; the back is turned with a hammer, and the book fixed in a press between two boards; in order to make a groove for fixing the paste-boards; these being applied, holes are made for fixing them to the book, which is pressed a third time. Then the book is at last put to the cutting-press, betwixt two boards, the one lying even with the press for the knife to run upon, the other above it for the knife to run against: after which the paste-boards are squared. The next operation is the sprinkling the leaves of the book,

which is usually done by dipping a brush into vermilion and sap-green, holding the brush in one hand, and spreading the hair with the other; by which motion the edges of the leaves are sprinkled in a regular manner, without any spots being larger than the other.

The covers, (which are either calf or sheepskin,) being moistened in water, are next cut out to the size of the book, then smeared over with paste made of wheat flour, and afterwards stretched over the pasteboard on the outside, and doubled over the edges withinside, after having first taken off the four angles, and indented and platted the cover at the head-band; which done, the book is covered and bound firmly between two bands, and then set to dry. Afterwards it is washed over with a little paste and water, and then sprinkled fine with a brush, unless it should be marbled, when the spots are to be made larger by mixing the ink with vitriol. After this the book is glazed twice with the white of an egg beaten, and at last polished with a polishing iron passed hot over the glazed cover.

The letters or ornaments on books are made with gilding tools engraved in relievo, either on the points of puncheons, or around little cylinders of brass. The puncheons make their impressions by being pressed flat down, and the cylinders being rolled along by a handle, to which they are fitted on an iron axis. To apply the gold, the binders glaze the parts of the leather with a liquor made of whites of eggs diluted with water, by means of a piece of sponge; and when nearly dry, the pieces of gold leaf are laid on, and the tools being made hot in a charcoal fire, are applied.

BOOK-KEEPING is the art of teaching how to dispose the accounts of business, so that the true state of every part and of the whole may be easily and distinctly known. Merchants' books are kept either by single, or by double entry; the former method by retailers of merchandise, and the latter by merchants, wholesale dealers, &c.

The most considerable books, according to the Italian method of double entry, are the waste-book, the journal, and the ledger; but besides these three, which are absolutely necessary, there are several others, called auxiliary books, which are used in proportion to the business a man transacts. These books are the cash-book, the bill-book, the invoice-book, the account current-book, the commission, or order, or advice-book, the letter-book, &c. of all which we shall treat more fully hereafter.

The Waste-Book may be defined a register, containing an inventory of a merchant's effects and debts, with a distinct record of all his transactions and dealings, in the way of trade, related in a plain, simple style, and in order of time as they succeed one another. The waste-book opens with the inventory, which consists of two parts; first, the effects, that is, the cash or bills of exchange a merchant has by him, the goods he has by him, his part of ships, houses, farms, &c. with the debts due to him; the second part of the inventory consists of the debts due by him to others: the difference between which and the effects is what the merchants call neat stock.

When a man commences trade, the inventory is to be gathered from a survey of the particulars that make up his real estate, but ever after it is to be collected from the balance of his old books, and carried to the new.

After the inventory is fairly related in the waste-book, the transactions in trade come next to be entered down, which is a daily task, to be performed as they occur. The narrative ought to exhibit transactions with all the circumstances necessary to be known, and no more. It should contain the names of persons with whom the merchant deals upon trust, the conditions of bargains, the terms of payment, the quantity, quality, and prices of goods, with every thing that serves to make the record distinct, and nothing else. The waste-book, if no subsidiary books are kept, should contain a record of all the merchant's transactions and dealings in the way of trade; and that not only of such as are properly and purely mercantile, but of every occurrence that affects his stock, so as to impair or encrease it, such as private expences, servants' wages, house-rent, taxes, money gained, &c.

The Journal is the book in which the transactions recorded in the waste-book are prepared to be carried to the ledger, by having their proper debtors and creditors ascertained and pointed out: whence it may be observed, that the great design of the journal is to prevent errors in the ledger: again, after the ledger is filled up, the journal facilitates the work required in revising and correcting it; for, first the waste-book and journal are compared, and then the journal and ledger; whereas to revise the ledger immediately from the waste-book, would be a matter of no less difficulty than to form it without the help of a journal: lastly, the journal is designed as a fair record of a merchant's business, for neither of the other two books can serve this purpose. Hence it is, that in case of differences between merchants and their dealers, the journal is the book commonly called for and inspected by courts of justice.

In the journal, persons and things are charged debtors to other persons and things as creditors; and in this it agrees with the ledger, where the same style is used, but differs from it as to forms and order; so that it agrees with the waste-book in those

very things where it differs from the ledger; and, on the other hand, it agrees with the latter, in the very point where it differs from the former; but in order to state the comparison betwixt the waste-book and the journal, we shall turn two or three examples of the waste-book into a journal form.

Waste Book.

	£.	s.	d.
1st January 1818.			
Bought of Gale, Browne, and Co. 10 butts Sherry, at 95*l.* per butt, payable in 3 months,	950	0	0
2d.			
Bought of Quintin Dick, and Co. 100 pieces of Irish linen, seven-eighths wide, quantity 2500 yards, at 16*d.* per yard; per bill at 4 months - -	333	6	8
5th.			
Sold Luke Duff, 105 tierces Irish mess beef, branded *Howard and Son*, at 5*l.* per tierce, payable at 6 months - - -	525	0	0

Journal.

1st January 1818.			
Sherry Wine Dr. to Gale, Browne, and Co. 950*l.* for 10 butts, at 95*l.* per butt, payable in 3 months - - -	950	0	0
2d.			
Linen Cloth Dr. to Quintin Dick, and Co. 333*l.* 6*s.* 8*d.* for 100 pieces, quantity 2500 yards, at 16*d.* per yard, payable in 4 months - - -	333	6	8
5th.			
Luke Duff Dr. to Sales Provisions, account of Howard and Son, 525*l.* for 105 tierces beef, at 5*l.* per tierce, per bill at 6 months - - -	525	0	0

The Ledger.—The ledger is the principal book wherein all the several articles of each particular account that lie scattered in other books, according to their dates, are collected and placed together in spaces allotted for them, in such a manner, that the opposite parts of every account are directly set fronting one another, or opposite sides of the same folio.

The ledger's folios are divided into spaces for containing the accounts, on the head of which are written the titles of the accounts, marked Dr. on the left hand page, and Cr. on the right; below which stand the articles, with the word *To* prefixed on the Dr. side, and the word *By* on the Cr. side; and upon the margin are recorded the dates of the articles, in two small columns allotted for that purpose. The money columns are the same as in other books: before them stands the folio column, which contains figures directing to the folio where the corresponding ledger entrance of each article is made, for every thing is twice entered in the ledger, viz. on the Dr. side of one account, and again on the Cr. side of some other account; so that the figures mutually refer from one to the other, and are of use in examining the ledger. Besides these columns, there must be kept in all accounts, where number, measure, weight, or distinction of coins is considered, inner columns to insert the quantity; and for the ready finding any account in the ledger, it has an alphabet or index, wherein are written the titles of all accounts, with the number of the folio where they stand. How the ledger is to be posted from the journal.

1. Turn to the alphabet, and see whether the Dr. of the journal post, to be transported, is written there: if not, insert it under its proper letter, with the number of the folio to which it is to be carried.

2. Having distinguished the Dr. and the Cr. sides, as already directed, recording the dates, complete the entry in one line, by giving a short hint of the nature and terms of the transaction, carrying the sum to the money columns; and inserting the quantity, if it is an account of goods, &c. in the inner columns, and the referring figure in the folio column.

3. Next turn to the creditor of the journal post, and proceed in the same manner with it, both in the index and ledger; with this difference only, that the entry is to be made on the Cr. side, and the word *By* prefixed to it.

4. The post being thus entered in the ledger, return to the journal, and on the margin mark the folios of the accounts, with the folio of the Dr. above, and the folio of the Cr. below, and a small line between them thus $\frac{1}{2}$. These marginal numbers of the journal, are a kind of index to the ledger, and are of use in examining the books, and on many other occasions.

5. In opening accounts in the ledger, follow the order of the journal as to Dr. and Cr.; and leave a sufficient space in the ledger for the different persons' accounts, according to the extent of them, so as to prevent the necessity of transferring the accounts to different folios in the ledger. Begin with the first journal-post, allow the first space in the ledger for the Dr. of it, the next for the Cr. the third for the Dr. of the following post, if it is not the same with some of those already opened, and so on till the whole journal be transported: and supposing that, through inadvertency, some former space has been allowed too large, you are not to go back to subdivide it, in order to open another account in room thereof. Though these rules are formed

for simple posts, where there is but one Dr. and one Cr. yet they may be easily applied to complex posts.

By way of example how the journal is to be posted into the ledger, we shall give the following specimen:

LEDGER.

1818		Dr. Sherry-wine.	Fo.	£.	s.	d.				Contra,	Cr. Fo.	£.	s.	d.
Jan.	1	To Gale, Browne, and Co. as per journal	8	950	0	0								

Dr. Gale, Browne, and Co. London.									Contra,	Cr.				
							1818 Jan.	1	By Shrrey Wine, as per journal	8	950	0	0

Dr. Linen cloth.									Contra,	Cr.			
1818 Jan.	2	To Quintin Dick, and Co. as per journal	8	333	6	8							

Dr. Quintin Dick, and Co. London.									Contra,	Cr.			
							1818 Jan.	2	By Linen cloth, as per journal	8	333	6	8

Dr. Luke Duff, Dublin.									Contra,	Cr.			
1818 Jan.	5	To Sales Provisions, account of Howard & Son, as per journal	8	525	0	0							

Dr. Sales of Provisions, account of Howard & Son.									Contra,	Cr.			
							1818 Jan.	5	By Luke Duff, as per journal	8	525	0	0

Cash Book, is so called because it contains, in debtor and creditor, all the cash that comes in, and goes out of a merchant's stock, the receipts on the debtor side, the persons of whom it was received, on what, and on whose account, and in what specie, and the payment on the creditor side, mentioning also the specie, the reasons of the payments, to whom, and for what account they are made.

Invoice Book.—This book is kept to copy the invoices in, and to preserve the journal from erasures, which are unavoidable in drawing out the invoices of several sorts of merchandise received, sent out, or sold, wherein very minute particulars must be entered. It is also useful in finding out at once the particulars of each invoice without reference to the waste book, &c.

Account-Current Book.—This book contains copies of the accounts which are sent to correspondents, in order to settle them in concert, before they are balanced in the ledger.

Warehouse-Book. — This book contains a list of all the merchandise that are lodged in the warehouse, those that are taken out of it, and those that remain, by which means the warehouse stock at the end of the year is the more readily ascertained.

Book of Payments or Debts.—In this book is written down the day on which all sums become due, either to be paid or received, by bills of exchange, notes of hand (*promissory notes*), merchandise bought or sold, or otherwise. By comparing receipts and payments, one may, in time, provide the necessary funds for payments, by getting the bills, notes, &c. due to be paid, or by taking other precautions.

Bill Book. — In this book are entered the bills of exchange which merchants accept, also notes of hand, specifying the drawer, to whom payable, the date, the day when due, the sum, &c.; this book is called *Bills payable*. The reverse side of the bill-book is called *Bills receivable*, in which are entered in like manner the bills and notes with all the particulars of them, which are received in the course of business, how disposed of, &c. By reference to this book a merchant sees at once the state of all outstanding bills for and against him.

Letter Book.—Is a book which all letters are carefully copied into, with an alphabet or index annexed to it, referring to the names of correspondents, by the folio. There are several other books; as the petty cash book, postage book, &c. whose titles sufficiently indicate their various uses.

BOOM, in the sea language, a long piece of timber, with which the clew of the scudding-sail is spread out; and sometimes the boom is used to spread or boom out the clew of the main mast.

Boom denotes also a cable stretched athwart the mouth of a river or harbour; with yards, top-masts, battling, or spars of wood, lashed to it, to prevent an enemy's coming in.

BOOMKIN, in the sea language, a short bar of timber projecting from each bow of a ship, to extend one edge of the fore-sail to the windward; for which purpose there is a large block fixed to its outer end, through which the rope is passed that is fastened to the lower corner of the sail to windward, called the tack; and this being drawn tight down, brings the corner of the sail close to the block, which being performed, the tack is said to be aboard. The boomkin is secured by a strong rope, which confines it downward to the ship's bow, to counteract the train it bears from the foresail above, dragging it upwards.

BOOTS, (Ger. *Stiefel.* Du. *Laarzen.* Da. *Stövle.* Sw. *Stöflar.* Fr. *Bottes.* It. *Stivali.* Sp. and Port. *Botas.* Rus. *Sapogi.* Pol. *Boty, Sztibly,*) are manufactured for exportation in Stafford, Northampton, Shrewsbury, and many other towns in Great Britain, but the best sort are made in London. They are among the prohibited articles of importation in the Russian tariff.

BORAX, (Ger. Da. Sw. Fr. and Lat. *Borax.* Du. *Boras.* It. *Borrace, Boraso.* Sp. and Port. *Borrax.* Rus. *Bura, Borakss.* Pol. *Boraks,*) is used as a flux for metals, and enters into the composition of some of the coloured glass pastes made in imitation of gems; but its greatest use is to facilitate the soldering of the more precious metals. It is employed also as a flux by mineralogists in assaying the properties of minerals by the blow pipe. It is brought to us from the East Indies, in great masses, composed partly of large crystals, but chiefly of smaller ones, partly white, and partly green, joined together by a greasy yellow substance intermingled with sand, small stones, and other impurities. The purer crystals exposed to the fire, melt into a glassy kind of substance, (of somewhat more than half their former weight) which is nevertheless soluble in water. The rough or native *borax*, called by the Arabians *tincar* or *tincal*, which signifies a kind of nitre used for soldering gold, should be chosen in firm and solid pieces of a greenish colour, fatty to the touch, and of the most rank smell.

BORDAT, or Bordetti, a very narrow kind of stuff, manufactured in several parts of Turkey.

BOROUGH. Whatever may have been the original signification of this word, it is now usually applied to such towns or places as send representatives to the British parliament. They are distinguished into those by charter, by statute, and by prescription; technical differences, into which it is not necessary to enter here. In Scotland the term has a more extensive signification, when the epithet *Royal* is prefixed to it; for it then means one of those incorporated

places which have received the privilege of sending commissioners to a general convention in Edinburgh, to consult upon the general interests of trade, as well as those of their own particular places. This privilege they derive from a grant of their king James 3d. who invested this convention with great powers.

BOSPHORUS, in geography, a narrow streight or arm of the sea. The word is principally applied to two places, viz. the *Bosphorus* of Thrace, now usually called the streights of Constantinople; and the Cimmerian or Scythian *Bosphorus*, now called the streights of Kapha or Kiderleri.

BOSS, among bricklayers, denotes a wooden utensil in which the mortar used in tiling is to be put. It has an iron hook by which it may be hung on the laths, or on the ladder.

BOTARGO, a kind of sausage, made with the roes and blood of the sea-mullet, a large fish pretty common in the Mediterranean. The best *botargo* comes from Tunis in Barbary. It is also made in the neighbourhood of Marseilles. *Botargo*, or caviar, may be imported. 10 & 11 W. 3. c. 24.

BOTTLES, (Ger. *Bouteillen*. Du. *Bottels*. Da. and Sw. *Bouteiller*. Fr. *Bouteilles*. It. *Bottiglie, Fiaschi*. Sp. *Botellas, Limetas*. Port. *Botelhas*. Rus. *Butiülki*. Pol. *Butly, Butelki*.) Bottles manufactured in England are superior to that of any other nation, and furnish a great article of exportation. *See* GLASS.

BOTTOM, in navigation, is used to denote as well the channel of rivers and harbours, as the body or hull of a ship: thus in the former sense, we say a gravelly bottom, clayey bottom, sandy bottom, &c. and in the latter sense, alluding to the State in whose service the vessel is, a British bottom, a Danish bottom, a Dutch bottom, &c. By statute, certain commodities imported in foreign bottoms, pay a duty called petty customs, over and above what they are liable to, if imported in British bottoms.

BOTTOMRY, a marine contract for the borrowing of money upon the keel or bottom of a ship; that is, when the master of a ship binds the ship itself, that if the money be not paid by the time appointed, the creditor shall have the ship.

BOTTOMRY, is also where a person lends money to a merchant, who wants it in traffic, and the lender is to be paid a greater sum at the return of the ship, standing to the hazard of the voyage; on which account, though the interest be greater than what the law commonly allows, yet it is not usury, because the money being furnished at the lender's hazard, if the ship perishes, he shares in the loss. When the ship and tackle are brought home, they are liable as well as the person of the borrower for the money lent: but when the loan is not made upon the vessel, but upon the goods and merchandizes laden therein, which, from their nature, must be sold or exchanged in the course of the voyage; then the borrower only is personally bound to answer the contract; who therefore, in this case, is said to take up money at *respondentia*. 2 *Black*. 458.

In this consists the difference between *bottomree*, and *respondentia*, that the one is a loan upon the ship, the other upon the goods: in the former, the ship and tackle are liable, as well as the person of the borrower; in the latter, for the most part, recourse must be had to the person only of the borrower. *Ibid.*

Another observation is, that in a loan upon *bottomree*, the lender runs no risk though the goods should be lost: and upon *respondentia* the lender must be paid his principal and interest, though the ship perish, provided the goods are safe; but in all other respects the contract of *bottomry* and that of *respondentia* are upon the same footing. 2 *Black*. 458.

It is enacted by 19 Geo. 2. c. 37. that after the 1st August, 1746, every sum of money lent in bottomry, upon the ships of any subjects to or from the East Indies, shall be lent only on the ship, or the merchandise laden on board her, and so expressed in the condition of the bond; and the benefit of salvage shall be granted to the lender, his agents, &c. who only shall have a right to make assurance on the money lent; and no borrower of money on bottomry shall recover more on any assurance, than the value of his interest on the ship or effects, exclusive of the money borrowed. And if the value of his interest does not amount to the money borrowed, he shall be responsible to the lender for the surplus, with lawful interest for the same, together with the assurance, and all charges whatsoever, &c. notwithstanding the ship and merchandise shall be totally lost.

BOULINIS, or Boulignis, a copper coin, struck at Bologna, in Italy, value about one penny, British.

BOUND-BAILIFFS, vulgarly termed Bum-bailiffs, so called because they give bond to the sheriffs for the due execution of their duties.

BOUNTY, a premium paid by the government to the exporters of certain British commodities, on their taking oath, or, in some cases, giving bond, not to reland the same in England. Bounties, as they respect the fisheries, are either perpetual or temporary. The former are payable on the export of pilchards, cod-fish, ling, whether wet or dried, salmon, white herrings, red herrings, and dried sprats, being of British fishery and curing. The latter are payable on the tonnage of ships, carrying on the British and Greenland fisheries, on the quantity of fish taken in the British and Newfoundland fisheries, on the quantities

of oil, blubber, and whale-fins, taken in the southern whale-fishery.

Bounties have been granted by several statutes, on the exportation of corn, when it does not exceed stipulated prices at the port of exportation. Those trades only require bounties, in which the profits are insufficient, and the bounty is given to encourage persons to continue, or perhaps to commence a trade that may be important to the interests of the country. *See* DUTIES and DRAWBACKS.

BOW *of a ship*, that part which begins at the loof, and compassing the ends of the stem, finishes at the sternmost of the forecastle. That part upon the right-hand side of the stem, to a person on deck and looking forward, is called the starboard bow, and on the left-hand side is called the larboard bow.

BOW, *Weather*, is that part of the bow towards the wind, when a ship is close-hauled; and the other part is called the lee-bow.

BOW, *on the*, an expression to denote the position of any object, as a ship, the land, &c. appearing in the direction of some particular part of the bow. If a ship is sailing directly towards the object, it is said to be right a-head; if not, the object is said to be on the starboard or larboard, or on the weather or lee bow.

BOWER, the name of an anchor carried at the bow of a ship. There are generally two bowers, called first and second, great and little, or best and small bower.

BOW-LINE, a rope fastened near the middle of the leech or perpendicular edge of the principal square sails, by three or four subordinate parts called bridles, and leading forward towards the bow, whence it derives its name. It is always used when the wind is so unfavourable, that the sails must be all traced sideways, or close-hauled to the wind; in this situation, the bow-lines are employed to keep the weather or windward edges of the principal sails right forward and steady, without which they would be perpetually shivering, and rendered incapable of service. The bow-line is fastened by two, three, or four ropes, like a crow's foot, to as many parts of the sail; only the mizen bow-line is fastened to the lower end of the yard. This rope belongs to all sails, except the sprit-sail and sprit-topsail. The use of the bowline is to make the sails stand sharp or close, or by a wind.

"*Sharp the bow-line*," is hale it tawt, or pull it hard. "*Hale up the bow-line*," that is, pull it harder forward on. "*Check* or *ease*, or *run up the bow-line*," that is, let it be more slack.

BOWSE, in the sea language, signifies as much as to hale or pull. Thus, bowsing upon a tack, is haling upon a tack. "Bowse away," that is, pull away all together.

BOWSPRIT, or BOLTSPRIT, (GER. *Bugspriet*. DU. *Boegspriet*. DA. *Bougsprid*. SW. *Bogspröt*. FR. *Beaupré*. IT. *Buonpresso, Copresso*. SP. *Baupres*. PORT. *Gurupes*. RUS. *Buckschprit*,) a kind of mast, resting slopewise on the head of the main stem, and having its lower end fastened to the partners of the foremast, and farther supported by the fore-stay. It carries the sprit-sail, sprit-top-sail, and jack-staff; and its length is usually the same with that of the fore-mast.

BOWYERS, artificers whose employment or occupation it is to make bows. There is a company of bowyers in the city of London, first incorporated in 1623.

BOX, is a word of most extensive and diversified signification. It is used to denote a case for holding articles great, or small, from the size of a clothes-box, to that of a snuff-box. A considerable trade used to be carried on in the exportation of small ornamental boxes for various purposes, especially snuff-boxes of jewellery, gold, and inferior composition, from this country, though the French always surpassed us in the elegance of their manufacture of them. They are now among the prohibited articles of the last Russian tariff, both generally and specifically, for it prohibits boxes generally, and also enumerates snuff-boxes, sand-boxes, and spitting-boxes.

BOX-WOOD, (GER. *Buchsbaum*. DU. *Palmhout*. DA. & SW. *Buxbom*. FR. *Buis*. IT. *Busso, Bossò, Bossolo*. SP. *Box*. PORT. *Bucho, Buxo*. RUS. *Jamschit, Seleniza*. POL. *Bukspan*. LAT. *Buxus*,) is yellowish, hard, solid, even, very heavy, and takes a good polish. It is used in works of sculpture, and in instruments of music, such as violins, hautboys, flutes, flageolets, &c. also in combs, boxes, pullies, &c.

BRACELET, an ornament put round the wrist. There are some made of gold, of woven hair, of pearls, of precious stones, &c.

Bracelets are in use as well among the polite, as the most barbarous nations. The inhabitants of Madagascar make them of metal, in the form of a ring or chain. The savages of America have them of glass beads. The blacks on the coast of Guinea make them of those shells which are called cowries, or couris, in Asia, and bouges in Africa; and it is in order to get these ornaments, that they all give their richest merchandize, and even barter for those trifles the liberties of their fathers, wives, and children. The importation of them is prohibited by the last Russian tariff.

BRACES, are ropes belonging to all the yards of a ship, except the mizen, two to each yard, reeved through blocks that are fastened to pennants, seized to the yard-arms. Their use is either to square or transverse the yards.

BRACE, in writing, a term used to signify a crooked line, thus }, made at the end

of two or more articles in an account; the amount of which is usually placed in the centre of the brace. It is used also in printing, to inclose an entire passage, as a triplet in poetry.

BRACKETS, *in a ship*, the small knees serving to support the galleries, and commonly carved. Also, the timbers that support the gratings in the head are called brackets.

BRADS, a kind of nails used in building, which have no spreading heads, as other nails have. Ironmongers distinguish them by six names; as joiners' brads, flooring-brads, batten-brads, bill-brads, or quarter-heads, &c. Joiners'-brads are for hard wainscot, batten-brads for soft wainscot, bill-brads are used when a floor is laid in haste, or for shallow joists subject to warp. *See* NAIL.

BRAIL or Brails, *in a ship*, are small ropes made use of to furl the sails across; they belong only to the two courses, and the mizen-sail.

BRAN, the thin skins or husks of corn, especially of wheat, ground, and separated from the corn by a sieve or boulter. It is of wheat bran that starch-makers make their starch. The dyers reckon bran among the non-colouring drugs, and use it for making what they call the sour waters, with which they prepare the dyes.

BRANDY, (Ger. *Brantewein*. Du. *Brandewyn*. Da. *Bændevin*. Sw. *Brännvin*. Fr. *Eau de vie, Brandevin*. It. *Acquarzente*. Sp. *Aguardiente*. Port. *Aguardente*. Rus. *Wino*. Pol. *Gorzalka, Wodka*. Lat. *Vinum adustum*,) a spirituous and inflammable liquor, extracted from wine and other liquors, and likewise from the husks of grapes by distillation. Brandy is prepared in many of the wine countries of Europe, and with particular excellence in Languedoc, in Anjou, and other parts of the south of France, whence is the Coniac brandy.

In distilling brandy, the strong heavy wines are preferred. It is expected that all wines used for this purpose, should yield at least one-sixth of their quantity of spirit.

Brandy is naturally clear and colourless as water. The different shades of colour which it has in commerce arise partly from the casks in which it is kept, but chiefly from the addition of burnt sugar, saunders-wood, and other colouring matters that are intentionally added by the manufacturer, and which are neither of advantage nor disadvantage to the quality of the spirit; although it is generally admitted that the burnt sugar gives a mellowness to the flavour of the liquor, and renders it more palatable.

Besides the brandy made of wine, there is some made of beer, cyder, syrups, sugar, molasses, fruit, grain, &c.: however, these are not properly called brandy, but go under the general denomination of spirits.

Brandy is used in medicine, and in dyeing when rectified into spirit of wine, being then reckoned by the dyers among the non-colouring drugs.

The pipe contains about eighty French veltes, (about one hundred and twenty English gallons.)

This being an article of foreign manufacture, and liable to a heavy duty on importation, it has of course been the subject of every statute for regulating the duties of customs on the importation of foreign spirits, which duties of course depend on the commercial treaties with other countries respectively. Brandy distilled from *grain* of every kind is one of the articles prohibited by the Russian tariff.

BRASIL-WOOD, or Brazil-Wood. (Ger. *Brasilienholz*. Du. *Brasilichout*. Da. *Brasilientræe*. Sw. *Brasilia*. Fr. *Bois de Bresil*. It. *Legno del Brasile, Verzino*. Sp. *Brasil, Madera del Brasil*. Port. *Pao Brasil*. Rus. *Brasilskoe derewo*. Pol. *Brezylia*. Lat. *Lignum Brasilianum*.) Thus called, because it comes at first from *Brazil*, a province in South America. It is of a red colour, and very heavy. It is denominated variously, according to the places whence it is brought: thus we have Brasil from Fernambuca, Japan, Lamon, Santa Martha, and lastly Brasilleto, which is esteemed the worst. This last comes from the Antilles islands.

This wood must be chosen in thick pieces, close, sound, without any bark on it, and such as, upon splitting, if pale becomes reddish, and, when chewed, has a saccharine taste. It is much used in turned work, and takes a good polish; but is chiefly used in dyeing.

When the sulphuric acid is added slowly to a fresh watery decoction of Brasil-wood, a small quantity of red precipitate falls down, and the liquor becomes yellow. Nitric acid produces a similar change; but the liquor is orange. Most of the other acids produce red precipitates. The alkalies restore in part the colour of the liquor. The action of the solutions of tin and of alum is the most important. Alum gives a fine red precipitate in great abundance; and in this manner a fine crimson lake and carmine are sometimes prepared, which consist of alumina, united with the natural colour of the wood. Nitro-muriat of tin, added to the decoction, separates the whole of the colouring matter, which falls down in great abundance, united with the oxyde of tin, and the liquor remains colourless. The solutions of iron blocken Brasil-wood manifest the presence of gallic acid.

The colour of Brazil-wood, though very beautiful, is fugitive, and is readily darkened and rendered purple by alkalies, or by soap that contains an alkali. When it is used by dyers, they employ acids and tin to fix the colour.

BRASILETTO, (Ger. *Brasiletholz.* Du. *Brasilethout.* Da. *Brasiletholt.* Sw. *Brasiletta.* Fr. *Bresillot.* It. Sp. and Port. *Brazileto,*) the worst species of Brasil-wood. *See* BRASIL-WOOD.

BRASS, (Ger. *Messing.* Du. *Messing, Missing, Geelkoper.* Da. and Sw. *Messing.* Fr. *Cuivre jaune, Laiton.* It. *Ottone.* Sp. *Laton, Azofar.* Port. *Latao.* Rus. *Selenoi mjed.* Pol. *Mosiadz.* Lat. *Orichalcum, Aurichalcum.*) is a factitious metal, made of copper and zinc in proper proportions. It is of a beautiful yellow colour, more fusible than copper, and not so apt to tarnish. It is malleable, and so ductile that it may be drawn out into wire. Its density is greater than the mean density of the two metals. By calculation it ought to be 7. 63 nearly, whereas it is actually 8. 39; so that its density is increased by about 1-10th. The ancients do not seem to have known accurately the difference between copper, brass, and bronze. They considered brass as only a more valuable kind of copper, and therefore used the word *æs* to denote either. They called copper *æs cyprium,* afterwards *cyprium;* and this in process of time was converted into *cuprum.* The method of preparing brass is as follows: The zinc having been calcined and ground fine as flour, is mixed with fine charcoal, and incorporated, by means of water, into a mass: this being done, about seven pounds of zinc are put into a melting-pot that will contain about a gallon, and over that about five pounds of copper; this pot is let down into a wind-furnace, where it remains for eleven hours, in which time it is converted into brass. The metal then is cast, either in plates or lumps; forty-five pounds of crude zinc will produce thirty pounds, when calcined or burnt. Sometimes brass-shurff is used instead of copper; but that is not always to be procured in quantities sufficient, it being no other than a collection of old brass.

Pure brass is not malleable, unless when it is hot; for when it is cold it will break; and after it has melted twice, it will be no longer in a condition to bear the hammer at all: but in order to render it capable of being wrought, they put seven pounds of lead to a hundred weight of brass, which renders it more soft and pliable.

The most important properties of brass are, that its colour is much brighter and nearer approaching to gold than copper It is also more fusible, and less subject to rust, and to be acted upon by a vast variety of substances which corrode copper: it is likewise more capable of extension, and particularly adapted for wire.

Mr. Smeaton found that 12 inches in length of cast brass, at 32°, expanded by 180° of heat, $\frac{225}{10000}$ parts: brass wire under the same circumstances, expanded $\frac{232}{10000}$. The expansion of hammered copper is only $\frac{204}{10000}$, but that of zinc is $\frac{343}{10000}$; so that brass holds a middle place in this respect between its two component metals.

There is a vast variety in the proportions of the different species of brass used in commerce; nor is it easy to determine whether the perfection of this alloy depends on any certain proportions of the two metals. In general, the extremes of the highest and lowest proportions of zinc are from 12 to 25 parts in the 100. The ductility of brass is not injured with the highest proportion. This metal is much used in the escapement wheels, and other nicer parts of watch-making: and bars of brass very carefully made, will fetch for this work a very great price.

The use of brass is of very considerable antiquity. Most of the ancient genuine relics are composed of various mixtures of brass with tin and other metals, and are rather to be denominated bronzes. The best proportion of brass guns is said to be 1000 pounds of copper, 990 pounds of tin, and 600 pounds of brass, in 11 or 12 hundred weight of metal. The best brass guns are made of malleable metal, not of pure copper and zinc alone; but worse metals are used to make it run closer and sounder, as lead and pot-metal. *See* CANNON.

During the reigns of Hen. 7. & 8. and Edw. 6. five different statutes were passed to prevent the exportation of brass and copper in an unmanufactured state. Searchers were directed to be appointed in cities and boroughs, to see that no adulterated or bad brass, &c. was sold. These statutes, however, were loosely worded, and grown obsolete, and the two relative to the exportation, viz. the 33 Hen. 8. c. 7. and 2 & 3 Edw. 6. c. 37. are repealed by 53 Geo. 3. c. 44.

BRASS-FOUNDER. There are various sorts of founders: those who only cast for braziers' shops; others who cast buckles, studs, and bars for the sadlers; those who cast for coach-makers, &c.; but all work on the same principles, but with different moulds. *See* FOUNDERY.

BRAULS, Indian cloths with blue and white stripes: they are also called turbans, because they serve to cover those ornaments of the head, particularly on the coast of Africa.

BRAWN, the flesh of a boar soused or pickled. The animal should be of considerable age, because the older he is, the thicker will be the shield or rind, in which much of the excellence of the commodity consists.

It is the flitches only that are made into brawn; the bones of which are taken out, and the flesh sprinkled with salt, and laid in a tray, that the blood may be drawn off: then it is to be salted a little, with a sufficient addition of salt-petre to give it a pink hue, and rolled up as hard as possible. The length of the collar of brawn should be as

much as one side of the boar will bear; so that when rolled up, it may be nine or ten inches diameter.

The collar being thus rolled up, is to be boiled in a copper, or large kettle, till it is so tender, that you can run a stiff straw through it: when thoroughly cold, put it into the following pickle: To every gallon of water, a handful or two of salt, and as much wheat bran; boil them together, then drain the bran as clear as possible from the liquor: and when the liquor is quite cold, put the brawn into it.

BRAZIER, an artificer who makes kettles, pans, candlesticks, and other kitchen utensils in brass. Some of the articles manufactured by the working brazier are beaten out with the hammer, and united in their several parts by solder; others are cast, but those which are cast belong more properly to the business of the founder, excepting the polishing and finishing, which require the art of the brazier.

BRAZING, the soldering or joining in two pieces of iron together, by means of thin plates of brass, melted between the pieces that are to be joined. If the work is very fine, as when two leaves of a broken saw are to be brazed together, they cover it with pulverized borax, melted with water, that it may incorporate with the brass powder, which is added to it: the piece is then exposed to the fire without touching the coals, and heated till the brass runs.

BREAD, is ordinarily made of the flour or meal of some farinaceous vegetable, ground, and kneaded with water and yeast. In this country, bread is generally divided into white, wheaten, and household, differing from one another primarily in their degrees of purity, but secondarily in the grain from which the flour is obtained. White and wheaten bread are only bread made of wheaten flour in different stages of purification from the bran; but household bread (as the word is colloquially used) means bread of an inferior quality, whether that inferiority arise from a mixture of rice, bran, or of the flour of any other grain, as rye, or barley. More correctly, bread composed of mixed ingredients should be distinguished by the name of mixed, or maslin, bread, but is more generally called merely "*brown bread.*" The statutes for the regulation of bread-making for sale, in order to protect the public from the frauds of millers, mealmen, and bakers, are numerous —too numerous, indeed, to be even individually referred to here; but the substance of the general regulations is as follows. Some are generally applicable to the whole kingdom, some only to the metropolis; some to bread where an assize is set, some to bread where there is no assize. (*See Dick. Pract. Expos.* v. 1. p. 184. & v. 3. p. 74.) It is sufficient for the purpose here to observe, that 31 Geo. 2. c. 29. is the great foundation stone on which all the subsequent system of legislation respecting bread has been erected.

This statute enacts, that an assize of bread may be set where convenient, in proportion to the price of corn, making a reasonable allowance to the bakers for their charges, labour, and profit; and it directs by what authority, and according to what rule, such assize shall be so set; and it appears by the tables inserted, that the respective weights of the several assized loaves are to *decrease* exactly in the same ratio, as the prices of the bushel of wheat (with the allowance for baking included) *increase*. The *peck* loaf is to weigh, when well baked, 17 lb. 6 oz. avoirdupois weight, and the others in proportion; and every sack of meal is to weigh 2 cwt. and 2 qrs. neat; and from every sack of meal there ought to be produced on the average 20 peck loaves of bread. The 41 Geo. 3. c. 12. provides for the price and weight of bread of the other qualities and descriptions of bread already noticed, and directs that every loaf of inferior wheaten bread shall be marked with a Roman H, and every loaf of mixed or maslin bread with a Roman X, under severe penalties.

All the statutes, from 31 Geo. 2. in succession, make the adulteration of flour with noxious ingredients, such as alum, &c., an offence punishable, summarily, by fine; but the 36 Geo. 3. c. 22. particularly defines the meaning of the term adulteration, by declaring that it extends to any other mixture than *common salt, pure water, eggs, milk, yeast,* and *barm,* or other such leaven as shall be allowed.

And even the possession of unlawful ingredients by a miller, baker, or seller of bread, is declared to be unlawful by 31 G. 2. and punishable by fine; as well as the hindering or obstructing any person lawfully authorized from searching for the same.

These, and other statutes relating to the subject of bread, were reviewed, and their provisions extended, so far as respects the kingdom in general, by 50 Geo. 3. c. 73., and by 53 Geo. 3. c. 116.; but as the alterations introduced by these rather affect the detail than the principles of the preceding statutes, they are not necessary to be further noticed here. *See 3 Dick. Pract. Expos.* 74.

The 55 Geo. 3. c. 99. is the last statute on this subject, and only relates to the *city of London and liberties thereof, and a circle of ten miles from the Royal Exchange.* It notices all the anterior statutes, and repeals them so far as relates to the *specified limits,* and then proceeds to abolish the assize within said limits, and to re-enact most of the former provisions respecting the weight, adulteration, &c. of bread sold therein, with such variations, as rather affect the *manner of the proceedings,* than the *principle* of the provisions themselves. *Id.* p. 99.

BREECHINGS, the ropes with which the great guns are lashed or fastened to the ship's side. They are thus called, because made to pass round the breech of the gun. This term is also applied to a part of the harness by which horses are enabled to resist the propensity to acceleration of carriages on declivities.

BRENTA, a liquid measure used at Rome. *See* WEIGHTS AND MEASURES.

BREVIER, among printers, a small kind of type or letter, between nonpareil and bourgeois.

BREWING, the art of making beer or ale. Malt liquor is essentially composed of water, the soluble parts of malt and hops, and of yeast. There are several kinds of malt, which are distinguished by their colour, and the colour depends upon the mode of malting and drying. *See* MALT. Whether the pale or the brown malt is used, it must be coarsely ground, or bruised between rollers, which is to be preferred. The next consideration in brewing is the quality of the water to be employed; and here soft water is universally allowed to be preferable to hard, both for the purposes of mashing and fermentation. Transparency is however more easily obtained by the use of hard than soft water. But it is not well adapted to the brewing of porter, or such beers as require a fulness on the palate. Where there is liberty of choice, a preference should doubtless be given to that water, which, from natural purity, is equally free from saline substances and vegetable putrefactions, is totally flavourless, inodorous, and colourless; whence it is the better prepared for the reception and retention of such qualities as brewing is to communicate.

The first step in the process of brewing is mashing, which is performed in a large circular wooden vessel, shallow in proportion to its extent, and furnished with a false bottom, pierced with small holes, and moveable, or fixed a few inches above the real bottom. There are two side openings in the interval between the real, and false, bottom; to one is fixed a pipe for the purpose of conveying water into the tun, and the other of drawing the liquor out of it. The malt is to be strewed evenly over the false bottom of the same tun, and then by means of the side pipe, a proper quantity of hot water is introduced from the upper copper. The water rises up through the malt, or as it is called, the grist, and when the whole quantity is introduced, the mashing begins, the object of which is to effect a perfect mixture of the malt with the water, so that the soluble parts may be extracted by it: for this purpose, the grist is incorporated with the water by means of iron rakes, and then the mass is beaten and agitated by long, flat, wooden poles, resembling oars, which are either worked by the hand, or by machinery connected with a steam-engine, or some other moving power. When the mashing is completed, the tun is covered in to prevent the escape of the heat, and the whole is suffered to remain still, in order that the insoluble parts may separate from the liquor: the side hole is then opened, and the clear wort allowed to run off, slowly at first, but more rapidly as it becomes fine, into the lower or boiling copper.

The chief thing in mashing is temperature of the mash, which depends on the heat of water, and on the state of the malt. If the water were let in upon the grist boiling hot, the starch which it contains would be dissolved and converted into a gelatinous substance, in which all the other parts of the malt, and most of the water, would be involved beyond recovery. The most eligible temperature appears to be 185° to 190° of Fahrenheit: for the first mashing the heat of the water must be somewhat below this temperature, and lower in proportion to the dark colour of the malt made use of; for pale malt, the water may be 180°, but for brown, it ought not to be more than 170°. The wort of the first mashing is always by much the richest in saccharine matter; but to exhaust the malt, a second and a third mashing is required, in which the water may be safely raised to 190° or upwards. The proportion of wort to be obtained from each bushel of malt, depends entirely on the proposed strength of the liquor. It is said that 25 or 30 gallons of good table beer may be taken from each bushel of malt. For ale and porter of superior kinds, only the produce of the first mashing, or six or eight gallons, is to be employed. Brewers make use of an instrument called a saccharometer, to ascertain the strength and goodness of the wort, though it shows the specific gravity of the wort, rather than the exact quantity of saccharine matter which it contains.

Boiling and hopping. If only one kind of liquor be made, the produce of the three mashings is to be mixed together; but if both ale and table-beer are required, the wort of the first, or of the first and second mashings is appropriated to the ale, and the remainder is set aside for the beer. All the wort destined for the same liquor, after it has run from the tun, is transferred to the large lower copper, and mixed with a certain proportion of hops. The better the wort, the more hops are required. In private families, a pound of hops is sometimes used to every bushel of malt: but in public breweries, a much smaller proportion is deemed sufficient. When both ale and table-beer are brewed from the same malt, the usual practice is to put the whole quantity of hops in the ale wort, which having

been boiled some time, are to be transferred to the beer wort, and with it to be again boiled; but in private families, where good small beer is sometimes considered a great luxury, a small quantity of fresh malt, as well as of fresh hops, is usually added for the beer.

When the hops are mixed with the wort in the copper, the liquor is made to boil, and the best practice is to keep it boiling as fast as possible till upon taking a little of the liquor out, it is found to be full of small flakes like those of curdled soap.

The boiling copper is in common breweries uncovered; but in many on a very large scale, it is fitted with a steam-tight cover, from the centre of which passes a pipe, that terminates by several branches in the upper or mashing copper: the steam, therefore, produced by the boiling, instead of being wasted, is let into the cold water, and thus raises it very nearly to the temperature required for mashing, besides impregnating it very sensibly with the essential oil of the hops, in which the flavour resides.

When the liquor is boiled, it is discharged into a number of coolers, or shallow tubs, in which it remains until it becomes sufficiently cool to be submitted to fermentation. It is necessary that the process of cooling should be carried on as expeditiously as possible, particularly in hot weather, and for this reason, the coolers in the great brewhouses are very shallow. Liquor made from pale malt, and which is intended for immediate drinking, need not be cooled lower than 75 or 80 degrees: of course, this kind of beer may be brewed almost in the hottest weather: but beer brewed from brown malt, and intended to be kept, must be cooled to 65 or 70 degrees, before it is put into a state of fermentation. Hence the spring and autumn have ever been deemed the most favourable seasons for the manufacture of the best malt liquor.

Tunning and barrelling. From the coolers the liquor is to be transferred to the working tun, and with it is to be mixed a gallon of yeast to four barrels of beer. In four or five hours the fermentation begins, and it requires from 18 or 20 hours to 48, before the wort is fit to be put into barrels. In the barrels the fermentation again goes on, and during a few days, a copious discharge of yeast takes place from the bung-hole, and care must be taken that the barrels are carefully filled up every day with fresh liquor: this discharge gradually becomes less, and in about a week it ceases; at which time the bung-hole is closed, and the liquor is fit for use after it has stood a certain time according to its strength, and the temperature at which it has been fermented.

All public breweries are subject to the laws of excise, as well as to other statutable regulations. *See 3 Dick. Pract. Expos. 6.*

BREWING, among distillers, denotes the method of extracting the more soluble parts of vegetables with hot water, and thus procuring a solution or decoction fit ted for vinous fermentation. In this sense brewing is a necessary step towards distillation. A fermentable solution fit for yielding a spirit, is obtainable from almost any vegetable, under proper management. Malt is generally used in England, and brewed for this purpose. The worst malt will serve for distillation; and the infusion or wort, without the addition of hops, and the trouble of boiling, is here directly cooled and fermented. *See* DISTILLING.

BRIBERY, (from the Fr. *briber*, to devour or eat greedily,) is a high offence, where a person in a judicial place takes any fee, gift, reward, or brocage, for doing his office, but of the king only. *3 Inst.* 145. But taken largely, it signifies the receiving or offering any undue reward to, or by any person concerned in the administration of public justice, whether judge, officer, or the like, to act contrary to his duty; and sometimes it signifies the taking or giving a reward for a public office. *3 Inst.* 9. To take a bribe of money, though small, is a great fault; and judges' servants may be punished for receiving bribes. And though a bribe be refused, the offerer is punishable. *Fortescue*, c. 51.

BRICKS, (Ger. *Ziegelsteine.* Du. *Tegelsteenen.* Da. *Tegle, Tegelestene.* Sw. *Tegel, Tegelstenar.* Fr. *Briques.* It. *Mattoni.* Sp. *Ladrillos.* Port. *Ladrilhos.* Rus. *Kirpitsch.* Pol. *Cegly,*) are made of earth, of the aluminous or argillaceous kind, formed into shape by means of a wooden mould, and then baked or burnt. The common bricks are parallelograms, of which the length and breadth are prescribed by statute; viz. by 17 Geo. 3. c. 42. all bricks made in England for sale shall be 8½ inches long, 2½ inches thick, and 4 wide; and all pantiles 13½ inches long, 9½ inches wide, and ½ inch thick; on pain of forfeiting for bricks or tiles made of less dimensions when burnt, as follows, viz. 20*s.* for every 1000 of bricks, and 10*s.* for every 1000 of pantiles. *Ibid.*

Mashes of sieves, for screening sea-coal ashes, not to be more than a quarter of an inch asunder. *Ibid.*

Bricks, amongst us, are various, according to their various uses, methods of making, &c. There are, compass bricks, of a circular form, used in steyning walls: concave, or hollow bricks, on one side flat like a common brick, on the other hollowed, and used for conveyance of water; feather-edged bricks, cogging bricks, coping bricks, paving bricks, and others.

Statute bricks, or small common bricks, ought, when burnt, to be nine inches long, four broad, and two and a half thick.

The art of brick making is, in almost all

its branches, regulated by different acts of parliament. Bricks are made of clay mixed with sand or ashes, or with both. The clay is first moistened and tempered with water, to render it fit for moulding into bricks. Several persons are usually employed in making a single brick: these are called a gang, and they consist of one or two men, a woman, and two children, to each of whom is assigned a different department in the occupation. A gang in full work will make many thousand bricks in the course of a week. When the bricks are made and sufficiently dried, they are burnt in a kiln. The great art in this part of the process is in piling the bricks, so that the fire may circulate through every course, and in all directions. Bricks, when finished, are of different colours, according to the clay of which they are made. Woolpit, in Suffolk, is celebrated for a species of beautiful *white* brick.

The brick-trade is under the excise, and the persons employed in it must give proper notice to the officers of excise, before they begin to work, of their names and places of abode, sheds, warehouses, &c.; and the officers may, at any time, enter and take accounts of the bricks, either on the field, or whilst drying in the shed; and removing, or fraudulent concealment, or obstructing the officers, incurs a forfeiture of such bricks and tiles, with several other penalties.

Brickmakers, or their workmen, are to make entries in writing, upon oath, specifying the quantities and sorts of bricks, tiles, &c. and to pay the duties within six weeks after making their entries, under penalty of 50*l.* and double duties.

Bricks and tiles, for which all duties have been paid, exported, are entitled to drawbacks; but six hours' notice must be given to officers, and the exporters are to give security for due exportation in treble the amount; and if such bricks or tiles are landed after having been shipped, they shall be forfeited, together with the penalty of the bond.

Persons making bricks of more than ten inches in length, three thick, and five in width, except draining bricks, shall pay an additional 5*s.* per thousand.

The 17 Edw. 4. c. 4. was the first statute which regulated the making of tiles. For exemptions from duty on tiles for purposes of drainage, *see* 34 Geo. 3. c. 15. 42 Geo. 3. c. 93. 46 Geo. 3. c. 153. and 55 Geo. 3. c. 176.

BRIDLE-CUTTER. This is a business set up to serve the sadler, in the same manner as the leather-cutter is set up for the service of the shoe-maker: and his business differs from that of the leather-cutter (who cuts out and retails the leather for shoes) in his cutting out and selling only the leather for saddles and bridles to the saddler who makes them up.

BRIGANTINE, a light small ship. It is also applicable to a coat of mail, a kind of ancient defensive armour, consisting of thin jointed scales of plate, pliant and easy to the body.

BRILLIANTS, (Ger. *Brillianten.* Du. *Brillanten.* Da. and Sw. *Brillanter.* Fr. *Brillants.* It. *Brillanti.* Sp. *Brillantes.* Port. *Brilhantes.* Rus. *Brilianti*). The finest diamonds. *See* DIAMOND.

BRIMSTONE, (Ger. *Schwefel.* Du. *Zwafel, Zolfer.* Da. *Svovel.* Sw. *Swafvel.* Fr. *Soufre.* It. *Zolfo, Solfo.* Sp. *Azufre.* Port. *Enxofre.* Rus. *Sjera.* Pol. *Siarka.* Lat. *Sulphur.*) *See* SULPHUR. *Brimstone medals,* figures, &c. may be cast from a composition consisting of equal weights of sulphur and vermilion melted together. When cleared the composition may be cast in a mould smeared with oil. If it should change to a yellowish hue, wet it with aqua-fortis, and it will have the appearance of fine coral.

BRINE-PANS, the pits in which salt water is retained, and suffered to stand, to bear the action of the sun, by which it is converted into salt.

BRINE-PIT, the salt spring from which the water to be boiled into salt is taken. There are many of these springs in this country; that at Nantwich, in Cheshire, is said to be sufficient to yield salt for the whole kingdom.

BRING-*to,* is to check or retard the velocity or rate of sailing of a ship, by arranging the sails in such a manner, that they shall counteract each other, and thus preventing her either from advancing a-head, or getting stern-way.

BRINING of grain, the practice of immersing it in some sort of liquor or pickle to prevent smut, or other diseases, and also to guard it from the ravages of insects. Mr. Arthur Young, in his Farmer's Calendar, says, that from various experiments it appears, that steeping wheat from twelve to twenty-four hours in a ley of wood-ashes, in lime-water, and in a solution of arsenic, will give clean crops from extremely smutty seed.

BRINING of hay, the blending of salt with hay in the operation of stacking, to preserve and render it palatable. This practice is useful in rainy seasons, and it prevails chiefly in America. It has been discovered to be a sovereign preventive against the rot in sheep.

BRISTLES, (Ger. *Borsten.* Du. *Borstels.* Da. *Börster.* Sw. *Borst.* Fr. *Soies.* It. *Setole.* Sp. *Cerdas, Setas.* Port. *Sedas, Cerdas.* Rus. *Schtschetina.* Pol. *Szezeciny,*) the strong hair standing on the back of a hog, or wild boar. They are put to several uses, particularly in making various sorts of

brushes. Wild boars' bristles are much stronger than hogs', and are much more valued; but they are also much dearer. Shoe-makers, harness-makers, and saddlers, use them, by putting one of them as a needle or awl at the end of their thread, to sew their work. Bristles are principally imported from Russia.

BROCADE, (Ger. *Brokat*. Du. & Sw. *Brokade*. Da. and Fr. *Brocade*. It. *Broccato*. Sp. & Port. *Brocado*. Rus. *Partscha*. Pol. *Zlotoglow*,) a stuff composed of gold, silver, or silk, raised and enriched with flowers, foliages, and other ornaments, according to the fancy of the manufacturers. Formerly the word signified only a stuff, woven all of gold, both in the warp and in the woof, or all of silver, or of both mixed together; thence it passed to those of stuffs in which there was silk mixed, to raise and terminate the gold and silver flowers: but now all stuffs, even those of silk alone, whether they are grograms of Tours or of Naples, satins, and even taffeties or lustrings, if they are but adorned and worked with some flowers, or other figures, are called brocades.

BROKER, a name given to persons of several and very different professions, the chief of which are exchange-brokers, stock-brokers, pawn-brokers, and brokers simply so called, who sell household furniture, and second-hand apparel.

BROKERS, *Exchange*, are a kind of agents or negotiators, who contrive, propose, and conclude, bargains between merchants, and between merchants and tradesmen, in matters of bills of exchange, or merchandise, for which they have so much commission. These, by the statute of 8 & 9 W. 3. are to be licensed in London by the Lord Mayor, who administers to them an oath, and takes bond for the faithful execution of their offices. If any person shall act, as a broker, without being thus licensed and admitted, he shall forfeit the sum of 500*l*. and persons employing him 5*l*. and brokers are to register contracts, &c. under the like penalty: also brokers shall not deal for themselves, on pain of forfeiting 200*l*. They are to carry about with them a silver medal, having the king's arms, and the arms of the city, and pay 40*s*. a-year to the chamber of the city. The exchange-brokers make it their business to know the alteration of the course of exchange, to inform the merchant how it goes, and to give notice to those who have money to receive or pay, beyond sea; they are the proper persons for negotiating the exchange, and when the matter is accomplished, that is, when the money for the bill is paid, and the bill delivered, they have for brokerage 2*s*. for every 100*l*. sterling.

BROKERS, *Stock*, are those employed to buy and sell shares in the joint stock of a company, or in the public funds. The negotiations of these brokers are regulated by certain acts of parliament, which, among other things, enact, that contracts in the nature of wagers, incur a penalty of 500*l*. and by the sale of stock, of which the seller is not possessed, and which he does not transfer, a forfeit of 100*l*.; and contracts for the sale of any stock, of which the contractors are not actually possessed, or to which they are not entitled, are void, and the parties agreeing to sell, &c. incur a penalty of 500*l*. Brokers keep a book in which all contracts, &c. shall be regularly entered. 7 Geo. 2. c. 8. and 10 Geo. 2. c. 10.

BROKERS, *Pawn*, are persons who keep shops, and lend money to necessitous people, upon pledges on interest. This trade is regulated by statutes, which prevent the demand of exorbitant interest; which prohibit pawnbrokers from purchasing goods in their custody, and from lending money to any person appearing to be under twelve years of age, or intoxicated. *See further title* PAWNBROKERS.

BROKERS, simply so called in their character of appraisers and sellers of goods distrained for rent, are regulated by 57 G. 3. c. 93. which enacts that no *such person* making any distress for rent where the sum due does not exceed 20*l*., shall take more than the following sums; viz.

For levying - -	£0	3	0
For men keeping possession, per day - - -	0	2	0
Advertisements, if any -	0	10	0
Catalogues, sale, commission, &c. in the pound on the net produce	0	1	0
Stamp duty - -			

under a penalty of treble the amount of the money unlawfully taken, with costs, to be recovered summarily before a justice of the peace.

BROKERAGE, is a commission, or per-centage paid by merchants to brokers either for the sale or purchase of goods, bills of exchange, stock, &c.

BRONZE, (Ger. *Stückgut*, *Stückmetall*. Du. *Stückgoed*. Da. *Stykmetal*. Sw. *Canonmetall*. It. *Bronzo*. Sp. *Metal de Canones*. Port. *Metal de cannoes*. Lat. *Metallum tormentorum*,) a compound metal, composed of from 6 to 12 parts of tin combined with 100 parts of copper. This alloy is heavier than copper, and possesses more tenacity; it is more fusible, and less liable to be altered by exposure to the air. This composition is used for the fabrication of cannon as well as medals.

BRONZES, a name given by antiquarians to figures either of men or beasts, to urns, and, in general, to every piece of sculpture which the ancients made of bronze. We likewise give the name of bronzes to statues and beasts of bronze, whether the pieces be copies of antiques, or original subjects. *See title* BUSTS.

BRONZING, the art of varnishing wood, plaister, ivory, &c. so as to give them the colour of bronze. There are two sorts of compositions used for this purpose, the red and the yellow; the latter is made of the finest copper dust, and to the former is added a small quantity of red ochre, well pulverized. Both are applied with a varnish, and the work is dried over a chafing-dish as soon as bronzed.

BROOMING, or Breaming, a ship, is burning off the filth she has contracted on her sides, with furze, straw, reeds, &c.

BROOMS, (Ger. *Besen.* Du. *Bezemen.* Da. *Koste.* Sw. *Qvastar.* Fr. *Balais.* It. *Scope, Granate.* Sp. *Escobas.* Port. *Vassouras.* Rus. *Metlii.* Pol. *Miotly,*) are principally made of birch or heath. Vast quantities are manufactured in Southwark, for the supply of the London market.

BROWN, among dyers, painters, &c. a dusky colour, inclining towards redness. Of this colour there are various shades or degrees, distinguished by different appellations; as Spanish-brown, a sad-brown, a tawny-brown, London-brown, a clove-brown, &c.

Spanish-brown is a dark dull red, of a horse-flesh colour. It is an earth, and is of great use among painters, being generally used as the first and priming colour laid upon any kind of timberwork in house-painting. That which is of the deepest colour, and freest from stones, is the best. Though this is of a dirty brown colour, yet it is not much used to colour any garment, unless it be an old man's gown; but to shadow vermilion, or to lay upon any dark ground behind a picture, or to shadow yellow berries in the darkest places, when lake is wanted, &c. It is best and brightest when burnt in the fire till it is red-hot, although to colour a hare, horse, dog, &c. it should not be burnt; but, for other uses, it is best when it is burnt, as for instance, for colouring wood, posts, bodies of trees, or any thing else of wood, or any dark ground of a picture.

The method of dyeing browns, is by plunging cloth in a boiling bath of red wood ground and nutgalls bruised; and when it has boiled for two hours and a half, and has been cooled and aired, it is plunged again in the same bath, to which a proportionable quantity of copperas must first be added. The more dull you would have the brown, the more copperas must be in.

BRUISER, the name of a concave tool used for grinding and polishing the specula or glasses of telescopes. It is made of brass about a quarter of an inch thick, and hammered as near the gauge as possible. It is tinned on the convex side, and made equally broad at the bottom and top. By this instrument the speculum is prepared for the hands of the polisher.

BRUSHES, (Ger. *Bürsten.* Du. *Borstels.* Da. *Börster.* Sw. *Borstar.* Fr. *Brosses.* It. *Setole, Spazzole.* Sp. *Brozas, Cepillos, Escobillas.* Port. *Escovas.* Rus. *Schtschetki.* Pol. *Szczotki,*) are made with hogs' bristles, which are picked, combed, and cut into lengths for the various kinds of brushes; as clothes-brushes, shoe-brushes, hat-brushes, comb-brushes, &c. The wooden part of the brush is formed with an instrument similar to that used by the last-makers.

BRUTE-WEIGHT, is the *gross* weight of cases, or packages of merchandise, without the deduction of tare or tret.

BUCCANEERS, a sort of rovers at sea, who cruise about in privateers to take all the vessels and small craft they can meet with. This denomination was given by the French to some of the natives of the West Indies who opposed them, and has been commonly bestowed on all sorts of predatory warfare both by sea and land.

BUCENTAUR, a galeass, or great galley of the doge of Venice, adorned with fine pillars on both sides, and gilt over from the prow to the stern.

BUCKLER, a piece of defensive armour used by the ancients. It was worn on the left arm, and was composed of wickers woven together, or wood of the lightest sort, but most commonly of hides, fortified with plates of brass or other metal.

BUCKLES, (Ger. *Schnallen.* Du. *Gespen.* Da. *Spænder.* Sw. *Spännar.* Fr. *Boucles.* It. *Fibbie.* Sp. *Hebillas.* Port. *Fivelas.* Rus. *Präshki.* Pol. *Przaczki,*) are manufactured of silver, steel, brass, iron, &c. of every description, at Birmingham. Shoe-buckles, though formerly worn by all ranks of persons in this country, are at present very little in use. We have no great demand for them from abroad.

BUCKRAM, (Ger. *Schetter, Steife Leinwand.* Du. *Trielfe.* Da. *Dvælg, Dvelg.* Sw. *Dvelk, Dvälk.* Fr. *Bougran.* It. *Tela collata o gommata.* Sp. *Bucaran.* Port. *Olandilha.* Rus. *Kleanka.* Pol. *Plotno, Krezepkie grube,*) a sort of coarse cloth made of hemp, gummed, calendered, and dyed several colours. It is put into those places of the lining of a garment which are to be stiff, and intended to keep their forms. Sometimes new pieces of linen cloth are used to make buckrams, but most commonly old sheets and pieces of old sails.

BUCK-WHEAT, (Ger. *Buchweizen.* Du. *Boekweit.* Da. *Boghvede.* Sw. *Bohvete.* Fr. *Sarrasin, Blé noir.* It. *Grano, Saraceno, Faggina, Fraina.* Sp. *Trigo Saraceno, Trigo negro.* Port. *Trigo Saraceno, seu negro.* Rus. *Gretscha.* Pol. *Tatarea, Gryka, Pohanca.* Lat. *Fagopyrum.*) This wheat is a native of Africa, but is so hardy that it will thrive in almost every soil and climate. It grows to a large size; when ripe is of a deep yellow colour, and yields a very fair

flour, although the outer skin of the grain is blackish. Its chief excellence consists in food for poultry.

BUDDUNCAS, a species of Bengal muslins. *E. Ind. Co.*

BUFF, (Ger. *Büffel, Büffelhäute.* Du. *Buffelsleêr, Buffelshuiden.* Da. *Böffelæder, Böffelhuder.* Sw. *Buffelhudar.* Fr. *Buffle, Peau de buffles et Peaux passées en buffles.* It. *Bufalo, Cuojo di bufalo.* Sp. *Ante.* Port. *Couro de bufalo,*) a sort of leather prepared from the skin of the buffalo, dressed with oil, after the manner of chamois. This makes a very considerable article in the French, English and Dutch commerce at Constantinople, Smyrna, and along the coast of Africa. The skins of elks, oxen, and other like animals, when prepared after the same manner as that of buffalo, are likewise called *buffs.* Of buff-skin, or buff-leather, are made a sort of coats for the horse or *gens d'armes* of France, likewise bandaliers, belts, pouches, and gloves.

BUFFALO, a kind of wild ox, or bull, whose hides are an article of commerce, and are imported from America in large quantities.

BUFONITES, a fossil, called the *toad-stone.* It is usually of one uniform colour; but some are found mottled and variegated, the yellowish ones with black, and the brown with a pale greyish colour. Some few are found with a spot in the centre, surrounded with a number of concentric circles of various colours. These are the most beautiful of all.

BUGGASINS, a name given to buckrams made of calico.

BUGLES, (Ger. *Glasperlen, Glaskorallen.* Du. *Venetiaanse parlen.* Da. *Glaskoraller.* Sw. *Glaspärlor.* Fr. *Verroterie, Rassade, Rocaille.* It. *Contaria, Margheritine.* Sp. *Abalorios, Rocalla, Vidrieria.* Port. *Missanga, Aljofar.* Rus. *Bisser i Dekui.* Pol. *Koralki sklane,*) are small glass beads of different colours, of which large quantities are exported to Africa, and there bartered on the coast, for slaves, ivory, gums, &c. &c.

BUILDINGS, *laws concerning.* The buildings of London are regulated by what is denominated the Building-act, which repeals and amends several former acts for the same purpose. It was passed in the year 1774, and begins by dividing all buildings into seven rates or classes, for the purpose of subjecting them to various regulations respecting the thickness of the walls, &c. Surveyors of districts are appointed to see the rules and regulations of this act properly complied with. Before any building is begun to be erected, the master workman is bound to give twenty-four hours notice to the surveyor, who is to attend and view the building, and enforce the observance of the act. The fees to be paid by the builder to the surveyor are, for a building of the first rate 3*l.* 10*s.* and for an alteration or addition 1*l.* 15*s.*: for a building of the second rate, 3*l.* 3*s.* and for an alteration, 1*l.* 10*s.*: for the third rate, 2*l.* 10*s.* and 1*l.* 5*s.*; and for a fourth rate, 1*l.* 1*s.* and 15*s.*

The following is an abstract of the 14th Geo. 3. c. 78. which reduces into one act all preceding acts relative to building.

All buildings in London and Westminster and within the bills of mortality, Saint Mary-le-bone and Paddington, Saint Pancras and Saint Luke at Chelsea, of whatever description such building may be, shall be divided into seven rates or classes, which shall be under the following regulations:

Every church, chapel, meeting-house, and other place of public worship, and every house or building for distilling and brewing of liquors for sale, for making soap, melting tallow, for dyeing, boiling, or distilling turpentine, casting brass or iron, refining sugar, making glass or chemical works for sale, of whatever dimensions soever, and every warehouse or other building not being a dwelling-house, new-built, or hereafter to be built (except such buildings hereinafter declared to be of the fifth, sixth, or seventh rates), which shall exceed three stories above ground, exclusive of the rooms (if any) in the roof, or which shall be of the height of thirty-one feet from the surface, ground, or way, above the area before either of the fronts thereof, to the top of the blocking-course or coping, on the parapet; and every dwelling-house, with the offices thereunto belonging or connected, otherwise than by a fence or fence-wall, or covered passage open on one or both sides when finished, exceeding the value of 850*l.*; and every dwelling-house exceeding nine squares of buildings on the ground-floor, each square containing one hundred superficial feet, shall be deemed the first class of building; the under side of the ground-floor, and from thence, of the thickness of one inch in length, or eight inches and a half, at least, up to the under side of the blocking-course, increasing on the parapet of every such fourth-rate building.

Thickness of party walls, to the fourth rate. — At the foundation, two bricks in length in thickness, or one foot five inches and a half, gradually diminishing two inches and a quarter to the top of the footing in every such wall, such footing to be at least nine inches high, and full two inches below the upper surface of the pavement and flooring boards of the cellar; such party-wall, from the top of such footing, shall be of the thickness of one foot and a half in length, or thirteen inches, at least, up to the under side of the ground-floor; and from thence of the thickness of one brick in length, or eight inches and a half, at least, up to the top of every such party-wall.

Fifth Rate.—Every building which shall be at the distance of four, and within eight feet, from any public road, street, or causeway, detached from any other building, not in the same possession, full sixteen feet and not thirty feet, or connected with any other building only by a fence or fence-wall, shall be deemed of the fifth rate, and may be built of any dimensions whatsoever.

Sixth Rate.—Every building which shall be at the distance of eight feet from any public road, street, or causeway, detached from any other building, not in possession therewith, at least thirty feet, or connected with any other building only by a fence or fence-wall, shall be deemed of the sixth class, and may be built of any dimensions, with any materials whatsoever.

Seventh Rate.—Every crane-house built upon any wharf or quay, and every shamble, wind-mill, or water-mill, and every building within London and Westminster and the liberties thereof, used for workshops or drying places for tanners, fellmongers, glue-makers, size-makers, calico-printers, whitsters, whiting-makers, curriers, leather-dressers, buckram-stiffners, oil-cloth painters, wool-staplers, throwsters, parchment-makers and paper-makers, so long as they shall be employed for some of the above purposes respectively, shall be deemed the seventh rate, and may be built of any dimensions whatsoever. All crane-houses, or additions to, or enlargements thereof, shall be of stone, brick, slate, tile, oak, elm, steel, iron, or brass; but every other building of the seventh class may be erected of any other material whatever: but no crane-house or other building of the seventh class, shall be covered with pitch, tar, or other inflammable composition, nor shall be converted into any other use.

Detached offices, or such as are connected therewith only by a fence-wall, open on both sides, shall be deemed to be of the rate of building such office would have been, if the same did not belong to any dwelling-house or building. Party-walls shall be between house and house, and other buildings, except in such parts where each have independent walls. All party-walls above four stories high, shall be built as of the first rate; and party walls to the fourth rate, being four stories high, shall be built as of the third rate. Materials of the division in first, second, third, and fourth rates, shall be of brick or stone, or artificial stone or stucco, or all these together, except the necessary timber, wood, lead, or iron work.

The rate to be ascertained by the surveyor of the district, and the building shall be valued as if the materials were sound and the work new, and at the several prices and valuations as such materials and workmanship shall be worth when such valuation was made; the squares of building to be taken on the level of the floor at the principal entrance; and no more than such parts of the party-walls as belong to the building shall be included in such admeasurement.

Party-walls not being of sufficient thickness, are to be taken down when one of the houses is rebuilt.

External walls shall not become party-walls. Party-walls must be one foot six inches above any building; but certain recesses and openings may be made in them, and they may be cut into for certain purposes, and under particular restrictions.

Party-walls shall not extend to the Inns of Court. In cases of intermixed property, the owners may be compelled to join in building party-walls; and where such owners are under disabilities, or the houses are uninhabited, differences between them are to be settled by application to the Mayor and Aldermen, who shall issue their precept to the Sheriff of London, Middlesex, Surry, or Bailiff of the Liberty of the Tower, to impannel a jury, who shall determine the proportion of expence to be paid by each party owning the adjoining premises; and the court shall give judgment according to the verdict, which shall be recorded by the town clerk or clerk of the peace, and such judgment shall be binding; and within fourteen days after judgment and payment, or tender of the money awarded, the owner of the intermixed house may pull it down, and may enter the adjoining building, in the presence of a peace-officer, and may remove goods and furniture; and persons hindering the workmen or damaging the work shall forfeit 10*l.*

Builders shall be repaid a part of the expence of rebuilding party-walls, according to the verdict.

Old party-walls and party-arches, when decayed, may be rebuilt, the proprietors of the same giving three months' notice, according to the form prescribed by the act.

Surveyors to be appointed to view party walls and arches; and if the major part of the surveyors do not certify within one month, another surveyor is to be appointed by a magistrate.

When any walls are certified by the surveyors to be ruinous, a copy of the certificate is to be delivered to the owners of such party-walls as are ruinous, and not sufficiently secure against fire, within three days.

Owners aggrieved may appeal to the general quarter sessions, whose determination shall be final.

Owners of houses of the first, second, and third class, shall give three months' notice, in writing, before pulling down old party-walls; and owners of houses having partitions of wood, may give also three months' notice to owners of adjoining premises, to pull down the said par-

titions, and remove furniture, &c. as before directed.

Persons building party-walls or party-arches, if the adjoining building be of the same or a higher class, shall pay one moiety of the expence of building so much of the said party-wall as such owner shall make use of; and if the adjoining building be of an inferior rate, the owner of such ground or adjoining building shall give a sum equal to one moiety of the expence of building a party-wall or arch of the thickness required by this act for such class of building, and of the height and breadth of so much of the party-wall or party-arch as the occupier shall make use of; and until payment of the expences, the property of the party-walls shall be vested in the builder.

Expences of building such party-walls or party-arches shall be estimated after the rate of 7*l.* 15*s.* by the rod for the new brick-work, deducting therefrom, after the rate of 28*s.* by the rod for the materials (if any) of so much of the old wall or arch as belonged to such adjoining ground, and 2*d.* per cubic foot for the materials (if any) of so much of the old timber partitions as belonged to such adjoining building or ground.

Ten days after the party-wall is finished, an account is to be left with the owner of the adjoining buildings of what he is liable to pay, the expence of which may be recovered by action of debt in any of the courts at Westminster; and if the plaintiff, before action, gives three months' notice, and recovers his whole charge, he shall be entitled to double costs.

All party-walls shall be such as are required for the highest rate of building adjoining, and shall not be of less thickness, and they may be raised by the owner of one side; but if the owner of either side make use of them, he must contribute proportionably to the expence.

Party fence-walls may be raised by the owner of one side, but not to be used as a party-wall unless of sufficient thickness, and the owner on one side may take down a party fence-wall, and build a party-wall; and if the owner on the other side use it other than as a party fence-wall, he must contribute to the expence.

The first builder shall not lose any right of soil on account of a party-wall not being half on each ground; and if the fore and back fronts are taken down within five years, this will be deemed a rebuilding.

The breast of the chimney is not to be supported by timber, and the timber under the hearth must be eighteen inches lower than the surface of such hearth.

The hearth must be laid on brick or stone, or on the ground, and every chimney shall have a slab or slabs, or foot paces, before the same, of tile, stone, marble, or iron, at least eighteen inches broad, and at least one foot longer than the opening of every such chimney when finished, except the same be a cellar or ground floor, and be bedded on the solid earth.

No timber or wood-work whatever shall be laid in the brick-work of any oven, stove, copper, still, boiler, or furnace, nor within two feet of the inside of any such oven, copper, &c.; nor shall any wood-work whatever be laid in the brick-work of any chimney nearer than nine inches to the opening of such chimney, or five inches to the inside of the flue of any chimney, oven, stove, copper, still, &c. or nine inches to the flue of any such oven, stove, copper, &c. where any such timber shall be, or be placed nearer than five feet above the mouth of the same; and all wood-work on the frame of every chimney shall be fixed by iron nails, and no chimney shall be erected on timber.

External walls shall be of brick, stone, natural or artificial, lead, copper, tin, slate, tile, or iron, or some of these in combination; and all sash-frames and door-frames shall be set in reveals, and recessed at least four inches from the front of the building, and all story-ports and bressammers are to be but two inches in party-walls, and all corner story-ports shall be of oak or stone, and twelve inches square.

Flat gutters and roofs of the first, second, third, fourth, or fifth class of building, and every turret, dormer, or lanthorn-light, or other erection, and every external part of such flat gutter, &c. which shall be ripped or uncovered, shall be covered with glass, copper, lead, tin, slate, tile, or artificial stone, except the doors, door-frames, windows, and window-frames of such turrets or other erections.

Every coping, cornice, facia, window-dressing, balustrade, or other external decoration or projection whatsoever, of the above classes, and every frontispiece to any building of the first class, shall externally be of brick, stone, burnt clay, or artificial stone, stucco, lead, or iron, except the cornices and dressings to shop-windows, (the covered ways not extending beyond the original line of the houses in the same street,) and such covered way shall be covered with stone, lead, copper, slate, tile, or tin; and neither the said covered way nor the cornice or dressings of any shop-window, nor the roof of any such porticoes, shall be higher than the under side of the sill of the window-frame of the one-pair-of stairs window, to which the same belongs; and no water shall be suffered to drain next to any public street, square, place, or counterway, from the roof of any building of the first, second, third, or fourth classes of building, except from the roof, porticoes, or other entrances; but all water from such

roofs shall be conveyed by lead, copper, tin, or iron gutters or pipes, or by wooden trunks, or brick or stone funnels, to the drain or channel stones, on or below the surface of the ground for that purpose, or to some cistern or other reservoir made, or to any front of such building, not abutting upon any public street or way, and every brick and stone funnel shall be in every part thereof below the pavement, and every wooden trunk below the top of the window in the ground story.

No front windows shall be built extending beyond the line of the street, except projections for decorations, shop-windows, and stall-boards; and the materials of such projections shall be the same as those before directed to be used in external walls.

Old external walls or inclosures may be repaired with the same materials.

No bow-window or projection to be rebuilt, unless originally built or within the line of the street.

No stack of warehouses to be above thirty-five squares, including internal and external walls; and there shall be no communication through party-walls unless by stone door-cases, and iron doors; and no timber shall be laid into the brick-work of any wall in any such stack of warehouses nearer than eighteen inches to the opening of such communication.

No building for stables to contain more than twenty-five squares of building, including internal and external walls, and there must be no communication door without having stone cases.

All buildings which shall be hereafter divided into distinct tenures on the ground-floor, shall be deemed separate buildings; but this not to prevent proprietors from dividing warehouses nor stables, subject nevertheless to certain restrictions.

All buildings of the fifth and sixth rates, in separate and distinct tenures, and not at the requisite distances, shall be deemed nuisances.

No iron, tin, copper, or other pipe or funnel, for conveyance of smoke or steam, shall be fixed next any public street, square, court or way, on the front of any building of the first, second, third, or fourth rate of building; nor shall there be any funnel withinside nearer than fourteen inches to any timber, nor shall any brick funnel in the front extend beyond the line of the street; and every building contrary hereto shall be deemed a common nuisance, and the builder or owner shall enter into a recognizance to demolish the same.

Buildings deemed nuisances shall be taken down by order of the court, and the materials may be sold to pay the expences.

Surveyors, in London, are to be appointed by the court of aldermen, and in other places, by the quarter sessions.

Before any building shall be begun, notice shall be given to the surveyor or supervisor of the district; or, in default, treble satisfaction shall be made to the surveyor, and 20*l.* penalty.

Surveyors to give information of irregular buildings, and 50*s.* penalty shall be inflicted upon workmen offending against this act.

Houses or walls which shall be hereafter built, shall be surveyed within fourteen days after the same shall be covered in, and oath shall be made and filed of their conformity to this act.

When any building is presented as ruinous, a board is to be put up for the safety of passengers.

If owners neglect to take down ruinous houses after notice, the mayor and aldermen, or overseers of the poor, may order the same to be taken down or secured, and may sell the materials and satisfy themselves out of the monies arising by such sale, and the overplus shall be paid to the owners any time within six years, on demand; but if the sale of the old materials should prove insufficient, the owners or occupiers are to make good the deficiency, and landlords are to allow all deficiencies paid by their tenants.

Not more than ten gallons of turpentine may be distilled, at one time, in houses contiguous to others, under penalty of 100*l.*

The remaining sections of this act, which contains 102 clauses, relate to engines, ladders, and regulations, relative to fire; for which *see* FIRE and FIREMEN.

BULBS, (Ger. *Blumenzwiebeln.* Du. *Bollen.* Da. *Blomsterlöger, Zvibler.* Sw. *Blomsterlökar.* Fr. *Oignons de fleurs.* It. *Bulbi, Cipolte de fiori.* Sp. *Cebollas de flores.* Port. *Cebolas da flores.* Rus. *Lukowizi.* Lat. *Bulbi,*) are the roots of several sorts of flowers, as tulips, hyacinths, &c. of which large quantities are imported from Holland, &c.

BULK *of a ship,* is her whole content in the hold for the stowage of goods.

BULK-HEADS, are partitions made athwart the ship, with boards, by which one part is divided from the other; as the great cabin, gun-room, bread-room, and several other divisions. The bulk-head before is the partition between the forecastle and grating in the head.

BULLET, a ball of iron or lead, with which fire-arms are loaded. *Bullets* are of various kinds, viz. *red bullets,* made hot in a forge, intended to set fire to places where combustible matters are found. *Hollow-bullets,* or shells made cylindrical, with an aperture and a fusee at one end, which giving fire to the inside, when in the ground, they burst, and have the same effect with a mine. *Chain-bullets,* which consist of two bullets joined by a chain three or four feet apart. *Branch-bullets,* two balls joined by a bar of iron five or six inches apart. *Two*

headed bullets, called also angles, two halves of a bullet joined by a bar or chain: these are chiefly used at sea, for cutting the rigging, cables, sails, &c.

BULLION, uncoined gold or silver in the mass. These metals are so called, either when smelted from the native ore, and not perfectly refined, but melted down in bars or ingots, or in any other unwrought body of any degree of fineness. When gold or silver are in their purity, they are so soft and flexible, that they cannot well be brought into any fashion for use, without being first reduced and hardened with an alloy of some other baser metal. To prevent abuses, according to the laws of England, all sorts of wrought plate in general ought to be made to the legal standard; and the price of our standard gold and silver, the common rule whereby to set a value on their bullion, whether the same be in ingots, bars, dust, or in foreign specie; whence it is easy to conceive that the value of bullion cannot be exactly known without being first assayed, that the exact quantity of pure metal therein contained may be determined, and consequently whether it is above or below the standard.

Bullion may be insured generally as merchandise.

Bullion was originally the circulating medium of most countries, and was paid away by weight.

Bullion may be imported duty-free; it may also be exported without any duty, provided it be properly stamped at Goldsmiths' Hall, and under certain restrictions.

Formerly a certificate *must* be obtained from the Lord Mayor and Aldermen of London, oath having been previously made before the said court, by the owner and two or more creditable witnesses, that the same and every part thereof was and is foreign bullion; and that no part thereof was, before molten, the coin of this kingdom, or clippings thereof, or plate wrought within this kingdom.

The certificate to contain the name of the owner, the witness, and the true weight of such bullion; and an entry thereof duly made by the said court, in a book to be kept for that purpose; and such certificate to be shown to the commissioners of the customs before any certificate for exportation granted; and an entry of such bullion for exportation to be made by the commissioners of the customs.

Bullion shipped contrary to the above regulations to be forfeited, one moiety to the king, and the other to the informer; and the owner of such bullion to forfeit double the value, to be applied as aforesaid; and captains and masters of vessels, knowingly permitting such bullion to be embarked on board their vessels, to forfeit to any person suing for the same, 200*l*. 7 & 8 Will. 3. c. 17.

But by a late act, the oath above mentioned for the exportation of bullion, and the certificate, *may be* dispensed with; and the commissioners of the treasury are empowered, from time to time, to grant licences for exporting bullion (such licences specifying the nature and quantities thereof), which shall be entered in the books of the custom-house of the port from which such exportation shall be made before the same is shipped for the purpose of being exported. 43 Geo. 3. c. 49. But if the same be entered to be exported in any name but that of the true owner, it shall be forfeited, half to the king, and half to him who shall seize or discover the same.

BUNGS, (Ger. *Spunde, Fasspunde.* Du. *Sponden, Bommen.* Da. *Spundse.* Sw. *Sprundar.* Fr. *Bondons.* It. *Cocchiumi.* Sp. *Bondones.* Port. *Batoques,*) are stoppers of wood or cork, used for securing the mouths of barrels, and capable of being removed with facility, for the purpose of permitting the liquor contained in the vessels to ferment, &c.

BUNT, *of a sail,* the middle part of it, formed designedly into a bag or cavity, that the sail may gather more wind. It is used mostly in top-sails, because the courses are generally cut square, or with but small allowance for bunt or compass. "The bunt holds much leeward wind;" that is, it hangs much to leeward.

Seamen all agree that a bellying or bunting sail carries a vessel faster to the windward than a straight or fast sail.

BUNTING or Buntine, (Ger. *Flaggentuch.* Du. *Vlaggedoek.* Da. *Flagduk.* Sw. *Flaggduck.* Fr. *Etamine à pavillon.* It. *Stamina, Burato da Bandiere.* Sp. *Lanilla.* Port. *Estamenha,*) a sort of thin woollen stuff.

BUNT-*line.* Bunt-lines are small lines made fast to the bottom of the sails, in the middle part of the bolt-rope, to a cringle, and so are reeved through a small block, seized to the yard. Their use is to trice up the bunt of the sail, for the better furling it.

BUOY, a short piece of wood, or a close-hooped barrel, fastened so as to float directly over the anchor, that the men who go in the boat to weigh the anchor may know where it lies.

Buoy is also a piece of wood or cork, sometimes an empty cask, well closed, swimming on the surface of the water, and fastened by a chain or cord to a large stone, piece of broken cannon, or the like, serving to mark the dangerous places near a coast, as rocks, shoals, wrecks of vessels, anchors, &c.

"Stream the buoy;" is to let the anchor fall while the ship has way.

To buoy up the cable, is to fasten some pieces of wood, barrels, &c. to the cable, near the anchor, that the cable may not touch the ground in case it be foul or rocky; lest it should be fretted and cut or worn off.

BURATINE, a species of Persian raw silk.

BURBAS, a small coin at Algiers, with the arms of the Dey struck on both sides, worth half an asper. *See* COINS.

BURBER, an Egyptian piece of copper money, twelve of which make a medine. *See* COINS.

BURDEN *of a ship*, is its contents, or the number of tons it will carry. The burden of a ship may be determined thus: multiply the length of the keel, taken within board, by the breadth of the ship, within board, taken from the midship-beam, from plank to plank, and multiply the product by the depth of the hold, taken from the plank below the keelson, to the under part of the upper-deck plank, and divide the last product by 94; then the quotient is the content of the tonnage required.

BUREAU, an appellation given in France and Flanders, to the principal custom-houses of every province or maritime town, where duties are paid. Also to many mercantile associations and factories in the same country, and its dependencies.

BURGEOIS, a printing letter or type.

BURGLARY, is the breaking and entering the house of another *in the night*, with *intent* to commit *some* felony.

By 11 Will. 3. c. 23. a reward of 40*l.* was to be paid by the sheriff of the county or city, to any one who will take and prosecute to conviction a burglar. But this, as well as several other statutes giving rewards on the conviction of offenders, was repealed by 48 Geo. 3. c. 70., which statute, however, enables the court to allow certain costs, and recompenses, to prosecutors, witnesses, &c.

By 10 Geo. 3. c. 48. receivers of jewels, gold, silver, or watches, *stolen by means of a burglary*, shall be subject to trial, as well before the conviction of the principal felon as after, and upon conviction shall be transported for 14 years.

BURGOMASTER, the chief magistrate of the great towns in Flanders, Holland, and Germany. The power and jurisdiction of the burgomaster are not the same in all places, every town having its particular customs and regulations. At Amsterdam there are four, whose authority somewhat resembles that of our Lord Mayor and Aldermen.

BURGUNDY, is considered as the choicest of French wines, is of a lively colour, possesses an agreeable flavour, and is of a very superior quality. It raises the spirits, but does not intoxicate like other wines which effervesce more in the stomach. The best Burgundy is made in Beaune, Nuits, Romanée, Premeau and Vougeot.

BURINE, a graver, or tool used by engravers.

BURNING GLASS, (*Burning glasses.* Ger. *Brennspiegel, Brennglläser.* Du. *Brandspiegels, Brangdlasen.* Da. *Brændspejl, Brændglas.* Sw. *Brännspeglar.* Fr. *Miroirs ardents, Verres ardents.* It. *Specchj ardents, Vetro ustorio.* Sp. *Espejos ustorios, Vidrio ustorio.* Port. *Espelhos ustorios.* Rus. *Sashigatelnoe serkalo,*) a convex or concave glass, commonly spherical, which being exposed directly to the sun, collects all the rays falling on it into a very small space, called the focus, where wood, or any other combustible matter being put, will be set on fire. The convex burning-glasses transmit the rays of light, and in their passage refract or incline them towards the axis, having the property of lenses, and acting according to the laws of refraction.

The concave burning-glasses, or rather mirrors, being usually made of metal, reflect the rays of light, and in that reflection incline them to a point in the axis, having the property of mirrors, and acting according to the laws of reflection.

BURNISHING, the art of polishing a metalline body, by rubbing it briskly with a burnisher, or instrument of steel.

BURNISHER, a round polished piece of steel, serving to smooth and give lustre to metals. Of these there are different kinds, of different figures, straight, crooked, &c. Half burnishers are used to solder silver, as well as to give a lustre.

Book-binders burnish the edges of their books, by rubbing them with a dog's tooth. Gold and silver are burnished by rubbing them with a wolf's tooth, or by the bloodstone, or by tripoli, a piece of white wood, emery, &c.

BURR-PUMP, or Bilge-Pump, differs from the common pump, in having a staff 6, 7, or 8 feet long, with a bar of wood, to which the leather is nailed, and this serves instead of a box. Two men, standing over the pump, thrust down this staff, to the middle whereof is fastened a rope, for 6, 8, or 10 to hale by, thus pulling it up and down alternately.

BURSE, or Bourse, an exchange, or place of meeting for merchants.

BURSTONE, a species of stone used by millers for grinding corn, &c. Burstones are usually imported from Rouen.

BURTON, in the sea language, a small tackle, consisting of two single blocks: it may be made fast any where at pleasure, for hoisting small things in and out, and will purchase more than a single tackle with two blocks.

BUSHEL, a measure of capacity for dry goods, as grain, fruits, dry pulse, &c. containing four pecks, or eight gallons, or one eighth of a quarter. A bushel by 12 Hen. VIII. c. 5. is to contain eight gallons of wheat: the gallon, eight pounds of troy weight: the ounce twenty sterlings, and the sterling thirty-two grains, or corns of wheat, growing in the midst of the ears.

The standard bushel is kept in the ex-

chequer, and is found to contain 2145.6 solid inches; and the water with which it has been filled, weighed 1131 ounces, and fourteen pennyweights troy. By act of parliament made in 1697, it is determined that every round bushel with a plain and even bottom, being 18½ inches in diameter, and 8 inches deep, should be esteemed a legal Winchester bushel, according to the standard in his majesty's exchequer. A vessel thus made will contain 2150.42 cubic inches. Besides the standard or legal bushel, there are several local bushels of different dimensions, in different places. But by 22 & 23 Car. 2. c. 12. all measures, except the standard Winchester measure, are declared illegal, and the persons selling by them subject to a penalty of 40*s.* and forfeiture of the corn; and by 55 Geo. 3. c. 43. persons are directed to be appointed in all cities, towns, &c. to examine measures, in order that no corn may be sold by any other than the legal standard measure.

BUSS, a small sea-vessel, used by us and the Dutch in the herring fishery, commonly from 48 to 60 tons burden, and sometimes more. A buss has two small sheds or cabins, one at the prow, and the other at the stern; that at the prow serves for a kitchen. *See* FISHERY, *White Herring.*

BUST. Divers statutes have been successively passed to encourage the arts, by vesting the property of designers, printers, engravers, &c. in them respectively, for certain periods. Upon a similar principle by 38 Geo. 3. c. 71. the property, and sole right of making, models or casts, or copies in *alto*, or *basso, relievo*, or otherwise, was vested in the original proprietors for 14 years. The provisions of this statute, however, not having been expressed with sufficient precision, it was amended and rendered more effectual by 54 Geo. 3. c. 56. whereby a similar exclusive right for a term of 14 years is given to the inventors and proprietors of all models, casts, and busts, in *alto*, or *basso, relievo*, on condition only that such inventors and proprietors put their names, with the dates of making, on every such model, &c. before the putting forth or publication thereof. And all persons making or importing, or exposing to sale, or disposing of, any pirated copy of such model, &c. shall be liable to damages in an action on the case, on condition that such action be commenced within six calendar months after discovery of the offence. And after the expiration of the said term of 14 years, if the person who originally made, or caused to be made, the said model, &c. shall be living, and shall not have divested himself of his right in the same, by sale or otherwise, previous to this act, he shall be entitled to an additional term in the same of other 14 years.

BUTT, a vessel or measure of wine, containing two hogsheads, or 126 gallons.

BUTT, or *butt-ends*, in the sea language, are the fore ends of all planks under water, as they rise, and are joined one end to another. Butt-ends in great ships are most carefully bolted; for if any one of them should spring or give way, the leak would be very dangerous, and difficult to stop.

BUTTER, (Ger. *Butter*. Du. *Boter*. Da. and Sw. *Smör*. Fr. *Beurre*. It. *Burro, Butiro*. Sp. *Manteca*. Port. *Manteiga*. Rus. *Masslo Korowe*. Pol. *Maslo*. Lat. *Butyrum*,) a fat unctuous substance, prepared from milk, by the process of churning. Butter is imported from Holland, and very large quantities from Cork, Waterford and Dublin; the Cork butter is packed in small firkins of about half a hundred weight each, and is of three qualities, viz. first, second, and third, under the general denomination of *Rose Cork butter*. Vast quantities of this butter are shipped for the West Indies.

The Waterford and Carlow butters are both shipped at Waterford, and are of very superior quality, and highly esteemed in the London market, where after having the salt washed out by the cheesemongers, &c. they are sold under the denomination of Cambridge butter. These butters are packed in casks, and with the Dublin butter, which is in similar packages, are shipped in large quantities in time of peace to Cadiz, Malaga, and other parts of Spain; but the Rose Cork butter is what suits the markets of Portugal, of which very large quantities are annually shipped off from Cork for Lisbon, Oporto, &c.

The laws respecting butter are as follows: 36 Geo. 3. c. 86. and 38 Geo. 3. c. 73.

Every cooper or other person who shall make any vessel for the packing of butter, shall make the same of good well-seasoned timber, tight, and not leaky, and shall groove in the heads and bottoms thereof; and every vessel made for the packing of butter, shall be a tub, firkin, or half-firkin, and no other.

Every tub shall weigh of itself, including the top and bottom, not less than 11 lb. nor more than 15 lb. avoirdupois; and neither the top nor the bottom of any such tub shall exceed in any part five-eighths of an inch in thickness, and it shall contain at least 84 lb. weight of butter.

Every firkin shall weigh at least 7 lb. including the top and the bottom, which shall not exceed four-eighths of an inch thick in any part; and every such firkin shall contain not less than 66 lb.

Half-firkins to weigh not less than 4 lb. nor more than 6 lb. including the top and the bottom, which shall not exceed the thickness of three-eighths of an inch in any part; and every such half firkin shall be capable of containing 28 lb., upon pain that the cooper or every other person making any such vessel, in any respect contrary to

the preceding directions, shall forfeit every such vessel and 10*s*.

Every cooper, &c. shall brand every cask or vessel before going out of his possession, on the outside, with his surname and christian name at length, in legible and permanent letters, under penalty of 10*s*.

Every dairyman, farmer, or seller of butter, or other person who shall pack the same for sale, shall pack it in vessels made and marked as aforesaid, and in no other, and shall properly soak and season every such vessel; and on the inside, and on the top on the outside, shall brand his christian and surname at length, in permanent and legible letters; and shall also, with an iron, brand on the top on the outside, and on the bouge or body of every such cask, the true weight or tare of every such vessel, when it shall have been soaked and seasoned; and also, with an iron, shall brand his christian and surname at length, on the bouge or body of every such vessel, across two different staves at least, and shall distinctly, and at length, imprint his christian and surname upon the top of the cask, with which such butter is filled, under the penalty of 5*l*. for such omission.

Every tub of butter shall contain, exclusive of the tare, of good and merchantable butter 84 lb.; every firkin 28 lb.; every half firkin, 14 lb.; and no old or corrupt butter shall be mixed, or packed in any vessel whatever, with any butter that is new and sound; nor shall any butter made of whey, be packed or mixed with butter made of cream, but the respective sorts shall be packed separately, and the whole vessel shall, throughout, be of one sort and goodness; and no butter shall be salted with any great salt, but all butter shall be salted with small salt, nor shall more salt be intermixed with the butter than is needful for its preservation, under penalty of 5*l*. for offending against any of these regulations.

No change, alteration, fraud, or deceit, shall be practised by any dealers or packers of butter, either with respect to the vessel or the butter so packed, whether in respect to quantity or otherwise.

Every cheesemonger, dealer in butter, or other person, who shall sell any tubs, firkins, or half firkins of butter, shall deliver, in every such cask or vessel respectively, the full quantity appointed by this act, or, in default thereof, shall be liable to make satisfaction to the person who shall buy the same for what shall be wanting, according to the price for which it was sold, and shall be liable to an action for recovery of the same, with full costs of suit.

No cheesemonger, dealer in butter, &c. shall repack for sale any butter, under penalty of 5*l*. for every tub so repacked.

Nothing in this act shall extend to make any cheesemonger, dealer in butter, or other person, liable to any of the penalties of this act, for using any of the tubs, firkins, or half firkins, after the British butter used in such vessels shall have been taken thereout, for the repacking for sale of any foreign butter, who shall, before he so repack such foreign butter, entirely cut or efface the several names of the original dairyman, farmer, or seller of butter, from every such vessel, having the name and tare of the cooper, and the tare of the original dairyman, farmer, and seller of butter, thereon; and, after the names are so effaced, shall, with an iron, brand his christian and surname, and the words *foreign butter*, upon the bouge of every such vessel, across two staves at least, to denote that such butter is foreign butter.

Persons counterfeiting or forging any of the names or marks required by this act, for every such offence shall forfeit 40*l*.

Penalties under this act, not exceeding 5*l*. to be determined by one justice, upon the evidence of one witness, and the whole shall go to the informer.

Penalties above 5*l*. to be recovered by action of debt, or information in the courts at Westminster, and the whole to the informer.

Nothing in this act to extend to the packing of butter in any pot or vessel which shall not be capable of containing more than 14 lb.

BUTTOCK, *of a ship*, is that part of her which is her breadth right astern, from the tack upwards; and a ship is said to have a broad or narrow buttock, according as she is built, broad or narrow at the transum.

BUTTON, (*Buttons*. Ger. *Knöpfe*. Du. *Knoopen*. Da. *Knapper*. Sw. *Knappar*. Fr. *Boutons*. It. *Bottoni*. Sp. *Botones*. Port. *Botoes*. Rus. *Pogowizü*. Pol. *Guziki*,) an article of dress, serving to fasten clothes tight about the body, made of metal, silk, mohair, &c. in various forms. *Metal buttons* are formed two different ways: the blanks, or bases of the button, are either pierced out of a large sheet of metal, or cast. In the latter case, the shanks are previously fixed in sand, exactly in the centre of the impression formed by each pattern, so as to have their extremities immersed in the melted metal, by which means they are firmly fixed in the button when cooled. The former process is generally used for yellow buttons, and the latter for those of white metal. The metal used for gilt buttons is an alloy of copper and zinc, containing more copper than goes to the composition of brass. This metal is rolled into sheets, and the blanks pierced out; these are then planished, if for plain buttons; but when ornamented buttons are wanted, the die is struck, unless great nicety is required, when they are wrought by the hand. The shanks, which are made with great expedition by a curious engine, are then attached to the

bottom of each button by a wire clamp, like a pair of sugar-tongs, and a small quantity of solder and resin applied to each. They are then exposed to heat on an iron plate, containing about a gross, till the solder runs, and the shank becomes fixed to the button, after which they are singly put into a lathe, and their edges turned off smoothly. The surface of the metal, which has become in a small degree oxidated by the action of the heat, is to be cleaned by means of diluted nitric acid. The next step in the business is the rough burnishing, which is done in a lathe with a hard black stone, from Derbyshire. After this comes the gilding; which is done by first covering the surface uniformly with a thin stratum of mercury, and upon this is to be laid an amalgam, made of mercury and gold; five grains of gold will cover 144 buttons, each one inch in diameter. The mercury is now to be volatilized by means of heat.

Glass buttons are composed of glass of various colours, in imitation of opal, lapis lazuli, and other stones. The glass is kept in fusion, and the button nipped out of it, whilst in its plastic state, by a pair of iron moulds, like those for casting pistol-shot, adapted to the intended form of the button; the shank having been inserted in the mould, so that it may become imbedded in the glass when cool.

Shell buttons are those which consist of a back, generally made of bone, without any shank, but corded with catgut, and covered in front with a thin plate of metal struck with a die. The backs are cut out with a brace, the bit of which is a circular saw, and the four holes through which the catgut passes, are drilled by four drills moving parallel to each other, and acting at once. They are then corded by children, who tie the catgut on the inside; the cavity is filled with melted resin, and the metal shell applied warm. The button is then pressed between two centres in a lathe, which are forced together by a weight acting on a lever, and the edge of the shell turned down, during its revolution with a small burnisher.

The substance of laws respecting buttons is as follows:

No foreign buttons made of hair, or any other foreign buttons, shall be imported, bartered, or sold, or offered to be bartered or sold in this kingdom, on pain of forfeiture; and the same penalty is inflicted for the unlawful importation of bone lace.

Justices, by their warrants, may cause all foreign buttons to be seized. 13 & 14 Car. 2. c. 13. and 4 Wm. 3. c. 10.

No person shall make, sell, or set upon any clothes or wearing garments whatsoever, any buttons made of cloth, serge, drugget, frieze, camblet, or any other stuff of which clothes or wearing garments are made, or any buttons made of wood only, and turned in imitation of other buttons, on pain of forfeiting 40*s*. per dozen, for all such buttons. 4 Geo. 1. c. 7.

No taylor shall set on any buttons, or button-holes, of serge, drugget, &c. under penalty of 40*s*. for every dozen of buttons or button-holes, so made or set on.

No person shall use or wear, on any clothes, garments or apparel, whatsoever, any buttons or button-holes made of or bound with cloth, serge, drugget, frieze, camblet, or other stuffs, whereof clothes or woollen garments are usually made, on penalty of forfeiting 40*s*. per dozen, under a similar penalty. 7 Geo. 1. c. 22.

Clothes made of velvet are excepted from these regulations. All frauds respecting the manufacturing of buttons, and selling them of qualities inferior to what they are denominated on the pattern cards, &c. &c. are provided against by stat. 36 G. 3. c. 60. From the manner of wording these several statutes, numerous difficulties attend convictions under them. *See* 1 *Dick. Pr. Ex.* 248.

BUTTON-*stone*, a name given to a peculiar species of slate, found in some parts of Germany, that runs with ease into glass, in the course of a few hours, without the addition of any salt, or other foreign substance, to promote its vitrification. It in fact contains in itself all the principles of glass, and from it the Swedes and Germans make glass buttons, the handles of knives, and other articles.

BUTTS, or Backs, (Ger. *Ochsenleder, Englisches, Sohlleder, Butt.* Du. *Oseenleér.* Da. *Oxelæder, Studelæder.* Sw. *Oxläder.* Fr. *Cuir de Bœuf, Cuir fort.* It. *Cuoio di buoi, Cuoio forte.* Sp. *Cuero de bueies.* Port. *Couro de bois, Couro duro.* Rus. *Bukowaja Kosha.* Pol. *Wolowá skoza,*) a name given to that sort of tanned leather, which is prepared from the stoutest and heaviest ox hides, and which is chiefly used for the soles of shoes.

BUYING AND SELLING, a transferring of property from one person to another, in consideration of some price or recompence. On an agreement for goods, the vendee cannot carry them away without payment, unless the vendor agrees to trust him. But, if any part of the price is laid down, or any portion of the goods delivered by way of earnest, the vendee may recover the goods by action, as well as the vendor the price of them. 29 Car. 2. c. 3.

BY-LAW, is a private law made by those who are duly authorised so to do, by charter, prescription, or custom, for the preservation of order and good government, within some particular place or jurisdiction. *Moor*, 583.

Every corporation, lawfully erected, has power to make *by-laws*, or private statutes, for the better government of the corporations; which are binding upon themselves, unless contrary to the laws of the land; and then they are void. 11 *Black.* 475.

BYRAMPAUTS, a species of Surat callicoes.

BYSSUS ASBESTINUS, a species of asbestos, or incombustible flax, composed of flexible parallel fibres. It is found plentifully in Sweden, either white, or of different shades of green. At a copper mine in Westmannland, it forms the greatest part of the vein out of which the ore is dug; and by the heat of the furnace which melts the metal, is changed into pure semi-transparent glass.

BYSSUS, that fine Egyptian linen, of which the tunics of the Jewish priests were made.

C, the third letter of the alphabet, and a numeral letter for 100 (*Centum*) among the Romans.

CAB, a Hebrew dry measure, containing two five-sixths pints of our common measure.

CABALLEROS, or Cavalleros, are Spanish wools, of which there is a considerable trade at Bayonne in France.

CABALLINE OIL, (Ger. *Kammfet.* Fr. *Huile de Cheval,*) melted horse grease.

CABBAGES. *See* ROOTS.

CABECA, or Cabesse, a name given to the finest silks in the East Indies, as those from 15 to 20 per cent. inferior to these are called *barina.*

CABEER, a money of account at Mocha, 80 of which are worth about two shillings and sixpence sterling.

CABIDOS, or Cavidos, a long measure used in Goa, and other Portuguese settlements in the East Indies, to measure stuffs, linens, &c. and equal to four-sevenths of the Paris ell, or three quarters of a yard English.

CABLE, a thick, large, strong rope, commonly of hemp, which serves to keep ships at anchor. There is no merchant ship, however small, but has, at least, three cables, viz. the chief cable, or cable of the sheet anchor; a common cable; and a smaller one. Cable is also said of ropes which serve to raise heavy loads, by help of cranes, pullies, and other engines. The name of cable is usually given to such ropes as have at least three inches in diameter. Those that are less are only called ropes, of different names, according to their uses. Every cable, of whatever thickness soever it may be, is composed of three strands, every strand of three ropes, and every rope of three twists; the twist is made of more or less threads, according as the cable is to be thicker or thinner. In the manufacture of cables, after the ropes are made, they use sticks, which they pass first between the ropes of which they make the strands, and afterwards between the strands of which they make the cable; to the end that they may all twist the better, and be more regularly wound together; and also to prevent them from twining or entangling, they hang at the end of each strand and of each rope, a weight of lead or of stone. The number of threads each cable is composed of is always proportioned to its length and thickness; and it is by this number of threads that its weight and value are ascertained. Thus, a cable of three inches in circumference, or one inch diameter, ought to consist of 48 ordinary threads, and weigh 192 pounds; and on this foundation is calculated the following table:

Circumf.	Threads.	Weight.
3 inches	48	192 pounds.
4	77	308
5	121	484
6	174	696
7	238	952
8	311	1244
9	393	1572
10	485	1940
11	598	2392
12	699	2796
13	821	3284
14	952	3808
15	1093	4372
16	1244	4976
17	1404	5616
18	1574	6296
19	1754	7016
20	1943	7772

By 25 Geo. 3. c. 56. no person shall make or sell any cordage for shipping in which any hemp is used, called short chucking, half clean, whale line, or other toppings, codilla, or any damaged hemp, on pain of forfeiting the same, and also treble the value thereof.

Cables, horsers, or ropes, made of materials not prohibited by this act, and whose quality shall be inferior to clean Petersburgh hemp, shall be deemed inferior cordage, and the same shall be distinguished by marking on the tally, staple or inferior. Manufacturers making default herein forfeit for every hundred weight of cordage 10*s.* *Ibid.*

Manufacturers are to affix their names and manufactory, to new cordage, before sold, under the like forfeiture: and putting a false name is a forfeiture of 20*l.* *Ibid.*

Persons making cables of old and over-

worn stuff, containing above seven inches in compass, shall forfeit four times the value. *Ibid.*

Vessels belonging to British subjects, having on board foreign-made cordage, are to make entry thereof, on entering into any British port, on penalty of 20*s.* for every hundred weight. But this is not to extend to cordage brought from the East Indies; nor to materials at present used by any vessels built abroad before this act. *Ibid.*

Cable's length, is 120 fathoms. This regulates the distance of ships of war when formed into line of battle, which is ordered to be one or more cable's length.

"*Pay more cable,*" is to let more out of the ship. "*Pay cheap the cable,*" is to hand it out apace. "*Veer more cable,*" is to let more out, &c.

"*Slip the cable,*" is to let it run quite out when there is not time to weigh the anchor: this is preferable to cutting it. Before it is either cut or slipped, a spare buoy rope should be passed through the hawse-hole, and fastened near the end, with a rolling-nitch, that it and the anchor may be easily regained.

CABOLETTO, a coin of Genoa, value about three-pence sterling.

CABOTAGE, is a term in navigation, which implies a complete skill in distinguishing the proper places to anchor at, and avoiding banks, and observing the course of the tides and currents along the sea-coasts.

CACAO. *See* COCOA.

CACHALOT, a large fish of the whale species, from the brain of which *Spermaceti* is extracted.

CADDAS, are ribbons manufactured of silk and worsted; called also cruel ribbons.

CADE, a cag, cask, or barrel. A cade of herrings, is a vessel containing 500 red herrings; or of sprats, 1000.

CADENE, one of the worst sorts of carpets imported by us, from the Levant; they are sold by the piece, from one to two piastres per carpet.

CADIS, a kind of woollen stuffs manufactured at Languedoc, resembling a German serge.

CAFFA, painted cotton cloths, manufactured in the East Indies, and sold at Bengal.

CAFFILA, a company of merchants or travellers, who join together in order to go with more security through the countries on the continent of the East Indies. The caffila differs from a caravan, at least in Persia; for the caffila belongs properly to some sovereign, or to some powerful company, of Europe; whereas a caravan is a company of particular merchants, each trading upon his own account. The Dutch have a caffila at Gombon.

CAG, or Keg, of sturgeon, &c. a cask or vessel that contains from four to five gallons.

CAHYS, a dry measure for corn, used in some parts of Spain, particularly at Seville and at Cadiz. It is equal to a bushel of our measure. *See* WEIGHTS AND MEASURES.

CAIC, or Caique, a skiff or sloop belonging to a galley. The same name is given to a small kind of barks used in the navigation of the Black Sea, and carrying from 40 to 50 men. Those used on the sea of Marmora are manned by two or three rowers.

CALABAR SKIN, (Ger. *Grauwerk.* Du. *Graauw-werk.* Da. *Graaverk.* Sw. *Gravärk.* Fr. *Petit-gris.* It. *Varo, Vajo.* Sp. *Gris pequeno.* Port. *Gris.* Rus. *Bjelka.* Pol. *Wiewiorka,*) the Siberian squirrel skin used in making muffs, tippets, and trimmings for cloths of various colours.

CALADARIS, a species of coarse calico, striped and plain, manufactured in Bengal.

CALAMANCO, (*Kalmank.* Du. *Kallemink, Kalmink.* Da. *Kalemank.* Sw. *Kalmink.* Fr. *Calmande, Calmandre.* It. and Port. *Durante.* Sp. *Calmaco.* Rus. *Kolomenka.* Pol. *Kalamayka,*) a sort of woollen stuff manufactured in England and in Brabant; it has a fine gloss, and is checquered in the warp, whence the checks appear only on the right side. Some callimancoes are quite plain, others have broad stripes adorned with flowers, some with plain broad stripes, some with narrow stripes, and others watered.

CALAMINE, or Lapis Calaminaris, an ore of zinc, of a spongy substance, and a lax and cavernous texture, yet considerably heavy. *See* ZINC.

CALCAVELLA, properly CARCAVELOS, a rich, sweet, and high-flavoured white-wine, from Portugal.

CALCEDONY, a precious stone diversified with various colours, partly transparent, and partly opaque.

CALCINATION, (Fr. *Calcination.* Ger. *Calcinizen, Verkalchen.*) A substance is said to be calcined when it has been exposed to heat of a sufficient intensity to drive off all its volatile parts, but which has not become fused. The substances thus changed were formerly called calxes; the term oxides is now generally applied to them, which is more proper, as it implies the change effected in the body by the absorption of oxygen. It is not, however, proper to consider the term calcination as synonymous with oxydation, since the former implies necessarily the agency of fire, whereas oxydation may be produced as well by the action of acids, as by heat and air.

CALENDAR, a tabular statement, the days, weeks, months, feasts, &c. happening throughout the year, in their proper order.

Calendar means also a list of all the prisoners' names in the custody of each sheriff. Where prisoners are capitally con-

victed at the assizes, the usage is, for the judge to sign the *Calendar*, which contains all the prisoners' names, with their several judgments in the margin, and this calendar is left with the sheriff.

CALENDER, a machine used in manufactories, to press certain woollen and silken stuffs, and linens, to make them smooth, even, and glossy, or to give them waves, or to water them, as may be seen in mohairs, and tabbies. This instrument is composed of two thick cylinders, or rollers, of very hard and polished wood, round which the stuffs to be calendered are wound: these rollers are placed crossways between two very thick boards, the lower serving as a fixed base, and the upper moveable by means of a thick screw, with a rope fastened to a spindle, which forms its axis: the uppermost board is loaded with large stones cemented together, weighing 20,000lb. or more. It is this weight that gives the polish, and makes the waves on the stuffs about the rollers, by means of a shallow indenture or engraving cut in it.

CALICO. *See* CALLICO.

CALK, or CAULK. *See* CAULKING.

CALLAWAPORES, a species of callico, both blue and white, which comes from Madras.

CALLICO, (GER. *Kattun*. DU. *Katoen*. DA. *Kattun*. SW. *Cattun*. FR. *Coton, Toile de Coton*. IT. *Tela Bambagina, Tela dipinta*. SP. *Tela de Algodon*. PORT. *Pano de Algodao*. RUS. *Wüboika*. POL. *Bawelnika*,) a species of stuff made from cotton. It takes its name from Callicut, a city on the coast of Malabar, where it was first manufactured. In the East Indies the callicoes are all painted by the hand, which is performed with great expedition. From these we derive our

CALLICO-*printing*, which is the art of communicating different colours to particular spots or figures on the surface of the cloth, while the other parts retain their original whiteness. This art, or rather that to which we have just referred, has been practised in India for more than 2000 years. But in London Callico-printing was not introduced till about the year 1676, since which time it has been encouraged by several acts of parliament.

This art consists in impregnating those parts of the cloth which are to receive a colour with a mordant, and then dyeing it as usual with some dye-stuff or other. The dye-stuff only attaches itself firmly to that part of the cloth which has received the mordant. The whole surface of the cotton is indeed more or less tinged, but by washing and bleaching it for some days on the grass with the wrong side uppermost, all the unmordanted parts resume their original colour, while those that have received the mordant retain it. Suppose that a piece of white cotton cloth is to receive red stripes; all the parts on which the stripes are to appear are pencilled over with a solution of acetite of alumina: after this, the cloth is dyed in the usual manner with madder. When taken out of the dyeing vessel, it is all of a red colour, but by washing and bleaching, the madder leaves every part of the cloth white, except the stripes impregnated with the acetite of alumina, which remain red. In the same manner may yellow stripes, or any other wished-for figure, be given to cloth, by substituting quercitron bark, weld, &c. for madder.

When different colours are to be given to different parts of the cloth at the same time, it is done by impregnating it with various mordants. Thus, if stripes are drawn upon a cotton cloth with acetite of alumina, and other stripes with acetite of iron, and the cloth afterwards dyed in the usual way with madder, and then washed and bleached, it will be striped *red* and *brown*. The same mordants with quercitron bark, give *yellow* and *olive*, or *drab*. The mordants chiefly employed in callico-printing, are acetite of alumina, and acetite of iron. These mordants are applied to the cloth either with a pencil, or by means of blocks, whereon the pattern, according to which the cotton is to be printed, is cut. As they are applied only to particular parts of the cloth, care must be taken that none of them spread to the part of the cloth which is to be left white, and that they do not interfere with one another when several are applied. If these precautions are not attended to, all the elegance and beauty of the print must be destroyed. It is necessary, therefore, that the mordants should be of such a degree of consistence, that they will not spread beyond those parts of the cloth on which they are applied. This is done by thickening them with flour or starch, when they are to be applied by the blocks, and with gum-arabic, when they are to be put on by a pencil. The thickening should never be greater than is sufficient to prevent the spreading of the mordants; when carried too far, the cotton is apt not to be sufficiently saturated with the mordants; of course the dye takes but imperfectly.

In order that the parts of the cloth impregnated with mordants may be distinguished by their colour, it is usual to tinge the mordants with some colouring matter or other. The printers commonly use the decoction of Brazil-wood for this purpose; but Dr. Bancroft has objected to this method, because he thinks that the Brazil-wood colouring matter impedes the subsequent process of dyeing. It is certain that the colouring matter of the Brazil-wood is displaced during that operation, by the superior affinity of the dye-stuff of the mordants. Were it not for this superior affinity, the colour would not take at all. Dr. Bancroft advises to colour the mordant

with some of the dye-stuff afterwards to be applied; and he cautions the using of more for that purpose than is sufficient to make the mordant distinguishable when applied to the cloth. The reason of this precaution is obvious. If too much dye is mixed with the mordant, a great proportion of the mordant will be combined with the colouring matter, which must weaken its affinity for the cloth, and of course prevent it from combining with it in sufficient quantity to ensure a permanent dye. Sometimes these two mordants are mixed together in different proportions; and sometimes one or both is mixed with an infusion of sumach, or of nutgalls. By these contrivances a great variety of colours are produced by the same dye-stuff.

After the mordants have been applied, the cloth must be completely dried. It is proper for this purpose to employ artificial heat, which will contribute something towards the separation of the acetous acid from its base, and towards its evaporation, by which the mordant will combine in a greater proportion, and more intimately with the cloth. When the cloth is sufficiently dried, it is to be washed with warm water and cow-dung, till all the flour, or gum, employed to thicken the mordants, and all those parts of the mordants which are uncombined with the cloth, are removed. The cow-dung serves to entangle these loose parts of the mordants, and to prevent them from combining with those parts of the cloth which are to remain white. After this, the cloth is thoroughly rinsed in clean water.

Almost the only dye-stuffs employed by callico-printers, are indigo, madder, and quercitron bark, or weld. This last substance, however, is but little used by the printers of this country, except for delicate greenish yellows. The quercitron bark has almost superseded it, because it gives colours equally good, and is much cheaper and more convenient, not requiring so great a heat to fix it. Indigo, not requiring any mordant, is commonly applied at once, either with a block or a pencil. It is prepared by boiling together indigo and potash made caustic by quick-lime, and orpiment; the solution is afterwards thickened with gum. It must be carefully secluded from the air, otherwise the indigo would soon be regenerated, which would render the solution useless. Dr. Bancroft has proposed to substitute coarse brown sugar for orpiments: it is equally efficacious in decomposing the indigo, and rendering it soluble; whilst it likewise serves all the purposes of gum.

We shall now give an example or two of the manner in which the printers give particular colours to callicoes. Some callicoes are only printed of one colour, others have two, others three or more, even to the number of eight, ten or twelve. The smaller the number of colours, the more simple in general is the process.

I. One of the most common colours in cotton prints, is a kind of nankeen yellow of various shades, down to a deep yellowish brown, or drab. It is usually in stripes or spots. To produce it, the printers besmear a block, cut out into the figure of the print, with acetite of iron, thickened with gum or flour; and apply it to the cotton, which, after being dried and cleaned in the usual manner, is plunged into a potash ley. The quantity of acetite of iron is always proportioned to the depth of the shade.

II. For yellow, the block is besmeared with acetite of alumina. The cloth, after receiving this mordant, is dyed with quercitron bark, and then bleached.

III. Red is communicated by the same process; only madder is substituted for the bark.

IV. The fine light blues which appear so often on printed cottons, are produced by applying to the cloth, a block besmeared with a composition, consisting partly of wax, which covers all those parts of the cloth which are to remain white. The cloth is then dyed in a cold indigo vat; and after it is dry, the wax composition is removed by hot water.

V. Lilac, flea brown, and blackish-brown, are given by means of acetite of iron, the quantity of which is always proportioned to the depth of the shade. For very deep colours, a little sumach is added. The cotton is afterwards dyed in the usual manner with madder, and then bleached.

VI. Dove-colour and drab, by acetite of iron, and quercitron bark.

When different colours are to appear in the same print, a great number of operations are necessary. Two or more blocks are employed, upon each of which, that part of the print only is cut, which is to be of some particular colour. These are besmeared with different mordants and applied to the cloth, which is afterwards dyed as usual. Let us suppose, for instance, that these blocks are applied to cotton, one with acetite of alumina, another with acetite of iron, a third with a mixture of those two mordants, and that the cotton is then dyed with quercitron bark, and bleached. The parts impregnated with the mordants would have the following colours:

Acetite of Alumine,	Yellow.
——— Iron, - -	Olive, drab, dove.
The mixture, - -	Olive, green, olive.

If part of the yellow is covered over with the indigo liquor applied with a pencil, it will be converted into *green*. By the same liquid, blue may be given to such parts of the print as require it.

If the cotton be dyed with madder instead of quercitron bark, the print will exhibit the following colours:

Acetite of Alumine,	Red.
——— Iron, -	Brown, black.
The mixture, - -	Purple.

When a great number of colours are to appear; for instance, when those communicated by bark, and those by madder, are wanted at the same time, mordants for a part of the pattern are to be applied; the cotton is then to be dyed in the madder bath, and bleached: then the rest of the mordants, to fill up the pattern, are added, and the cloth is again dyed with quercitron bark, and bleached. The second dyeing does not much affect the madder colours; because the mordants, which render them permanent, are already saturated. The yellow tinge is easily removed by subsequent bleaching. Sometimes a new mordant is also applied to some of the madder colours, in consequence of which, they receive a new permanent colour from the bark. After the last bleaching new colours may be added by means of the indigo liquor. The following table will give an idea of the colours, which may be given to cotton by these complicated processes.

I. Madder Dye.

	Colours.
Acetite of Alumine, - -	Red.
——— Iron, - - - - .	Brown, black.
——— diluted, - - -	Lilac.
Both mixed, - - - -	Purple.

II. Bark Dye.

Acetite of Alumine, - -	Yellow.
——— Iron, - - . -	Dove, drab.
Lilac and acetite of alumine,	Olive.
Red and acetite of alumine,	Orange.

III. Indigo Dye.

Indigo, - - - - - - -	Blue.
Indigo and yellow, - - -	Green.

Thus no less than 12 colours may be made to appear together in the same print, by these different processes. These instances will serve to give the reader an idea of the nature of callico-printing, and at the same time afford an excellent illustration of the importance of mordants in dyeing. If it were possible to procure colours sufficiently permanent, by applying them at once to the cloth by the block or the pencil, as is the case with the mordants, the art of callico-printing would be brought to the greatest possible simplicity; but at present this can only be done in one case, that of indigo; every other colour requires dyeing. Compositions, indeed, may be made, by previously combining the dye-stuff and the mordants. Thus *yellow* may be applied at once, by employing a mixture of the infusion of quercitron bark and acetite of alumine; *red*, by mixing the same mordant with the decoction of alumine, and so on. The colours applied in this way, are, unfortunately, far inferior in permanency to those produced when the mordant is previously combined with the cloth, and the dye-stuff afterwards applied separately. In this way are applied almost all the fugitive colours of callicoes, which washing, or even exposure to the air, destroys. As the application of colours in this way cannot always be avoided by callico-printers, every method of rendering them more permanent is an object of importance.

This branch of manufacture, like most others, is placed under the jurisdiction of the commissioners of excise.

Callico-printers, stainers, or dyers, are to take out a licence annually, on penalty of fifty pounds, and are to give notice of their names and places of abode in writing, at the next office of excise, and to pay the duty before they begin to work, on penalty of 50l. and forfeiture of the goods.

No goods to be kept in unentered places; and excise officers by day, or at night with a constable, may enter and take account of the goods.

Cotton of British manufacture to be stamped by the excise officers with the words *British Manufactory*, and foreign callico to be marked *Foreign Callico for Exportation*. Forfeiture and 50*l.* penalty upon persons having in their possession callico not so marked.

Goods sent by the owner to be printed, painted, &c. must be accompanied with a note, expressing the number of pieces, quality, value, and time when sent; such note to be delivered to the officer who is to take an account of the goods.

Before being sent to the officer, to be marked with a frame-mark at both ends.

Goods which have paid the duty to be kept separate.

Stamps to be provided and distributed by the commissioners of excise; counterfeiting such stamps, 100*l.* penalty and the pillory.

Goods printed within one-eighth of a yard wide, under or over, to pay as yard-wide.

Duties to be paid within six weeks after entry, on penalty of double duty.

Justices may grant warrants to search suspected places; and all goods found in the custody of persons without a stamp, shall be forfeited. 43 Geo. 3. c. 69. and 49 Geo. 3. c. 81.

CALLIPATIES, a species of Bengal calicoes.

CALOMEL, a name given to the *mercurius dulcis* six times sublimed.

CALX, literally signifies *lime*, or a sort of stone calcined in the fire; but it is used to signify any body in general after it has been calcined.

CAMBAY-STONE, a kind of cornelian brought from the East Indies.

CAMBIST, a name given in France to Bill-brokers.

CAMBLET. *See* CAMLET.

CAMBRIC, or Cambrick, (Ger. *Kammertuch.* Du. *Kameryksdoek.* Da. *Kammerdug.* Sw. *Kammarduk.* Fr. *Cambray Batiste.* It. *Cambraja.* Sp. *Cambrai.* Port. *Cambraia.* Rus. *Kamertug.* Pol. *Kamertuch,*) a species of very fine white linen, first made at Cambray, in French Flanders, whence it derives its appellation. Of so much repute are French cambrics, that for many years, more than 200,000*l.* per annum were expended in the purchase of them by the inhabitants of this country. Parliament interfered, and the importation of foreign cambrics is attended with heavy duties. The cambrics now used in this country are chiefly manufactured in Scotland and Ireland, and to such perfection is the manufacture arrived, that now large quantities of them are exported to America and the northern kingdoms; but these articles of French manufacture, *if legally imported,* may be sold and worn in this country; and persons wearing them, or in whose custody they are found, are not liable to any fines or penalties.

CAMEL, a large beast of burden, used throughout all the eastern countries. These animals compose the chief wealth of the Arabs. Naturalists reckon four species. They are designed by nature for travelling over hot desarts, having a fleshy foot instead of a hoof, which would be parched and cracked by arid sands.

Camel is also used (by a metaphor) for an immense machine, invented in Holland, for raising ships.

CAMELS'-HAIR, (Ger. and Da. *Kameelhaar.* Du. *Kemelshair.* Sw. *Kamelhar.* Fr. *Poil de chameau, Laine de chevron.* It. *Pelo di camello.* Sp. *Pelo ó lana de cámello.* Port. *Laa ou pello de camello.* Rus. *Werbljuschä tscherst.* Pol. *Kamela, Kamelar,*) is chiefly used in the manufacture of pencils for drawing, painting, &c. whence the name of camels'-hair pencils. The best camels' hair comes from Arabia.

CAMLET, (Ger. & Du. *Kamelot.* Da. & Fr. *Camelot.* Sw. *Kamlot.* It. *Ciambellotto.* Sp. *Camelote.* Port. *Camelao.* Rus. *Kamlot.* Pol. *Czamlot, Kamlot,*) or *Camblet,* a plain stuff, composed of a warp and woof, which is manufactured on a loom, with two treadles, as linens are. There are camlets of several colours and sorts: some of goats' hair, both in the warp and woof; others, in which the warp is of hair, and the woof half hair and half silk; others again, in which both the warp and the woof are of wool; and lastly, some of which the warp is of wool and the woof of thread; some are striped, some watered, and some figured. Camlets are manufactured at Lisle, in Flanders, Arras, Amiens, and La Neuville, near Lyons, as also in Great Britain, and in the South of Ireland.

CAMOMILE, (Ger. & Du. *Kamille.* Da. *Kameel.* Sw. *Kamil.* Fr. *Camomille.* It. *Camomilla.* Sp. *Manzanilla.* Port. *Camomilla, Macella.* Rus. *Romaschka.* Pol. *Rumien.* Lat. *Chamomilla,*) a well-known plant, whose flowers are used for medical purposes. A strong sky-blue oil is distilled from them.

CAMPANINI, a name given to a marble of Italy, dug out of the mountains of Carara; because, when it is worked, it resounds like a bell.

CAMPEACHY-WOOD. *See* LOGWOOD.

CAMPHOR, or Camphire, (Ger. *Kampfer.* Du. *Kamfer.* Da. *Kampher.* Sw. *Kamfer.* Fr. *Camphre.* It. *Canfora.* Sp. *Alcanfor.* Port. *Alcanfor.* Rus. *Kamfora.* Pol. *Camfora.* Lat. *Camphora.*) The *laurus camphoratus* is a tree which grows in China, Japan, and several parts of India. The wood and roots being boiled with water, the camphor rises with the steam, and is condensed (in straw placed in the capital, &c. of the still) in small granular crystals, together with another sort, apparently scraped from the cavities of the wood, and mixed with sand, ashes, &c. and purified by a second sublimation by the English and Dutch chemists. It is of various uses in medicine; as also in the arts. It enters into the composition of varnish, of sealing-wax, and of fire-works. It is so inflammable as to preserve its flame in water.

CAMWOOD, the fine red wood of Africa and of the Brasils; principally used in turnery, for the formation of the handles of knives, &c.

CANAL, a kind of artificial river made for the convenience of water-carriage. The great advantage arising to the commerce of a country furnished with navigable *canals,* is apparent from the success that has attended them in China, in France, in Holland, in the Netherlands, as also in Great Britain and in Ireland. There are several large canals in France; but the greatest, and one of the most useful, is the junction of the two seas, by the canal of Languedoc. Several were made during the reign of Napoleon Buonaparte. By the canals of this country, coal and all kinds of heavy merchandize are brought from every part of the kingdom to London, at nearly one half the expense of land-carriage, with great safety and expedition. *See* NAVIGATION, *Inland.*

CANAN, a liquid measure of the kingdom of Siam, which the Portuguese call choup: it contains near a pot, or two Paris pints.

CANARY-SEED, (Ger. *Kanariensaamen.* Du. *Kanaryzaad.* Da. *Canariefröe.* Sw. *Kanariefrö.* Fr. *Alpiste, Graine d'oiseau, Graine de Canarie, Millet.* It. *Seme di Canario.* Sicil. *Scagliuola, Scaghiola.* Malta, *Cuneno.* Sp. *Alpiste.* Port. *Alpista, Arpista.*

Rus. *Ranareikino Semja.*) This seed is used to feed birds with, and is also employed as an article of food by many persons in this country, in the form of puddings. The grain is small, and of a white or reddish-yellow colour. Vast quantities of it are grown in the Isle of Thanet, and other parts of England.

CANCEL. To cancel any thing is, in strictness, to draw lines over it in the form of lattice-work. 2 *Black. Com.* 308. Therefore, when a person obliterates any writing by drawing a pen through it, it is now said to be a *cancelling* of it.

A deed may be cancelled and avoided; 1st, by razure, interlining, or other alteration in any material part; unless a memorandum be made thereof at the time of the execution and attestation. 11 *Rep.* 27. 2dly, by breaking off, or defacing the seal. 5 *Rep.* 23. 3dly, by delivering it up to be cancelled; that is, to have lines drawn over it in the form of lattice-work or *cancelli;* though the phrase is now used figuratively for any manner of obliteration or defacing of it. 4thly, by the disagreement of such, whose concurrence is necessary in order for the deed to stand; as the husband, where a feme covert is concerned; an infant or person under duress, when those disabilities are removed, and the like. 5thly, by the judgment or decree of a court of judicature. So that a deed may be avoided either in part or totally, according as the cause of avoidance is more or less extensive. 2 *Black.* 308, 309.

Although a man make a last will and testament irrevocable in the strongest words, yet he is at liberty to revoke it; because his own act or words cannot alter the disposition of law so as to make that irrevocable which is in its own nature revocable: for this, said *Lord Bacon,* would be for a man to deprive himself of that which of all other things is most incident to human conditions; and that is, alteration or repentance. 2 *Black.* 502.

CANDERROS, the name given to an East Indian gum; it is a pellucid white substance, which bears a good polish, and it is turned into various kinds of light toys.

CANDLE, (*Candles.* Ger. *Lichter, Kerzen.* Du. *Kaarzen.* Da. *Lys.* Sw. *Ljus.* Fr. *Chandelles.* It. *Candelle.* Sp. & Port. *Velas.* Rus. *Swjetschi.* Pol. *Swiece.* Lat. *Candelae,*) a taper of tallow, wax, or spermaceti, the wick of which is commonly of several threads of cotton, spun and twisted together. The machine for cutting the cotton is a smooth board made to be fixed on the knees; on the upper surface are the blade of a razor and a round piece of cane, placed at a certain distance from one another, according to the length of the cotton wanted: the cotton is carried round the cane, and being brought to the razor, is instantly separated from the several balls.

A tallow candle, to be good, must be half sheep's and half bullock's tallow; for hog's tallow makes the candle gutter, and always gives an offensive smell, with a thick black smoke. The wick ought to be pure, sufficiently dry, and properly twisted, otherwise the candle will emit an inconstant, vibratory flame, which is both prejudicial to the eyes and insufficient for the distinct illumination of objects.

There are two sorts of tallow candles; the one dipped, the other moulded: the former are the common candles. The tallow is prepared by chopping the fat, and then boiling it for some time in a large copper; and when the tallow is extracted by the process of fire, the remainder is subjected to the operation of a strong iron press, and the cake that is left after the tallow is expressed from it is called *greaves.* These are greedily eaten by dogs and other carnivorous animals.

When the tallow is in proper order, the workman holds three of the broaches, with the cottons properly spread, between his fingers, and immerses the cotton into the vat containing the tallow: they are then hung on a frame and suffered to cool; and when cold they are dipped again, and so the process is continued till the candles are of the proper size. During the operation the vat is supplied from time to time with fresh tallow, which is kept to the proper heat by means of a gentle fire under it.

The mould in which the moulded candles are cast, consists of a frame of wood, and several hollow metal cylinders, generally made of pewter, of the diameter and length of the candle wanted: at the extremity of these is the neck, which is a little cavity in form of a dome, having a moulding within-inside, and pierced in the middle with a hole big enough for the cotton to pass through. The cotton is introduced into the shaft of the mould by a piece of wire being thrust through the aperture of the hook till it comes out of the neck: the other end of the cotton is so fastened as to keep it in a perpendicular situation and in the middle of the candle; the moulds are then filled with warm tallow, and left to cool before the candles can be drawn out of the pipes.

Besides these, there are other candles made by tallow-chandlers, intended to burn during the night without the necessity of snuffing: the wick is usually made of split rushes, or very small cotton wicks: these latter, owing to the smallness of the cotton, do not require the aid of snuffers.

To make wax-candles with the ladle.—The wicks being prepared, a dozen of them are tied by the neck, at equal distances, round an iron circle, suspended directly over a large bason of copper tinned, and full of melted wax: a large ladleful of this wax is poured gently on the top of the wicks one

after another, and the operation continued till the candle arrives at its destined bigness; with this precaution, that the first three ladles be poured on the top of the wick; the fourth at the height of $\frac{3}{4}$, the fifth at $\frac{1}{2}$, and the sixth at $\frac{1}{4}$, in order to give the candle its pyramidal form. Then the candles are taken down, kept warm, and rolled and smoothed upon a walnut-tree table, with a long square instrument of box, smooth at the bottom. As to the manner of making wax-candles by the hand, they begin to soften the wax by working it several times in hot water, contained in a narrow but deep cauldron. A piece of the wax is then taken out, and disposed by little and little around the wick, which is hung on a hook in the wall, by the extremity opposite the neck; so that they begin with the large end, diminishing still as they descend towards the neck. In other respects the method is nearly the same as in the former case. However, it must be observed, that in the former case water is always used to moisten the several instruments, to prevent the wax from sticking, and in the latter, oil of olives, or lard, for the hands, &c. The cylindrical wax-candles are either made as the former, with a ladle, or drawn. Wax-candles or tapers drawn, are so called, because they are actually drawn in the manner of wire, by means of two large rollers of wood turned by a handle, which, turning backwards and forwards several times, pass the wick through melted wax contained in a brass bason, and at the same time through the holes of an instrument like that used for drawing wire, fastened on one side of the bason.

A patent was obtained for making candles with hollow cylindrical wicks upon the principle of the Argand lamp (*see* LAMP); but they have not succeeded to any extent.

Tallow candles with wicks slightly waxed, are now much used. Their peculiar property is that of burning down, without running or guttering.

Tallow-chandlers and wax-chandlers are by 43 Geo. III. c. 69. to take out annual licences. They shall not use melting-houses without making a true entry, and are to give notice of making candles to the excise-officer for the duties, and of the number, &c. with many other like obligations, under heavy penalties by the laws of excise.

Small rush-lights only once drawn through grease, made by persons to be used in their own houses, are not chargeable with duty.

Candles carried coastwise without a regular cocquet are forfeited. Great quantities of wax candles used to be exported to Russia; but by the ukase of 1817, wax of all kinds, and wicks of all descriptions for candles, are prohibited.

CANDLE, *sale or auction by inch of*, is when a small piece of candle being lighted, the by-standers are allowed to bid for the merchandise that is selling: but the moment the candle is out, the commodity is adjudged to the last bidder.

CANDLEMAS-DAY, the feast of the purification of the Virgin Mary, being the second day of February, instituted in memory of the purification in the temple of Jerusalem, the fortieth day after her childbirth, according to the law of Moses. It is called Candlemas, or a mass of candles, because before mass was said that day, the church consecrated and set apart, for sacred use, candles for the whole year, and made a procession with hallowed candles. It is one of what are denominated the *half-quarter* days of the year.

This festival is *a dies non*, or no day in court, for the judges sit not.

CANDLESTICKS, (Ger. *Leuchter*. Du. *Kandelaars*. Da. *Lysestager*. Sw. *Ljusstakar*. Fr. *Chandeliers*. It. *Candellieri*. Sp. *Candeleros*. Port. *Castiçaes*. Rus. *Podsweschnikii*. Pol. *Lichtarz*,) are of silver, brass, iron, tin japanned, or copper plated, made of different patterns and sorts. The best plated candlesticks are manufactured at Sheffield; the common sort of plated ones, as also brass, japanned, &c. are made at Birmingham.

Candlesticks are of various forms and many constructions. The telescope candlesticks, constructed on the plan of the tubes of telescopes, whereby their size may be diminished or increased at pleasure, are coming into very general use.

CANDUL, or Candile, a measure of continence used in India, at Cambays and Bengal, for rice and other grain; it contains 14 boisseaux, and weighs near 500 lb. and the gauge of ships is reckoned here by the candul, as it is by the ton in Europe; so that when it is said, a vessel is 400 canduls burden, it is to be understood she can carry 200,000 lb. or 100 tons.

It is also a weight used in China and at Galanger, of which there are two sorts; the smallest being 16 mauns; the other 20 mauns; the first makes 3 chintals good weight, and the last 3 chintals and 3 rubis; the rubis making 32 rotolis.

CANDY, *or* Sugar-Candy, a preparation of sugar, made by melting and crystallizing it six or seven times over, to render it hard and transparent. *See* SUGAR.

CANE, (Ger. *Spanisches Rohr*. Du *Spaansch riet, Rotting*. Da. *Spanskrör*. Sw. *Spansktrör*. Fr. *Canne, Canne du Bengale*. It. *Canna, Cannetta d'India*. Sp. *Cana de Indias*. Port. *Bengala*,) a walking stick. It is a reed brought from the East Indies: Some are without knots, and very smooth and even; that is, when the reed is grown so long that the distance between two

knots is large enough to make a cane. Others are full of knots, about two inches distant from each other; these last have very little elasticity, and will not bend so well as the others.

The most beautiful canes imported into England come from Bengal; some of them are so fine that they are worked into vessels, or bowls, which, being varnished over on the inside with black or yellow lacker, or of some other colour, will hold liquors, as well as glass, or china-ware does, and the Indians use them for the same purposes. Sugar-canes, from which the sugar is extracted, grow in the West Indies; for particulars of which, *See* SUGAR.

There are several sorts of canes or reeds, but the most remarkable and useful are as follows:

I. *Arundo bambos*, or the bamboo, a native of the East Indies and some parts of America; where it frequently attains the height of 60 feet. The young shoots are covered with a dark green bark: these when very tender are put in vinegar, salt, garlic, and the pods of capsicum, and thus afford a pickle, which is esteemed a valuable condiment in the Indies, and is said greatly to promote the appetite and assist digestion. The old stalks grow to five or six inches diameter, and are then of a shining yellow colour, and are so hard and durable that they are used in buildings, and for making all sorts of household furniture. When bored through the membranes at their joints, they are converted into water-pipes. The smaller stalks are used for walking-sticks, and the inhabitants of Otaheite make flutes of them about a foot long, with two holes only, which they stop with the first finger of the left hand and the middle one of the right, and then blow through their nostrils.

II. *Arundo donax*, or cultivated reed, is a native of warm countries, but will bear the cold of our moderate winters in the open air. The stalks of this reed are brought from Spain and Portugal, and are used by the weavers, as also for making fishing-rods.

III. *Arundo orientalis*, is what the Turks use as writing pens; it grows in a valley near mount Athos, as also on the banks of the river Jordan.

IV. *Arundo phragmates*, or the common marsh reed, grows by the sides of our rivers, and in standing waters.

CANE, is also the name of a long measure, which differs according to the several countries where it is used. At Naples, the cane is equal to 7 feet 3 inches English measure; the cane of Toulouse, and Upper Languedoc, is equal to the vane of Arragon, and contains 5 feet $8\frac{3}{8}$ inches; at Montpellier, in Provence, Dauphiny, and the Lower Languedoc, it answers to 6 English feet $5\frac{1}{2}$ inches. *See* WEIGHTS AND MEASURES.

CANE-HEADS, (Ger. *Stockknöpfe.* Du. *Rottingknoopen.* Da. *Stockknapper.* Fr. *Pommes de canne.* It. *Pomoli.* Sp. *Punos para bastones.* Port. *Castoes, Gastoes.* Rus. *Nabaldaschnikü,*) are made of gold, silver, agate, ivory, amber, &c. and are principally manufactured at London and Birmingham.

CANICA, a sort of spice which grows in the Island of Cuba. It is a kind of wild cinnamon, but its taste is more like that of cloves than of cinnamon. It is a saleable commodity in the Spanish Islands.

CANNEL-COAL, a solid, dry, opaque fossil, very hard, not fusible, but easily inflammable, and burning with a bright vivid white flame. This mineral is found in Lancashire, and in different parts of Scotland, where it is known by the name of *Parrot-coal.* The colour is black, the structure sometimes slaty. It burns like a candle, and lasts but a short time. It does not cake, and leaves a stony or sooty residuum. A specimen of Lancashire cannel-coal, analyzed by Mr. Kirwan, contained

75.20	charcoal
21.68	maltha
3.10	alumina and silica.
99.98	

Cannel-coal is susceptible of polish, and like jet, is frequently wrought into snuff-boxes, tea-pots, and cream-jugs, &c. &c.

CANNEQUINS, white cotton cloths made in India, about eight ells in length.

CANNON, (*Cannons.* Ger. & Du. *Kanonen.* Sw. *Kanon.* Fr. *Canons.* It. *Cannoni.* Sp. *Canones.* Port. *Canhoes.* Rus. *Puschki.* Pol. *Dziala,*) an engine or kind of fire-arms for throwing iron, lead, or stone bullets, by the force of gunpowder. They are made wholly of iron, or of a mixture of copper, tin, and brass. They may be made by casting hollow in a machine, or by boring out of a solid block.

With regard to those which are made of mixed metals, every founder has his own proportions, which are peculiar to himself. The most common proportions of the ingredients are the following, viz.: To 240 lb. of metal fit for casting, we put 68 lb. of copper, 52 lb. of brass, and 12 lb. of tin. To 4200 lb. of metal fit for casting, the Germans put $3687\frac{31}{41}$ lb. of copper, $204\frac{14}{41}$ lb. of brass, and $307\frac{25}{41}$ lb. of tin. Others again use 100 lb. of copper, 6 lb. of brass, and 9 lb. of tin; and lastly, others 100 lb. of copper, 10 lb. of brass, and 15 lb. of tin. Iron guns generally stand the most severe engagements, being frequently used on shipboard. Several experiments have taught us that the Swedish guns are preferable to all others.

Cannons are distinguished by the dia-

meters of the balls they carry. The rule for their length is, that it be such as that the whole charge of powder be on fire before the ball quits the piece. If it be too long, the quantity of air to be driven out before the ball, will give too much resistance to the impulse; and that impulse ceasing, the friction of the ball against the surface of the piece will take off from the motion. In former days, cannon were made much longer than they are now; but experience has taught us, that a ball moves with a greater impetus through a less space than a greater: and accordingly it is found that an iron ball of 48 pound weight goes farther from a short cannon than another ball of 96 pound out of a longer piece; whereas in other respects, it is certain, the larger the bore and ball, the greater the range. It is found too by experience, that of two cannons of equal bore, but different lengths, the longer requires a greater charge of powder than the shorter. The ordinary charge of a cannon is, for the weight of its gunpowder to be half that of its ball. *See* FOUNDING.

CANOE, a small boat made of the trunk of a tree, scooped hollow, and sometimes of pieces of bark sewed together. It is used by the natives of America to go a fishing, either by sea or upon the rivers and lakes. Canoes are used on the coast of Guinea, in the East Indies, and also by the savages about Davis's Streights.

CANTAR, or Cantaro, a weight used in Italy, particularly at Leghorn. There are three sorts: one weighs 150 pounds, another 151, and the third 160. The first serves to weigh alum and cheese; the second is for sugar; and the third for wool and cod-fish. The word is used also as a measure of capacity at Cochin, containing four rubis, each rubi being equal to 32 rotolis. *See* WEIGHTS AND MEASURES.

CANTHARIDES, or Spanish Flies, (Ger. *Spanische Fliegen.* Du. *Spaansche vliegen.* Da. *Spanske fluer.* Sw. *Spanska flugor.* Fr. *Catharides, Mouches d'Espagne.* It. *Cantarelle.* Spa. and Port. *Cantaridas.* Rus. *Hischpanskie muchi.* Pol. *Kantarijdi.* Lat. *Cantharides,*) are flies of a shining green colour, intermingled with somewhat of the blue, and of a golden yellow, of an acrid highly caustic taste, while fresh. They are found adhering to certain kinds of trees, in the warmer climates of Spain, Italy, and France; and sometimes in Germany. In bulk and colour they differ considerably from each other; the largest and best come from Italy: they are killed by the steam of vinegar, and then dried in the sun. *Cantharides* should be chosen large, fresh, dry, whole, and without dust; they are apt to rot upon keeping, and fall to powder, when they are good for nothing. They are commonly called *Spanish flies.* *Cantharides* are principally used externally in making blisters; they are also occasionally given inwardly, as a powerful stimulant. They are much used in farriery.

CANTIMARONS, or Catimarons, a kind of float or raft, used by the inhabitants of the coast of Coromandel, to go a fishing, and trade along the coast. They are made of three or four small canoes, or of trunks of trees dug hollow, tied together with ropes of cocoa, with a triangular sail in the middle, made of mats. The persons who manage them are almost half in the water, there being only a place in the middle, a little raised, to put in the merchandises, which last particular must be understood only of the trading *Catimarons.* Rafts in imitation of them, and similarly denominated, were tried on the coasts of America during the recent war, in order to carry combustibles among our enemies lying at anchor, but without much success.

CANVAS, (Ger. *Segeltuch.* Du. *Zeildoek.* Da. *Sejldug.* Sw. *Segelduh.* Fr. *Toile à voile.* It. *Cancvazza, Lona.* Sp. & Port. *Lona.* Rus. *Parussnoe polotno, Parussina,*) a very clean unbleached cloth of hemp or flax, woven very regularly in little squares. It is used for working tapestry with the needle, by passing the threads of gold, silver, silk, or wool, through the intervals or squares. It is also a coarse cloth of hemp, unbleached, somewhat clean, which serves to cover women's stays, to stiffen men's clothes, &c. &c. It is chiefly used to make sails for shipping, &c.

CAPE, is a promontory, or head-land, running out with a point into the sea.

CAPER, (*Capers.* Ger. *Kapern.* Du. *Kappers.* Da. *Kapers, Kappers.* Sw. *Kapris, Capris.* Fr. *Capres.* It. *Cappari.* Sp. *Alcaparras.* Port. *Alcapparras.* Rus. *Kaperszii.* Pol. *Kapary.*) *Caparis spinosa,* or common caper, a low shrub, generally growing out of the joints of old walls or fissures of rocks in the warm parts of Europe. This plant is with great difficulty preserved in England. It grows in great perfection in the southern parts of France, and in Italy. The *capers* sold in the shops are the full-grown buds of the flowers gathered before they blow, and spread in the shade till they begin to grow flaccid. Then they are put in a vessel, vinegar added to them, covered with a board, and let to remain for eight days; then being taken out of the vessel, they are squeezed gently; and fresh vinegar added, and let to stand for eight days more. This operation is repeated a third time. This done, the capers are put in a cask with vinegar, to which some add salt.

CAPER-SPURGE, (Ger. *Springkörner.* Du. *Springkooren.* Da. & Sw. *Springkorn.* Fr. *Epurge, Catapuce.* It. *Catapuzza minore.* Sp. & Port. *Tartagos, Catapucia menor,*) an extract from the caper-tree, used in pharmacy as a purgative.

CAPHAR, a duty which the Turks raise on the Christians who carry or send merchandise from Aleppo to Jerusalem and other places in Syria.

CAPITAL, among merchants, bankers, and traders, signifies the sum of money which a merchant at first puts into trade. It signifies likewise the fund of a trading company, or corporation, in which sense the word *stock* is generally added to it. Thus we say the *capital stock* of the Bank, &c. The word *capital* is opposed to that of profit or gain, though the profit often increases the *capital*, and becomes itself part of the *capital*, when joined with the former.

CAPLAN, a sort of small fish, which abounds in those places where they fish for cod; there is a great plenty of it on the coast of Placentia, in Newfoundland. It is used to bait the hooks of the lines with which cod is caught.

CAPPADINE, a sort of silk flock, taken from the upper part of the silkworm-cod, after the true silk has been wound off.

CAPS, (Ger. *Mützen*. Du. *Mutsen*. Da. *Huer*. Sw. *Mössor*. Fr. *Bonnets*. It. *Berrette*. Sp. *Gorros, Gorras*. Port. *Barretes*. Rus. *Kolpaki, Schapki*. Pol. *Czapki*,) coverings for the heads of both men and women. Those of the latter are made of tiffany, muslin, &c. and of the former, of leather, fur, and other articles.

CAPS, in a ship, square pieces of timber put over the heads or upper ends of the masts, having a round hole to receive the mast. By means of these caps, the top-masts and topgallant-masts are kept steady and firm in the tressel-trees where their feet stand.

CAPS, *of a gun*, are pieces of lead put over the touch-hole to keep the priming from being wasted or spoiled.

CAPSICUM, *Guinea pepper*, is of three sorts, viz.

1. *Capsicum annuum*, the common long-podded capsicum.

2. *Capsicum baccacum*, the bird-pepper, grows nearly five feet high; the leaves are of a lucid green. This is the Cayenne-pepper.

3. *Capsicum grossum*, the bell-pepper. The fruit of this is red, and is the only kind proper for pickling, the skin being tender, whereas those of the other sorts are thin and tough.

CAP-SQUARES, in gunnery, strong plates of iron which come over the trunnions of a gun, and keep it in the carriage.

CAPSTAN, Capstern, or Main Capstan, in a ship, a large piece of timber in the nature of a windlass, placed next behind the main-mast, its foot standing in a step on the lower deck, and its head between the upper decks formed into several squares with holes in them. It is used to weigh the anchors, to hoist up or strike down top-masts, to heave any weighty matter, or to strain any rope that requires a main force.

CAPSTAN *Jear* is placed between the main-mast and the mizen, and serves to strain any rope, heave upon the jear-rope or upon the viol, or hold off by at the weighing of an anchor.

CAPTURE, particularly relates to prizes taken by privateers, &c. in time of war, which are divided between the captors, &c.

CAPUT MORTUUM, in chemistry, signifies the fæces or residue of any body, remaining after all the volatile and humid parts have been extracted. The term is often used colloquially and otherwise to convey a sarcasm on any thing from which all the goodness has been extracted.

CARABINE, a fire-arm, shorter than a musket, carrying a ball of twenty-four in the pound, borne by the light-horse, hanging by a belt over the left shoulder.

CARACT, CARAT, or Carrat, the name of that weight which expresses the degree of fineness that gold is of. The Mint-master, or custom, has fixed the purity of gold at 24 caracts; though it is not possible to purify and refine that metal, but it will want still about 1-fourth part of a caract in absolute purity and perfection. The caract is divided into 1-fourth, 1-eighth, 7-sixteenths, 1-thirty-second. These degrees serve to distinguish the greater or less quantity of alloy therein contained: for instance, gold of 22 caracts is that which has two parts of silver or of any other metal, and 22 of fine gold. It is also a certain weight which goldsmiths and jewellers use, with which to weigh precious stones and pearls. This caract weighs four grains, but is something lighter than the grains of other weights. Each of these grains is subdivided into 1-half, 1-fourth, 1-eighth, 1-sixteenth, &c. *See* WEIGHTS AND MEASURES.

In Spain, the *caract* or *quilate* is also of 4 grains: three *caracts* make a tomin, eight tomins a castillan, six castillans and two tomins one ounce, and eight ounces a marc; but the marc of Spain is about 1-seventh lighter than that of France.

CARAGI, thus are called, in the Grand Seignior's dominions, the duties of importation and exportation paid on merchandise. It is also the name of the custom-house officers who receive the duties. The general or chief officer, or director of the custom-house, is called *Caragi Bachi*.

CARAGROUTH, a silver coin of the Turkish empire, weighing about 9 drachms. It goes at Constantinople for 120 aspers. Its value in English currency is 5*s*.

CARAMANGOE, a drug which comes from China, and is proper to be used in medicine. The Tonquinese value it very much.

CARANNA, is a tenacious, resinous concrete; while fresh, it is ductile like pitch, but hard and friable when it has been kept for any time; outwardly of an ash colour inclining to black; inwardly of an obscure brown. It is brought to us from New Spain and other parts of America in little masses rolled up in leaves of flag. This resin affords by distillation a fine, thin, limpid, and odoriferous oil, which is esteemed, as is the resin itself, a very powerful external remedy in cases of pain, tumours, and wounds of the nerves.

CARAPACE, a thick, solid, and firm shell, which covers the turtle, or tortoise, and to which adhere those fine transparent shells, which are known under the name of tortoise-shells, of which snuff-boxes and several sorts of inlaid works are made.

CARAT. *See* CARACT.

CARAVAN, signifies a company or assembly of travellers, and more particularly of merchants, who for their greater security, and in order to assist each other, travel together through the deserts, and other dangerous places, which are infested with Arabs and robbers. This is the true origin of these associations. In order to form a *caravan*, it is necessary to have the permission in writing of a sovereign Prince. That permission must comprehend the number of men, carriages, and quantity of merchandise of which the *caravan* is to be composed. Those merchants, to whom the *caravan* belongs, appoint its officers, and regulate every thing relating to its police or government during the march. There are five sorts of *caravans:* the *heavy caravans*, composed of elephants, dromedaries, camels, and horses; the *light caravans*, which have but few elephants; the *common caravans*, where there are none of those animals; the *horse caravans*, in which they use neither dromedaries nor camels; and lastly the *sea caravans*, consisting of a number of merchant-ships under the convoy of some men of war; whence it may be observed, that the idea of a *caravan* is not so entirely restrained to the land, but that there may also be *marine caravans*. The proportion observed in the *heavy caravan* is as follows: when there are four hundred elephants, they add one thousand dromedaries, and two thousand horses at least, and the escort is composed of four thousand men on horseback. Two men are required for leading one elephant, five for three dromedaries, and seven for eleven camels.

A great many *caravans* set out for *Erzerum*, the capital of that part of Armenia which is under the dominion of the Grand Seignior. Some of them consist of Armenians only, as those which carry silks to Tocat, and to Constantinople: they commonly set out in September. The *caravans* of Siberia enter into the territories of China, by Selinginskoy, situated in the fifty-second degree of northern latitude, on the eastern bank of the river Selinga. There are sea-caravans from Constantinople for Alexandria. The *caravan* of Nubia goes twice a year into Egypt. It passes through Gary, a place on the left bank of the Nile, three or four days' journey on this side of Dongola. There the merchants of Sannar, the capital of Fungi, those of Gondar, the capital of Ethiopia, and many others from divers parts of Africa, meet at a certain time, when they know the *caravan* is to arrive. Then setting out from Gary, the *caravan* leaves the banks of the Nile, and crossing the deserts of Libya, arrives, after a march of thirteen days, in a valley, which is thirty leagues long. This valley, which extends almost from north to south, is planted with palm-trees, and very well cultivated, because good water may be found by digging only one foot deep in the ground. After some days rest in this agreeable place, the *caravan* marches a whole day between steep mountains, in an even, but narrow road; after which it arrives at a narrow pass, through which it crosses that chain of mountains running along the Nile on the side of Libya, and comes at last to Manfelout, a town in Upper Egypt, where the duties to the prince are paid in black slaves, and where the *caravan* meets the Nile again, for the first time from its setting out from Gary.

There is likewise at Cairo every year a numerous *caravan* from Tripoli, to which the merchants of Algiers, Tunis and Morocco join themselves, as well as those who go in pilgrimage to Mecca. This *caravan* is much less on its return, because the greatest part of those merchants who went by land, with only money, or very fine merchandise for sale, having employed their effects at Mecca in buying Indian commodities, which are bulky, embark at Alexandria, and return by sea to Algiers.

Every year also *caravans* come into Egypt from Syria, but the time of their arrival and setting out is not fixed. The journey of the *caravans* is not difficult, because the deserts which separate these two countries are crossed in three days, and there is no scarcity of water. On the road several *caravanseras*, in which the travellers and their cattle are furnished gratis with all necessaries, are to be met with; so that these *caravans* enjoy all possible conveniences, especially the rich people among them, who, nevertheless, live very soberly during their journey. The *caravanseras* in the East are something in the nature of our capital inns in Europe, with this difference however, that in the *caravanseras* little accommodation is met with, either for man or beast, all persons being obliged to carry almost every thing with them.

CARAVEL, or CARVEL, a kind of light

round ship: hence we term a ship *carvel-built.*

CARAWAY, or CARAWAY SEED, (GER. *Kümmel, Feldkümmel, Brodkümmel.* DU. *Karwey, Veldkomyn.* DA. *Kummen, Dansk kummen.* SW. *Kummin, Brodkumin.* FR. *Carvi, Cumin des près.* IT. *Carvi.* SP. *Alcaravea.* PORT. *Alcaravia, Chirivia.* RUS. *Dikii timon.* POL. *Karuy, Kmin polny.* LAT. *Carvi,*) is a small seed, of an oblong and slender figure, pointed at both ends, and thickest in the middle. It is rounded or gibbous on one side, and flatted on the other, and is deeply striated on the surface; it is considerably heavy; its colour is a deep brown; its surface perfectly free from hairiness, and somewhat bright or glossy. It is of a very penetrating smell, not disagreeable, and of a hot, acrid taste. *Caraway seed* is to be chosen large, new, and of a good colour, not dusty, and of a strong agreeable smell. The principal purpose to which it is applied, is in confectionary.

CARBEQUI, or *asper of copper,* a coin which is current in the province of Georgia, in Asia, particularly at Teflis, the capital of it; 40 *carbequis* make an abagi, and 10 *carbequis* a chasuri. It is worth about 5*s.* English.

CARBON. The diamond is supposed to be carbon in a state of absolute purity. It cannot be distinguished in its chemical characters from pure carbon; the products of both from combustion are the same. Carbon combined with a portion of oxygen may be obtained by passing alcohol through a red-hot tube. It is the base of common charcoal, which substance is an oxide of carbon.

Carbon has not been fused, but when an intense heat is applied, it rises in vapour.

Carbon has the property of de-oxidizing the oxides of metals, and other combustible substances, and with this view it is often used in the arts, in the state of charcoal.

Carbon is found in large proportions in bitumens; it is ready-formed also in all vegetables, and in most animal substances; and combined with oxygen, enters into the composition of a great variety of substances of the mineral kingdom. It unites with several of the metals. With iron, in the proportion of one part in two hundred, it constitutes steel; nine parts of carbon to one of iron form plumbago; with a large proportion of oxygen it becomes carbonic acid.

From the indestructible nature of charcoal, the practice of charring piles that are to be driven into the ground, and casks intended to preserve water at sea, has been deduced. It has the property of removing the taint of meat, from its antiseptic quality. Putrid water is rendered tolerably sweet by charcoal; common vinegar being boiled with charcoal, loses its colour; and ardent spirits, as rum, &c. lose their colour and bad taste by maceration with charcoal. The colouring matter of litmus, indigo, &c. disappear by such treatment.

CARBUNCLE, (GER. *Karfunkel.* DU. *Karfonkel.* DA. SW. and RUS. *Karbunkel.* FR. *Escarboukle.* IT. *Carbonchio.* PORT. *Carfuncula.* SP. *Carbunculo.* POL. *Karbunkul.* LAT. *Carbunculus,*) a precious stone of the ruby kind, of a very rich, glowing blood-red colour.

CARD, (GER. *Kardätschen, Karden, Wollkratzen.* DU. *Kaarden, Wolkaarden.* DA. *Karder, Uldkarder.* SW. *Kerdor.* FR. *Cardes.* IT. *Cardi.* SP. and PORT. *Cardas.* RUS. *Bardii.* POL. *Greply,*) is an instrument or comb composed of a great number of small pieces or points of iron wire, a little incurvated like hooks towards the middle, and fastened closely together on leather, being nailed by the edges on a flat piece of wood, which is an oblong square, about a foot long, and near half a foot broad, with a handle placed in the middle, on the edge of the longest side: there are always two *cards,* between which are put the materials that are to be worked.

These cards serve to arrange the hairs of wool, flax, hemp, &c.: they are of different kinds, as hand-cards, stock-cards, &c. Cards are prohibited to be exported.

CARDS, or PLAYING CARDS, (GER. *Karten, Spiel karten.* DU. *Kaarten, Speelkaraten.* DA. *Kort, Spilkort.* SW. *Kort.* FR. *Cartes à jouer.* IT. *Carte da giuoco.* SP. *Cartas, Naipes.* PORT. *Cartas de jogar.* RUS. *Kartii.* POL. *Karty,*) little thin pieces of fine pasteboard of an oblong figure, of several sizes, but most commonly in England three inches and a half long, and two inches and a half broad, on which are painted several points and figures. The moulds and blocks for making cards, are exactly like those that were used for the first books: they lay a sheet of wet or moist paper on the block, which is first slightly done over with a sort of ink made with lamp-black diluted in water, and mixed with some starch to give it a body. They afterwards rub it off with a round list. The court-cards are coloured by means of several patterns, stiled stane-files. These consist of papers cut through with a penknife, and in the apertures they place severally the various colours, as red, black, &c. The patterns are painted with oil-colours, that the brushes may not wear them out; and when the pattern is laid on the pasteboard, they slightly pass over it a brush full of colour, which, leaving it within the openings, forms the face or figure of the card. We used to export cards to Russia, but they are prohibited by the last tariff.

Cards and dice are prohibited from being imported. Persons not giving notice where cards or dice are made, or removing the same before they are marked, except for exportation, are liable to heavy penalties.

Persons selling second-hand cards incur a penalty of *5l.* per pack.

No unstamped dice or cards shall be used in any gaming-house or elsewhere, under a penalty of *5l.* upon the seller.

CARDAMOMS, (*Cardamom*, Ger. *Kardamum*. Du. *Kardamomen*. Da. *Cardamomer*. Sw. *Kardemummor*. Fr. *Cardamomes*. It. *Cardamomi*. Sp. and Port. *Kardamomos*. Rus. *Kardamon*. Pol. *Cardamom*. Lat. *Cardamomum*,) come to us from the East Indies, and are of a dark brown colour, an aromatic smell, and a hot biting taste, and are contained in short triangular pods, of a pale colour. There are two sorts, the *greater* and *less cardamoms*. All kinds of *cardamoms* abound in an essential oil: bruised and macerated in water, and afterwards distilled, they yield a very considerable quantity of it. The people of the East use them in sauces; with us they are much esteemed in medicine; but the lesser kind are the most so. They are to be chosen sound, close shut on all parts, and full of seeds of a good smell, and of an acrid aromatic taste.

CARDING, a method of preparing wool, cotton, hair, &c. by passing it between the iron points, or teeth of two instruments, called *cards*, in order to disentangle and range the fibres, or hairs thereof, and dispose of it for spinning, weaving, &c. *See* CARD.

CARD-WIRE, (Ger. *Kratzdraht*. Du. *Kaardendraad*. Da. *Kardetraad*. Sw. *Kardtrad*. Fr. *Fil à carde*. It. *Filo da cardi*. Sp. *Alambre para cardas*. Port. *Arame para cardas*,) a wire manufactured of iron, for the teeth, &c. of wool-cards. *See* WIRE.

CAREENING, in the sea language, the bringing a ship to lie down on one side, in order to trim and caulk the other side.

A ship is said to be brought to the careen, when the most of her lading being taken out, she is hauled down on one side by a small vessel as low as may be necessary, and there kept by the weight of the ballast, ordnance, &c. as well as by ropes, lest her masts should be strained too much, in order that her sides and bottom may be trimmed, seams caulked, or any thing that is faulty under water mended. Hence when a ship lies on one side as she sails, she is said to sail on the careen.

CARGADORS, a name which the Dutch have borrowed from the Portuguese, signifying a *ship-broker*.

CARGO, signifies all the merchandise and effects laden on board a ship, exclusive of the crew, rigging, ammunition, provisions, guns, &c. We say a ship has its *cargo*, when it is laden as full of merchandise as it can hold; that it has half its cargo when it is half full, and so on.

CARLINE, Carlin, or Caroline, a silver coin current in the Neapolitan dominions, and worth about four-pence of our money.

CARLINGS, or Carlines, in a ship, two pieces of timber lying fore and aft, along from beam to beam, whereon the ledges rest on which the planks of the ship are fastened.

CARLINO, a small silver coin, which is current in the kingdom of Naples, and in Sicily, worth about four-pence sterling.

CARLOCK, a sort of isinglass made with the sturgeon's bladder, imported from Archangel. The chief use of it is for clarifying wine; but it is also used by dyers. *See* ISINGLASS.

CARMELINE, or Carmenia Wool, (Ger. *Karamenirche oder Kirmansche Wolle*. Du. *Kirmansche Wol*. Fr. *Laine de Carmenie*. It. *Lana di Caramania*. Sp. *Lana de Caramenia*. Port. *Laa de Caramania*,) is the second sort of wool produced by the animal which the Spaniards call vicunna, which is a species of sheep, a native of South America.

CARMEN. The rates and orders for carmen in the city of London, are settled at the general quarter sessions of the peace.

Carmen are to help to load and unload their carts; and if any carman exacts more than the regular rates, upon due proof, before the Lord Mayor, or any two magistrates, he shall suffer imprisonment for the space of 21 days.

If any person shall refuse to pay any carman his hire, according to the regular rates, upon complaint made, the President of Christ's Hospital, or a Justice of the Peace, may compel payment.

Merchants or other persons may choose what cart they please, except such as stand for wharf-work, tackle-work, crane-work, at shops and merchants' houses, which are to be taken in turn; and every carman standing with his empty cart next to any goods to be loaded, shall, upon the first demand, load the same for the accustomed rates; and if any person shall cause a carman to attend at his house, shop, warehouse, or cellar, with his loaded cart, the carman being willing to help to unload the same, he shall pay the carman after the rate of twelve-pence for every hour after the first half-hour for his attendance.

Every licensed carman is to have a piece of brass fixed upon his cart, upon which is to be engraven a certain number, which number, together with the carman's name, is registered in a register kept at Christ's-Hospital; so that, in case of any misbehaviour, the party offended, by taking notice of the number of the cart, may search for it in the register, and the name will be found.

Carmen, not conforming to these rules, or working without a numbered piece of brass fixed on the cart, may be suspended from their employment.

Carmen, riding upon the shafts of their carts, or sitting within them, not having some person on foot to guide the horses, shall forfeit 10s.

CARMINE, (Ger. Rus. and Pol. *Karmin.* Du. *Karmyn.* Da. Sw. and Sp. *Carmin.* Fr. *Carmine.* It. *Carminio.* Port. *Carmim.* Lat. *Carminum,*) a powder of a very beautiful red colour, bordering upon purple, and used by painters in miniature. The mode of preparing this colour has been a pretended secret with the French, from whom we mostly obtain the article; but there is no doubt that it is extracted from cochineal by means of water, wherein probably *chouan* and *antour* have been infused; some add *racou,* but this must give it too much of the opal cast. Others make carmine with Brazil-wood, fernambouc, and leaf-gold, beaten in a mortar, and steeped in white-wine vinegar; the scum arising from this mixture, upon boiling, when dried, makes carmine, but of a kind inferior to the former. *Chouan* is a French name for a small seed of yellowish-green colour, resembling worm seed, brought from the Levant. *Autour* or *antour,* is a kind of bark also brought from the Levant, somewhat resembling cinnamon in shape and colour. To be good, carmine must be an impalpable powder.

CARNEL, among ship-carpenters. The building of ships, first with their timbers and beams, and after bringing on their planks, is called carnel-work, to distinguish it from clinch-work.

CARNELIAN, Carnelion, or Cornelian, *sarda,* in natural history, a precious stone, of which there are three kinds, distinguished by three colours; red, yellow, and white. Ancient authors have attributed medical virtues to this stone. It is very well known amongst us, and is found in roundish and oval masses, much like our common pebbles. It is generally met with between an inch, and two or three inches, in diameter. It is fine, compact and close in its texture, of a glossy surface, and in several specimens is of all the degrees of red, from the palest flesh-colour to the deepest blood-red. It is generally free from spots, clouds or variegations; but sometimes it is veined very beautifully with an extremely pale red, or with white, the veins forming concentric circles, or other less regular figures, about a nucleus, in the manner of those of agates. The pieces of carnelian which are all of one colour and perfectly free from veins, are those which our jewellers generally make use of for seals, though the variegated ones are much more beautiful. The carnelian is tolerably hard, and capable of a very good polish: it is not at all affected by acid menstruums; the fire divests it of a part of its colour, and leaves it of a pale red; and a strong and long-continued heat will reduce it to a pale dirty-grey. The finest carnelians are those of the East Indies; but there are very beautiful ones found in the rivers of Silesia and Bohemia, and we have some of an inferior sort in England.

CAROBES, a sort of beans, which grow plentifully in the island of Cyprus; most of the inhabitants live upon them, and large quantities are sent, in small vessels, to all the islands of the Archipelago.

CAROLUS, an ancient English broad piece of gold, struck under Charles I., at the time it was coined, rated at twenty shillings; also, a small copper coin, with a little silver mixed with it, struck under Charles VIII. of France. It was worth twelve deniers when it ceased to be current.

CAROTEEL, an uncertain weight or quantity of goods; thus a caroteel of cloves is from four to five hundred weight, of currants from five to nine, of mace about three hundred, of nutmegs from six to seven hundred and a half, weight.

CARPENTER, an artificer whose business is to cut, fashion, and join timber and other wood for building, and for all domestic purposes inferior to cabinet work.

CARPET, (*Carpets.* Ger. *Teppiche.* Du. *Tapyten, Vloer-tapyten.* Da. *Tæpper, Tapeter.* Fr. *Tapis.* It. *Tappeti.* Sp. *Alfombras, Alcatifas, Tapetes.* Port. *Alcatifas, Tapetes.* Rus. *Kowrii, Kilimi.* Pol. *Kobierzek,*) a sort of stuff wrought with the needle, or on a loom, which is part of the furniture of a house; commonly laid upon floors. Persian and Turkey carpets are most esteemed; though at Paris there is a manufactory after the manner of Persian, where they make them little inferior, not to say finer, than the true Persian carpets. There are also carpets of Germany, some of which are made of woollen stuffs, as serges, &c. and called square carpets; others are made of wool also, but wrought with the needle, and often embellished with silk; and lastly there are carpets made of dog's hair. We have carpets made at Axminster, Kidderminster, &c. in England, and at several towns in Scotland and Ireland.

In weaving carpets, the design or pattern is traced in its proper colours on cartons, tied before the workman, who looks at them every moment, because every stitch is marked upon them, as it is to be in his work. By this means he always knows what colours and shades he is to use, and how many stitches of the same colour. In this he is assisted by squares, into which the whole design is divided; each square is subdivided into ten vertical lines, corresponding with the parcels of ten threads of the warp; and besides, each square is ruled with ten horizontal lines, crossing the vertical lines at right angles. The workman, having placed his spindles of thread near him, begins to work on the first horizontal line of one of

the squares. The lines marked on the carton are not traced on the warp, because an iron wire, which is longer than the width of a parcel of ten threads, supplies the place of a cross line. This wire is managed by a crook at one end, at the workman's right hand; towards the other end it is flatted into a sort of knife, with a back and edge, and grows wider to the point. The weaver fixes his iron wire horizontally on the warp, by twisting some turns of a suitable thread of the woof round it, which he passes forward and backward, behind a fore thread of the warp, and then behind the opposite thread, drawing them in their turn by their leishes. Afterwards he brings the woof-thread round the wire, in order to begin again to thrust it into the warp. He continues in this manner to cover the iron rod or wire, and to fill up a line to the tenth thread of the warp. He is at liberty either to stop here, or go on with the same cross line in the next division, according as he passes the thread of the woof round the iron wire, and into the warp, the threads of which he causes to cross one another at every instant: when he comes to the end of the line, he takes care to strike in, or close again all the stitches with an iron reed, the teeth of which freely enter between the empty threads of the warp, and which is heavy enough to strike in the woof he has used. This row of stitches is again closed and levelled, and in the same manner the weaver proceeds: then with his left hand he lays a strong pair of shears along the finished line, cuts off the loose hairs, and thus forms a row of tufts perfectly even, which, together with those before and after it, form the shag. Thus the workman follows, stitch for stitch, and colour for colour, the plan of his pattern, which he is attempting to imitate; and he paints magnificently, without having the least notion of painting or drawing. This description is to be understood as applicable to the superior kinds of carpeting, for the inferior sorts are made by the simplest process of weaving.

CARPO BALSAMUM, the fruit or berry of the tree, which produces the true balm of Gilead. *See* BALSAM.

CARRARA, *marble,* the name of a species of white marble, distinguished from the Parian, called the statuary marble, by being harder and less bright.

CARRIAGE, in its primary signification, is merely a machine for the conveyance of persons, goods, &c. from place to place, and comprises coaches, waggons, carts, &c. for which see those titles.

CARRIAGES *for guns,* (Ger. *Lavetten, Lafetten.* Du. *Affuiten.* Da. and Sw. *Lavetter.* Fr. *Affuts.* It. *Casse d' artiglieria.* Sp. *Afustes.* Port. *Carretas de artilheria.* Rus. *Lafete,*) the frames on which cannons are mounted.

CARRIDARRIES, a species of *prohibited* Bengal muslin.

CARRIER. Every person carrying goods for hire is deemed a carrier, and as such is liable in law for any loss or damage that may happen to them whilst in his custody. Waggoners, captains of ships, lightermen, &c. are therefore carriers; but a stage-coachman is not within the custom as a carrier; neither are hackney-coachmen carriers within the custom of the realm, so as to be chargeable for the loss of goods, unless they are expressly paid for that purpose, for their undertaking is only to carry the person.

A carrier may refuse to receive goods into his warehouse before he is ready to take his journey, because he is not obliged to find warehouse room; he may also refuse to receive goods at unseasonable hours; but he cannot refuse generally, on account of his public employment. *Ld. Raym.* 646.

By stat. 3 Wm. c. 12. the justices in Easter sessions have power to rate the prices of all land-carriage goods to be brought from any place within their jurisdiction, by any common waggon or carrier. And by that statute, and 21 Geo. 2. c. 28., such carriers are punishable by fine of 5l. to be recovered before two justices, by distress, for charging more than the rated price, between such place and London, or between London and such place.

In almost all cases carriers are answerable, either criminally, or civilly, for the safe delivery of goods committed to their care.

If a carrier open a parcel committed to his care, with the intent to steal any part of the contents, he is guilty of felony. 1 *Hawk.* c. 33.

And if a carrier carry goods to the place appointed, and after take them away with intent to steal them, their having been delivered to him originally, does not save his second taking from the charge of felony. *Ibid.*

Also, if he undertake to carry goods to a certain place, and carry them to another, and dispose of them to his own use, it is felony. *Keetinge,* 82.

A carrier, pretending to have delivered goods, but to have lost the bailee's receipt, obtained the money for the carriage; was indicted under stat. 30 Geo. 2. c. 24. for obtaining money under false pretences, and convicted, 2 *East. Rep.* 30.

Where goods are delivered to a carrier, and he is robbed of them, he shall be answerable for their value in an action; for a carrier is by law placed in the situation of an insurer, and answerable at all events, except for the acts of God, and the king's enemies. 1 *T. R.* 27.

Therefore he is answerable if the goods be burnt in his possession *as a carrier, and in the common course of his business,* though by accident. *Ibid*

And he must not only carry them, but deliver them safe and in as good a state as

he received them, or answer the damage in an action. *Bac. Ab.*

And he has that kind of special property in them that he may indict, or bring actions, on account of them, if stolen from him, or damaged by another while in his possession, as the absolute owner might do. 2 *Bos. & Pul.* 419.

If the owner of goods travel in a *common carriage*, along with them, but they are entrusted like other goods to the general care of the carrier, the owner's presence does not absolve the carrier from his general responsibility.

But though if a carrier accept *generally*, he is liable to the full value; he may also, as is very common, accept conditionally, to be paid after an extraordinary rate if the goods are above a certain value, and *that* by general advertisement only, without special bargain or personal communication. In this case, the carrier is only a special acceptor, and not liable beyond the amount he adventures.

And if any imposition be practised on him, as paying an *extraordinary* price to induce him to carry goods to the value of 100*l.* when in fact the value of the goods be 1000*l.*; if the carrier be robbed, or by any other means lose such goods, the owner shall not recover any part, not even that for which he agreed, because of the fraud and imposition. 1 *H. Black.* 298.

A carrier cannot retain goods for a balance due to him upon a general account, unless by special agreement; but he may retain them till he is paid the carriage for those particular goods. 8 *East. R.* 224.

And even if they be stolen goods, the right owner is bound to pay the carrier for the carriage before he is entitled to take them. *Ld. Raym.* 166.

CARRONADE, a short kind of ordnance, capable of carrying a large ball, and useful in close engagements at sea. It has its name from Carron, the place where this kind of ordnance was first made.

CARROTS. *See* ROOTS.

CARTEL, a treaty during time of war, relating to the exchange of prisoners.

CARTERS. This fellowship has the exclusive privilege of acting within the city for hire; they have 420 carts belonging to them, and they are regulated by the city of London; they are compellable to do the cartage business of the port when called upon, and are responsible for the safety of their load, and the conduct of their servants. They pay to the governors of Christ's Hospital annually, for their licences 17*s.* 4*d.* and 1*l.* 3*s.* 6*d.* for every transfer.

CARTHAMUS *tinctorius*, a plant with a saffron-coloured flower, a native of Egypt, and some of the warm parts of Asia. It is cultivated in many parts of Europe, and in the Levant, whence great quantities of it are annually imported into Great Britain, for dyeing and painting.

CARTRIDGES, (Ger. *Kardusen, Patrenen.* Du. *Kardoesen.* Da. *Karduser.* Sw. *Kardusor.* Fr. *Gargousses.* It. *Cartoccj.* Sp. and Port. *Cartuchos,*) in the military art, a case of paper, pasteboard, or parchment, holding the exact charge of a fire-arm. Those for muskets, carabines, and pistols, hold both the powder and ball for the charge; and those of cannon and mortars are usually in cases of pasteboard or tin, sometimes of wood, half a foot long, adapted to the calibre of the piece.

CARTS. Every cart, &c. for the carriage of any thing to, and from, any place, where the streets are paved, within the bills of mortality, shall contain six inches in the felly; and no person shall drive any cart, &c. within the limits aforesaid, unless the name of the owner, and number of such cart, be placed in some conspicuous part thereof, and his name entered with the commissioners of the hackney-coaches, under the penalty of 40*s.* and any person may seize and detain such cart till the penalty be paid. 18 Geo. 2. c. 33.

On changing property the name of the new owners shall be affixed, and entry shall be made with the commissioners of the hackney-coaches. The entry of all carts within five miles of Temple-bar, is strictly enjoined by the 24 Geo. 3. s. 2. c. 27. *See* 3 *Dick. Pract. Expos.* 322.

CAS, CAXA, CAYAS, CACHEE, CASSE, and CASIE, is a small money of lead, and the scum of copper mixed; its principal currency is at Bantam, and the rest of the island of Java, and in some neighbouring islands. Two hundred of these *caxas* are worth nine deniers, or $\frac{2}{21}$ sterling.

CASAVA, Gasava, or Gazana, is an East Indian silver coin, and one of the roupees current in Indostone, especially at Amadabath. It is worth 2*s.* 6*d.* English.

CASBEQUE, or Kabesque, is a small copper coin, only made and current in Persia; it is worth about six deniers tournois, and the *demi cabesque* one half. *Pul* is the common name for all copper in Persia. It is worth 12*s.* 5*d.* English.

CASCARILLA. (Ger. *Kaskarille.* Du. *Kaskarilla.* Da. *Caskarille.* Sw. *Schakarillbark.* Fr. *Cascarille, Chaquerille.* It. *Cascariglia.* Sp. *Cascarilla.* Port. *Cascarilha.* Rus. *Kaskaril.* Pol. *Kaskarel, Szakrel.* Lat. *Cascarilla.*) *See* BARK.

CASE, *among printers*, denotes a sloping frame, divided into several compartments, each containing a number of types or letters of the same kind. From these compartments the compositor takes out each letter as he wants it, to compose a page or form.

CASE *of crown-glass*, contains 12, 15, or 18 tables. In cases of the best glass there

are the smallest number of tables, as the price is the same for each case.

CASE *of Newcastle green glass* contains 35 tables.

CASE-HARDENING, a method of rendering the surface of iron so hard as to resist the file or any edged tool. The art of case-hardening is a lesser degree of steel-making, and is performed by baking the iron instruments in a kind of oven stratified with powdered charcoal, hoofs, horns, &c. so as to exclude the air; by which means the instruments acquire a kind of coat of steel some depth below their surface.

CASE-SHOT, in the military art, signifies musket-balls, stones, old iron, &c. put into cases, and shot out of great guns.

CASES, are boxes made for packing up goods chiefly for exportation, &c. and are made of all sizes.

CASH, in commerce, is the stock or ready money which a merchant has in his *caisse* or coffer, for present use; at least such is the derivation given by most of our lexicographers. This, however, to others has appeared a forced application of the name of the repository containing the treasure, to the treasure contained itself; and such persons rather suppose the term to have been brought from India; *cass* being a common name for all sorts of small coin used in traffic in those regions, especially in the islands of the Indian Ocean. (*See title* ASIA, *article* CHINA.) Some have gone so far as to say, that almost all the terms used in money transactions in Europe, were originally brought by the Dutch from their settlements in the island of Sumatra, where they carried on a prodigious traffic; that the medium of their commercial intercourse was *Cass*, or small money, and the place where it was transacted *Banca*, whence *Cash* and *Bank*. Etymology however is scarcely even a secondary consideration in commerce, therefore it is only on this subject necessary to add, that by the modern application of the word, it stands not merely for money, but for all its representatives payable upon demand, as bank notes, bankers' checks, &c. &c.

CASH-ACCOUNT, in mercantile transactions, is that account to which nothing but money is carried on the one hand, and *from* which the disbursements of the concern are drawn on the other hand. The balance is *the cash in hand*. When the credit side more than balances the debt, or disbursement side, the account is said to be *in cash*; when the contrary, to be *out of cash*.

CASHEW-NUTS, (Ger. *Akajunüsse, Westindische Anakarden*. Du. *Catsjoenooten*. Da. *Akajunödder*. Sw. *Akajunötter*. Fr. *Noix d'acajou*. It. *Acaju*. Sp. *Nueces d'acaju*. Port. *Nozes d'acaju*.) The tree which yields these nuts grows naturally in the West Indies, and arrives at the height of 20 feet in those places of which it is a native. The fruit is as large as an orange; and is full of an acid juice, which is frequently made use of in making punch. To the apex of this fruit grows a nut, of the size and shape of a hare's kidney; but it is much larger at the end which is next to the fruit, than at the other. The shell is very hard, and the kernel, which is sweet and pleasant, is covered with a thin film. Between this and the shell is lodged a thick, blackish, inflammable liquor, of such a caustic nature in the fresh nuts, that if the lips chance to touch it, blisters will immediately follow. The kernels are eaten raw, roasted, or pickled. The caustic liquor just mentioned is esteemed an excellent cosmetic with the West India young ladies; but they must certainly suffer a great deal of pain in its application. The milky juice of this tree will stain linen of a good black, which cannot be washed out.

CASHIER, he who keeps the *cash*, or the money, which it is his business to receive and pay. In every depository of money, whether public or private, under the denomination of *a bank*, there must be an officer of this description.

CASK, a common name for vessels of different kinds, in contradistinction to the liquor or other matter it contains: a cask of sugar is a barrel of that commodity, containing from 8 to 10 cwt. A cask of almonds about 3 cwt., and a cask of raisins about 1 cwt. &c.

CASKET, a chest for holding jewels, &c.

CASKETS, on board a ship, small ropes made of sinnet, and fastened to gromets or little rings upon the yards. Their use is to make fast the sail to the yard, when it is to be furled.

CASSADA, or Cassava, (Ger. *Kassave*. Du. *Kassave, Maniok*. Da. Sw. and It. *Cassava*. Fr. *Cassave, Manioc, Magnoc*. Sp. *Cazabe, Magnoc*. Port. *Mandioca*,) a mealy substance, derived from the root of a plant called Magnoc: the root in a crude state is a deadly poison; but when the pernicious part is separated from it, it affords excellent bread. The plant is a native of the West Indies.

CASSIA, (Ger. *Kassie*. Du. *Kassie*. Da. and Sw. *Cassia*. Fr. *Casse solutive*. It. *Cassia fistola*. Sp. *Canafistola*. Port. *Cassia purgante*. Rus. *Kassea*. Pol. *Fistula*. Lat. *Cassia fistula*.) *Cassia fistula*, the purging cassia of Alexandria, is a native of Egypt and both Indies; it rises to the height of 40 or 50 feet, with a large trunk, dividing into many branches, with winged leaves. The flowers are produced in long spikes at the end of the branches, each standing upon a long foot-stalk: these are composed of fine yellow concave petals, which are succeeded by cylindrical pods, from one to two feet long, with a dark brown woody shell, having a longitudinal seam on one side, di-

vided into many cells, by transverse partitions, each containing one or two oval, smooth, compressed seeds, lodged in a blackish pulp, which is the cassia used in medicine. There are two sorts of this drug in the shops, one brought from the East Indies, the other from the West. The canes or pods of the latter are generally larger, rough, thick-rinded, and the pulp nauseous; those of the former are less smooth, the pulp blacker, and of a sweeter taste; this sort is preferred to the other. The pods should be chosen weighty, new, and not rattling (from the seeds being loose within them) when shaken. The pulp should be of a bright shining black colour, and a sweet taste; not harsh, which happens from the fruit being gathered before it has grown fully ripe, or sourish, which it is apt to turn upon keeping; it should neither be very dry, nor very moist, nor at all mouldy; which, from its being kept in damp cellars or moistened, in order to increase its weight, it is very subject to be. The greatest part of the pulp dissolves both in water and rectified spirit, and may be extracted from the pod by either. This pulp is a gentle laxative medicine.

CASSIDONY, a mineral and precious stone, with veins of several colours, of which vases are made, and which were in great esteem among the ancients, called by them *murrhina*.

CASSITERIA, in the history of fossils, a genus of crystals, the figures of which are influenced by an admixture of some particles of tin. The cassiteria are of two kinds: the whitish pellucid, and the brown: the first is tolerably bright, and seldom subject to the common blemishes of crystal: it is of a perfect and regular form, in the figure of a quadrilateral pyramid, and is found in Devonshire and Cornwall.

CASSUMMUNIAR, Cassumar, or Cassumunar, is a tuberous root, which comes from the East Indies. It is about an inch thick, and cut into transverse sections, marked on the surface with circles like galangal, of a duskish-yellow colour within, a bitter, hot, aromatic taste, and fragrant smell, somewhat resembling ginger. It is a cardiac and sudorific, and is a very famous medicine in nervous cases.

CASTILLAN, or Castillane, a gold coin, current in Spain, and worth fourteen rials, and sixteen deniers, or 2*s.* 11*d.* British. The *castillan* is used in Spain, as also in South America, as a weight for weighing gold. It is the hundredth part of a pound Spanish weight. What they commonly call a weight of gold in Spain, &c. is always understood of the *castillan*, fifty castillans make a mark, and eight tomins a castillan. Every tomin is equal to twelve grains British.

CASTLE, in the sea language, is a part of the ship, of which there two; the forecastle, being the elevation at the prow, or the uppermost deck, towards the mizen, the place where the kitchens are; and the hindcastle, where the officers' cabins are.

CASTOR, or Castoreum, (*Fiber*, and *canis ponticus; castorfiber*, Linn. Syst. Nat.) the *Beaver*. In the inguinal region of this animal are found four bags, a large and a small one on each side: in the two large ones, there is contained a softish, greyish-yellow, or light brown substance, which, on exposure to the air, becomes dry and brittle, and of a brown colour. This is the *castor* which is used in medicine. The two smaller bags have a smell much like that of the larger, but contain a softer and more unctuous matter, of little value.

The best sort of castor comes from Russia, and is in hard round bags; an inferior sort from Dantzic. The worst is from New England, which is in thin long bags.

On cutting open these bags, when dry, they are found full of a brittle friable substance, of a brownish-red colour, interspersed with fine membranes and fibres, intimately interwoven. It is sometimes adulterated with dried blood, gum-ammoniacum, and galbanum, mixed with a little of the powder of castor, and some quantity of the fat of the beaver. To detect the fraud we may observe, that in the genuine, the follicles and membranes all arise from one source, and the substance contained in them is firm; the smell will also distinguish them. When the membranes, pellicles, and fibres, do not appear mixed with the castor, the sophistication is undoubted.

It is of considerable use in medicine.

CASTOR-NUTS, (Ger. *Purgiernüsse.* Du. *Gemeene Purgatie nooten.* Da. *Purgeernödder.* Sw. *Jonä kurbits frö.* Fr. *Graines de ricin.* It. *Manteche.* Sp. *Catapucia mayor, Chervas.* Port. *Carrapatos.* Lat. *Semina Ricini, s. Catapuciae majoris,*) are the nuts of the *palma Christi*, from which the oil is extracted. *See* CASTOR-OIL.

CASTOR-OIL, an oil extracted from the seeds or nuts of the *ricinus communis*, or *palma Christi*. The oil is extracted by expression, or by gentle boiling in water. It is commonly thick and viscid, of a light amber colour, and with little smell or taste. That which has least smell, taste, and colour, is the mildest and best. If it has become acrimonious by keeping, shaking it in a bottle with a little warm water, and then pouring it off, will improve it. It usually comes to us from the West Indies.

CATECHU, or Areca, an Indian nut. The chief use that is made of it by the Indians is to chew it with the leaves of *betle*. The Dutch East India Company sent a great deal of it in their ships into the kingdom of Bengal. There grows, or is pre-

pared in Malabar, a sort of red *Areca*, or *Catechu*, which is used in dyeing. It is also sent to Surat and Amadabat, for the use of the dyers in the northern parts of Hindoostan.

CAT-HARPINGS, in a ship, small ropes running in little blocks, from one side of the shrouds to another, near the deck. Their use is to force the shrouds, and make them tawt, for the greater security and safety of the masts.

CAT, or CAT-HEAD, on ship board, a short piece of timber in a ship, lying aloft right over the hawse, having at one end two shivers, wherein is reeved a rope, with a great iron hook fastened to it, called

CAT-HOOK. Its use is to trice up the anchor, from the hawse to the top of the forecastle.

CAT-HOLES, in a ship, are over the parts as right with the capstan as they can be: their use is to heave the ship astern, upon occasion, by a cable, or hawse, called stern-fast.

CAT-GUT, or CATLING, (GER. *Darmsaiten*. DU. *Darmsnaaren*. DA. *Tarmstrænge*. SW. *Tarmsträngar*. FR. *Cordes de boyau*. IT. *Corde di budella*. SP. *Cuerdas de tripas*. PORT. *Cordas de tripas*,) a small string for fiddles and other musical instruments, made from the intestines of sheep and lambs, dried and twisted either singly or several together. They are sometimes coloured, and are used by watchmakers, cutlers, turners, and other artificers, in the manner of a file. Great quantities are imported into England from France and Italy.

CATGUT, (GER. *Marly*. DU. *Marlie*. DA. and SW. *Marli*. FR. *Marly*. IT. *Rezza*. SP. and PORT. *Marli, Merli*,) a kind of open-worked stuff, composed of cotton, flaxen, or silken threads, and stiffened with starch or glue; used by females.

CAT-SALT, a name given by our salt-workers, to a very beautifully granulated kind of common salt. It is formed out of the bittern or leach-brine, which runs from the salt when taken out of the pan. When the common salt is taken from the boiling-pans, it is put into long wooden troughs, with holes bored at the bottom, for the brine to drain out: under these troughs vessels are placed to receive this brine, and across them small sticks, to which the cat-salt fixes itself in large and beautiful crystals. It contains some portion of the bitter purging salt, is sharp and pungent, and is white when powdered, though pellucid in the mass. Large quantities of this salt are used in the manufacture of hard soap.

CATERGI, are the name of the carriers in the Grand Seignior's dominions, who give earnest to the merchants, &c. as a security, that they will carry their goods, or not set out without them.

CATI, or CATTI, is a Chinese weight, in use on the side of Canton. It is divided into 16 tales, each tale making one ounce, two gros of France; so that the *cati* is one pound four ounces mark; a hundred *catis* make a pic, which is a large Chinese weight, like the hundred and twenty pounds of Paris, Amsterdam, Strasburgh, &c. The *cati* is also the only weight at Japan; it is likewise used at Batavia, and other parts of India, where it is lighter or heavier, according to the number of tales it consists of; for example, at Java it is only worth 20 tales, but at Cambaya they are worth 27.

CAT'S EYE, a name given by jewellers to the *asteria* of the ancients, a gem which more than any other approaches to the nature of the opal, but wants much of its beauty. It is naturally of a semicircular figure, or smaller segment of a sphere, and flat at the bottom. It is smooth and glossy, and of a pale brown colour, in which it has an included white, which plays about in it, as held differently to the light, in the manner of the fire-colour of the opal, and seems, like that, bedded deep in the stone. It is sometimes tinged with a greenish, blueish, or yellowish colour. It is met with in the island of Borneo, and in some other parts of the East Indies; also in New Spain, and in some parts of Europe, where it is found bedded in the same stone with the opals. It is said to have some virtues as an astringent.

CATSUP, CATCHUP, or KETCHUP, a kind of nice pickle, made from the juice of mushrooms, champignions, or walnuts, with salt and spices.

CATTLE, is a collective name, importing all quadrupeds used either in tilling the ground, or for the food of man. The choice, breeding, and management of cattle, makes an important branch of husbandry; and in that point of view, the different kinds of them are treated more at large under their respective divisions into species.

What relates to them *generally* is as follows:

By 3 & 4 Edw. 6. c. 19. no person shall buy any ox, steer, runt, or cow, &c. and sell the same again alive, in the same market or fair, on pain of forfeiting double the value thereof, half to the king, and half to him that shall sue; and this act is still in force, notwithstanding the general repeal of the statutes on this subject by 12 Geo. 3. c. 71.

If any person shall feloniously drive away, or steal, or wilfully kill, any ox, bull, cow, calf, steer, bullock, heifer, sheep, or lamb, with a felonious intent to steal the carcase, or any part thereof, or shall assist in committing any such offence, he shall be guilty of felony without benefit of clergy. 14 & 15 Geo. 2. c. 6.

Any person who shall unlawfully and maliciously kill, maim, or wound any cattle, shall be guilty of felony without benefit of

clergy; and the hundred shall be liable for the damages, not exceeding 200*l.*; and persons prosecuting offenders to conviction shall have 10*l.* reward.

To prevent the stealing of horses, &c. for the sake of their skins, several statutes have been successively passed, by which regulations are adopted for the licensing of slaughter-houses, and the appointment of inspectors, as well as respecting the times and manner of slaughtering cattle, and flaying and cutting of hides. These are, 26 Geo. 3. c. 71., the 39 & 40 Geo. 3. c. 66., the 41 Geo. 3. c. 53., and the 56 Geo. 3. c. 110.

CAUDEBEC, a sort of hats, manufactured at *Caudebec*, in Normandy; they are made of lambs' wool, the hair or down of ostriches, or of camels' hair.

CAUKING, Caulking, or Calking, is to drive oakum, or spun-yarn, or something of that kind, into the seams of the planks of a ship, to keep the water out. This is performed with a mixture of tallow, pitch, and tar, as low as the ship draws water; they drive the oakum in with an iron instrument, called a calking-iron; it is made like a chisel.

CAVALLO, a small brass coin of Italy, worth only the twenty-fourth part of a penny.

CAVAN, a measure used in some of the Philippine Islands, and especially at Manilla, for measuring rice, corn, pulse, &c. containing 50 lbs. Spanish weight. *See* WEIGHTS AND MEASURES.

CAVEAR, Caveer, or Caviar, the spawn or hard roes of sturgeon, made into small cakes, an inch thick, and of a hand's breadth, salted and dried in the sun. This sort of food is in great repute throughout Muscovy, because of their three Lents, which the Muscovites keep with great strictness.

CAVEAT, is a caution entered in the spiritual court, to stop probates, administrations, dispensations, faculties, institutions, and such-like, from being granted without the knowledge of the party that enters it. A caveat stands in force for three months. *2 Rol. Rep.* 6.

CAVEDO, a Portuguese long measure, equal to $27\frac{354}{1000}$ English inches.

CAXA, a little coin made of lead, mixed with some scoria of copper, struck in China, but current chiefly at Bantam, in the island of Java, and some of the neighbouring islands. The caxas are of two kinds, great and small. Of the small, 300,000 are equal to 56 livres, 5 sols, French money: and of the great, 6000 are equal to four shillings and sixpence sterling.

CAYAN, Cayenne Pepper, or Guinea Pepper, (Ger. *Spanischer Pfeffer.* Du. *Spaansche peper.* Da. *Spansk peber.* Sw. *Spanskpeppar.* Fr. *Piment, Piment de Guinée.* It. *Peperone.* Sp. *Pimiento, Pimienta ae Indias.* Port. *Pimentao, Pimenta de Guiné ou da ilha Hespanhola.* Rus. *Strutschkowoi perez.* Lat. *Capsicum, piper indicum,*) red pepper, which comes to us from the West Indies, of a very hot and high-flavoured taste, much used in made dishes. It is called the West India bird-pepper, and is a species of the *capsicum annuum.* This pepper derives its name from the island of Cayenne, in South America, of which it is a native.

CAYELAC, a sweet-scented wood, which grows in the kingdom of Siam.

CEDAR, (Ger. *Zeder.* Du. *Ceder.* Da. *Cedertrae.* Sw. *Cederträ.* Fr. *Cedre.* It. Sp. and Port. *Cedro.* Rus. *Kedr.* Pol. *Cedr.* Lat. *Cedrus.*) The cedar of Mount Lebanon, mentioned in the Scripture, is reckoned one of the finest and largest trees in the world. Its wood is very hard, beautiful, solid, inclining to a brown colour, and incorruptible. During the hottest season of the year, there runs naturally from the trunk and large branches, a white, clear, and transparent resin, called *cedar gum.*

The timber of this tree is very dry, and subject to split; nor does it endure to be fastened with nails; therefore pins of the same wood are much preferable. Many of the West India Islands, especially Jamaica, are well stored with cedars. In North America, cedars are likewise very plentiful. A small cedar-tree grows in Phœnicia and Cilicia; it is pretty much like the Juniper-tree. Italy, Spain, and Provence, have their cedars too.

CEDRIA, or Cedrat, of this, there is only one species, called Barbadoes bastard cedar. It produces a kind of fruit called *Citron,* which also bears the name of the tree.

CELDRA, a certain measure among the Scotch, a *chalder:* whence our *chaldron* of the Scotch and Newcastle coal.

CEMENT, (Ger. *Zement.* Du. Da. & Sw. *Cement.* Fr. *Cément.* It. *Cemento.* Sp. *Betun, Zulague.* Port. *Cemento, Cimento.* Rus. *Siment.* Lat. *Cementum,*) any glutinous substance capable of uniting and keeping things together by cohesion.

Some of the best cements for various common purposes are as follow:

Turkey Cement, for joining metals, glass, &c. — Dissolve mastich in as much spirit of wine as will suffice to render it liquid; in another vessel dissolve as much isinglass (which has been previously soaked in water till it is swollen and soft) in brandy, as will make two ounces by measure of strong glue, and add two small bits of gum galbanum, or ammoniacum, which must be rubbed or ground till they are dissolved; then mix the whole with a sufficient heat; keep it in a phial stopt, and when it is to be used set it in hot water.

A Cement for broken china. — Take quicklime and white of eggs, or old thick varnish; grind and temper them well together, and the cement is ready for use.

A Cement for wood. — Take resin one pound, pitch four ounces; melt these together, and while boiling hot, add brickdust, until by dropping a little upon a stone, you perceive it hard enough; then pour it into water, and immediately make it up in rolls, and it is fit for use. By applying it to the side of a chuck, and making it warm before the fire, you may fasten any thin piece of wood, which will hold while you turn it; when you want it off again, strike it on the top with your tool, and it will drop off immediately.

Cement for electrical purposes. — Melt one pound of resin in a pot or pan, over a slow fire; add thereto as much plaister of Paris, in fine powder, as will make it hard enough; add a spoonful of linseed-oil, stirring it all the while, till sufficiently tough for the purpose; if it be not sufficiently hard, add more plaister of Paris; and if not tough enough, a little more linseed-oil. This is a good cement for the necks of globes or cylinders, or any thing that requires to be strongly fixed; for it is not easily melted again when cold.

Cement for broken glass. — Broken glass may be soldered or cemented in such a manner as to be as strong as ever, by interposing between the parts glass ground up like a pigment, but of easier fusion than the pieces to be joined, and then exposing them to such a heat as will fuse the cementing ingredient, and make the pieces agglutinate without being themselves fused. A glass for the purpose of cementing broken pieces of flint glass, may be made by fusing some of the same kind of glass previously reduced to powder, along with a little red lead and borax, or with the borax only: or where exquisite nicety of appearance does not prohibit the application of it, isinglass dissolved in brandy, or other strong spirit, over a fire, will answer the purpose.

Cement for Derbyshire spar and other stones. — Seven or eight parts of resin, and one of bees' wax, melted together with a small quantity of plaister of Paris. If it is wished to make the cement fill up the place of any small chips that may have been lost, the quantity of plaister must be increased a little. When the ingredients are well mixed, and the whole is nearly cold, the mass should be well kneaded together. The pieces of spar that are to be joined must be heated, until they will melt the cement, and then pressed together, some of the cement being previously interposed.

Cement for stone.—Boiled linseed-oil, litharge, and red and white lead, mixed together to a proper consistence, and applied on each side of a piece of flannel previously shaped to fit the joint, and then interposed between the pieces before they are brought home (as workmen term it) to their place, and a proper adjustment is obtained. When this is expected the white lead ought to predominate in the mixture, as it dries much slower than the red. When the fittings will not admit easily of so thick a substance as flannel being interposed, linen may be substituted, or even thin pasteboard paper. This cement answers well for joining stones, however large. Cisterns built of square stones, put together with this cement, will never leak, or want any repairs.

In this case the stone need not be entirely bedded in it; an inch, or even less, of the edges that are to lie next the water, need only be so treated; the rest of the joint may be fitted with good lime.

Cement for iron.—Take two ounces of sal ammoniac, one ounce of flour of sulphur, and sixteen ounces of cast-iron filings or borings. Mix all well together by rubbing them in a mortar, and keeping the powder dry. When the cement is wanted for use, take one part of the above powder, and twenty parts of clean iron borings or filings, and blend them intimately by grinding them in a mortar. Wet the compound with water, and when brought to a convenient consistence, apply it to the joints with a wooden or blunt spatula. By a play of affinities, which those who are at all acquainted with chemistry will be at no loss to comprehend, a degree of action and re-action takes place among the ingredients, and between them and the iron surfaces, which at last causes the whole to unite as one mass. In fact, after a time, the mixture and the surfaces of the flanches become a species of pyrites (holding a very large portion of iron), all the parts of which cohere strongly together.

Blood Cement.—A cement often used by coppersmiths to lay over the rivets and edges of the sheets of copper in large boilers, to serve as an additional security to the joinings, and to secure cocks, &c. from leaking, is made by mixing powdered quicklime with ox's blood. It must be applied fresh made, as it soon gets hard.

Japanese Cement, or *rice-glue.*—This elegant cement is made by mixing rice-flour intimately with cold water, and then gently boiling it. It is beautifully white, and dries almost transparent. Papers pasted together by means of this cement will sooner separate in their own substance than at the joining.

CENSAL, *a broker,* so called in Provence, in France, and in the ports of the Levant. Censals negotiate bills of exchange for the merchants; they also purchase and dispose of merchandise for a commission or brokerage. Their commission or brokerage is usually ½ per cent. or 10*s.* in the 100*l.*

CENT, an abridgment of centum, is

used to express the profit or loss arising from the sale of any commodity; thus we say, there is 10 *per cent.* profit, or 10 *per cent.* loss; which is 1-tenth profit, or 1-tenth loss, upon the sale of the whole. In the trade of money, it signifies the benefit or interest of any sum of money. Thus money is worth 4 or 5 *per cent.* upon exchange. But in brokerage it must be observed, that cent. is applied in a different manner. For example, if a broker or exchange-agent takes 1-eighth *per cent.* for the contracts made by his interposition, it is to be understood that there is paid to him 1-eighth of a pound, viz. 2*s.* 6*d.* for every 100*l.* he negotiated.

CERIUM. This metal was first discovered in the year 1804, by Hissinger and Berzelius, in a peculiar mineral found at Ridderhytta in Westmannland, in Sweden. It is of a reddish colour, brittle, and possesses a considerable degree of brilliancy. Its scarcity has prevented its qualities and combinations being much known.

CERTIFICATE *of Bankrupts. See* BANKRUPT.

CERTIFICATES *for foreign goods exported.* To export goods by *certificate*, which must be foreign goods formerly imported, and on which a part of the customs paid on importation is drawn back, provided they are exported within the time limited by act of parliament, it is not sufficient only to mention the marks, numbers, and contents, as is commonly practised in the entries outwards, but also the name of the ship, &c. in which the goods were imported, the importer's name, and time of entry inwards; and make oath that the entries for these goods were paid, or secured to be paid, as the law directs: after you have made an entry in this manner, you are to carry it to the collector and comptroller, or their deputies, who, after examining their books, will grant a warrant, which must be given to the surveyor, searcher, and land-waiter, for them to certify the quantity of goods; after which the *certificate* must be brought back to the collector and comptroller, or their deputies, and oath made that the said goods are really shipped, and are not to be landed again in any part of Great Britain, &c. This done they set down in words at length, on the back of the debenture, and then in figures on the same side, the sum in each particular part of the duties, and subscribe jointly to the whole. By virtue of this debenture, the exporter may, in one month, after the ship's departure from Great Britain to any foreign port, demand his drawback, except to Ireland, from whence a certificate must be obtained, "*that the goods so exported hence, have been landed there, and the duty paid or secured,*" and upon the producing such certificate, the exporter will be entitled to recover the drawback. And if the collector has not money in his hands to pay the debenture, he is to certify the same on the back of the debenture, that the exporter may have recourse to the commissioners, who are then to pay him.

CERTIORARI. A *certiorari* is an original writ issuing out of the Chancery, or court of King's Bench, directed in the king's name to the judges or officers of inferior courts, commanding them to return the records of a cause or matter depending before them, to the end the party may have the more sure and speedy justice before him, or such other justices as he shall assign to determine the cause. 4 *Black. Com.* 272.

CERUSE, or CERUSS, (Ger. *Bleyweits.* Du. *Loodwit.* Da. *Blychvidt.* Sw. *Blyhvitt.* Fr. *Ceruse.* It. *Biacca.* Sp. *Albayade.* Port. *Albaiade.* Rus. *Bjelilu, Bleywas.* Lat. *Cerusa,*) *white-lead,* a sort of calx of lead made by exposing the plates of that metal to the vapour of vinegar.

The Venetian *ceruse* is esteemed the best of all, but it is very dear; the Dutch is next in quality; and the English the worst. The two latter sorts are made of white-lead and white chalk; and the chalk of England being less white, and the English mixing more of it with the *ceruse* than the Dutch do, is the reason of their different degrees of goodness. To judge of its quality it must be chosen very white, both within and without, fine, clean, soft, and friable. That is the worst kind which breaks the easiest, as wanting the due texture and adhesion. The *ceruse* is used externally, either mixed in ointments or by sprinkling it on old gleeting and watery ulcers, and disorders of the skin. Ceruse is much used by oil-painters; it affords an excellent white.

CHA, a thin, light silken stuff, made in China, and worn by the inhabitants for a summer dress.

CHAFFERS, in our old records, signify wares or merchandise; and hence the word chaffering is used for buying and selling.

CHAIN, a series of links of metal fastened one within another, and applied to various purposes. Gold, silver, and brass chains are chiefly used for ornament, iron ones for bearing weights for commercial, agricultural, naval, and domestic purposes.

CHAIN, *a kind of measure* in France, used in the trade of wood for fuel: there are chains of wood by tale, for wood by the rope, for faggots, for cleft wood, and for round sticks: there are also chains measuring the sheaves of all sorts of corn, &c.

CHAIN, *in surveying,* a measure of length, composed of a certain number of links made of iron wire, serving to take the distance between two or more places. Gunter's chain contains 100 such links, each measuring 7 $\frac{92}{100}$ inches, consequently equal to 66 feet, or 4 poles.

CHAIN, *watch,* (*Chains.* Ger. *Ketten.*

Du. *Kettingen.* Da. *Keder, Kieder.* Sw. *Kedjor.* Fr. *Chaines, Chainettes.* It. *Catene.* Sp. *Cadenas.* Port. *Cadeas.* Rus. *Zepü.*) Watch-chains are made of gold: of silver for sea-faring men, as not liable to rust; or steel, &c.; and large quantities of gilt brass and copper ones are manufactured at Birmingham, &c.

CHAIN-PUMP. *See* PUMP.

CHAINS *in a ship,* those irons by which the shrouds by the masts are made fast to the chain-walls, which are the broad timbers jetting out of the sides, to which the shrouds are fastened and spread out, the better to secure the masts.

CHAIN-SHOT, two bullets with a chain between them. They are used at sea to shoot down yards or masts, and to cut the shrouds or rigging of a ship,

CHAIR, (*Chairs.* Ger. *Stühle.* Du. *Stoelen.* Da. *Stoele.* Sw. *Stolar.* Fr. *Siéges.* It. *Sedie.* Sp. *Sillas.* Port. *Cadeiras.* Rus. *Stuli.* Pol. *Stalki,*) a moveable seat. The frames are generally composed of wood of various kinds, and the seats of horse-hair, rushes, cane, &c.

CHAIR, *sedan,* a kind of portable coach, made of leather, holding only one person, borne on two poles by two men: supposed to derive its name from Sedan, in France, where it is said they were first used.

CHALCANTUM. *See* VITRIOL.

CHALDRON, a dry English measure, consisting of thirty-six bushels heaped up according to the sealed bushel kept at Guildhall, London: but on shipboard, twenty-one chaldron of coals are allowed to the score. The chaldron should weigh two thousand pounds weight.

CHALK, (Ger. *Kreide.* Du. *Kryt.* Da. *Kride, Kridt.* Sw. *Krita.* Fr. *Craïe.* It. *Creta.* Sp. *Greda.* Port. *Greda, Cré.* Rus. *Mjel.* Pol. *Kreta.* Lat. *Creta,*) the English name of the white, dry, calcareous earth, with a dusty surface, found in hard masses, and called by authors *creta,* and *terra creta,* being originally brought from the island of Crete.

Chalk is of two sorts, the first dry and hard, the other soft and unctuous. This latter it is which is now much used by way of a manure, and on some sorts of land it is useful, but is not permanent in its effects. Laid on grass it is said to make the cow pastures particularly sweet and productive of milk. It raises an effervescence with acids, and therefore with chemical agriculturists, who consider this as the stimulant to vegetation, even the hardest chalk, and the most caustic lime, are highly esteemed, when placed in commixture with decaying vegetables, because so applied they are observed to produce this desideratum.

CHALLENGE, is a word of various application, but always involving the primary meaning, which is that of calling upon, or summoning another. Thus, the common colloquial term challenge, is a summons to another to combat. In this sense it is a breach of the peace, and punishable according to the law of England by fine and imprisonment.

In law it imports an exception to jurors who are returned to pass their verdict on a trial. The legal causes for these last-mentioned descriptions of challenge are various. 3 *Black. Com.* 364.

CHAMBER of COMMERCE, is an assembly of merchants and traders, where the affairs relating to trade are treated of. There are several establishments of this sort in most of the chief cities of France; and in our own country, we have lately seen chambers of this kind erected for various purposes.

Chamber of Assurance in France, denotes a society of merchants and others for carrying on the business of insuring; but in Holland, it signifies a court of justice, where causes relating to insurances are tried.

CHAMBERS *of the king.* The havens or ports of the kingdom are so called in our records.—V. *Mare Clausum, fol.* 242.

CHAMPAIGN, the finest and most esteemed of French wines. This wine is of two sorts, red and white, and is chiefly made in the environs of Ay, Cumieres, and Haut-Villiers, &c. *See* WINE.

CHANDLER'S WARES, (Ger. *Fettwaaren.* Du. *Vettewaar.* Da. *Fedevarer.* Sw. *Fetvaror.* Fr. *Graisses.* It. *Grasce da' spizzicagnoli,*) include butter, cheese, vinegar, mustard, brick-dust, small-coal, tea, sugar, small-beer, &c.

CHANGER, an officer belonging to the king's mint, mentioned in the statute of Hen. VI. c. 12., whose business was to exchange coin for bullion, brought in by merchants, or others.

CHARACTER. Giving a false one to a servant, *see title* MASTER.

CHARAG, a tribute paid to the Grand Seignor by Christians and Jews, who either live or trade in the Turkish territories.

CHARCOAL, *vegetable,* a sort of artificial coal, consisting of wood half-burnt: which, by reason of the humidity of the wood being mostly dissipated, and exhaled in the fire, wherein it is prepared, makes a strong, clear fire without smoke. *See* CARBON.

CHARCOAL, *animal,* or Coal of Bones, so denominated by analogy. It is a mixture of phosphate of lime, a small quantity of quick-lime, and coal, or calx of carbon. Formerly, ivory and other animal bones were burnt in close vessels, in order merely to obtain a fine species of black, known by the name of *ivory black,* for painting, and similar purposes. (*See title* BLACK.) But of late it has been found that the charcoal of bones is one of the most efficient purifiers and clarifiers, and the preparation of it, as well for its pristine

purpose, as for the sugar and other refineries, is become a manufacture of increasing interest and consideration.

The modes of performing the operation somewhat differ in different manufactories, but they all tend ultimately to the same purpose. One, and the simplest, method, is to fill a number of earthen, or iron, pots with broken bones, and lute on the cover with potters' earth, then to pile one over the other in a potter's kiln, which is to be heated with wood or coal. When the degree of heat becomes sufficient to decompose the gelatine and oil of the bones, the luting cracks in small fissures, and gives vent to the carbonized hydrogen gas, which taking fire, burns, in consequence of several apertures, made on purpose, one above the other, to admit the atmospheric air. When this flame ceases, the combustion is completed. Another method is to put the bones into cylinders of cast iron, which run through a great fire-place; or in iron alembics: but in these manufactories, the bone black is only reckoned of secondary importance; for this process is generally used for making carbonate, sulphate, and muriate of antimony.

It has been ascertained by experiment that the bones of old animals contain much more gelatine than those of young ones, and therefore the quantity of black charcoal yielded by them is in proportion. The clarifying quality of animal charcoal depends upon the due proportions of the different matters which enter into the composition of bones; wherefore, for example, if the bones used be deficient in gelatine, the manufacturer adds, in the furnace, some soft animal matter, as blood, or tripe. From what has been advanced, it is to be inferred that, whether animal charcoal be intended for painting, or clarifying, that is best which contains the greatest proportion of carbon; and all chemists know that this is easily discovered by the application of muriatic acid to the coal, which, by dissolving the calcareous salts and the lime, leaves the pure coal.

CHARKS. Wood when *charred* is properly charcoal; the pit-coal, when so *charred* or *charked*, in Worcestershire is called *charks*, as the sea-coal so prepared about Newcastle is called *coke*.

CHARRE of lead consists of thirty pigs, each pig containing six stone, of 12lb to each stone.

CHART, (Ger. *Seekarten*. Du. *Zeekarten*. Da. *Söekarter*. Sw. *Sjökartor*. Fr. *Cartes marines*. It. *Carte marine*. Sp. and Port. *Cartas de marear*,) is properly applied to a projection of some part of the sea, as the term *Map* is to a portion of the land. Wherefore charts are sometimes denominated "Hydrographical Maps." They are distinguished into several kinds, as plain, globular, and Mercator charts. *See title* MAPS.

CHARTER, is a deed whereby the king passes any grant to one person or more, or to any body politic.

CHARTER-PARTY, (Lat. *Charta partita*. Fr. *Chartre parti, i. e.* a deed or writing divided,) is what among merchants and sea-faring men we commonly call a pair of indentures, containing the covenants and agreements made between them, touching their merchandize and maritime affairs. 2 *Inst.* 673. And charter-parties of affreightment settle agreements, as to the cargo of ships, and bind the master to deliver the goods in good condition at the place of discharge, according to agreement; and the master sometimes obliges himself, ship, tackle, and furniture, for performance.

The common law construes charter-parties, as near as may be, according to the intention of them, and not according to the literal sense of traders, or those that merchandize by sea, but they must be regularly pleaded. In convenant by charter-party, that the ship should return to the river of Thames, by a certain time, dangers of the sea excepted, and after in the voyage, and within the time of the return, the ship was taken upon the sea by pirates, so that the master could not return at the time mentioned in the agreement; it was adjudged that this impediment was within the exception of the charter-party, which extends as well to any danger upon the sea by pirates and men of war, as dangers of the sea by shipwreck, tempest, &c. *Stile* 132. 2 *Rol. Abr.* 248.

A ship is freighted at so much per month that she shall be out, covenanted to be paid after her arrival at the port of London; the ship is cast away coming out from the Downs, but the lading is all preserved, the freight shall in this case be paid; for the money becomes due monthly by the contract, and the place mentioned is only to ascertain where the money is to be paid, and the ship is intitled to wages, like a mariner that serves by the month, who if he dies in the voyage, his executors are to be answered *pro rata*. *Molloy de Jur. Muritim.* 260. If a part-owner of a ship refuse to join with the other owners in setting out of the ship, he shall not be intitled to his share of the freight; but by the course of the Admiralty, the other owners ought to give security if the ship perish in the voyage, to make good to the owner standing out his share of the ship. Sir Lionel Jenkins, in a case of this nature, certified, that by the law marine and course of the Admiralty, the plaintiff was to have no share of the freight; and that it was so in all places, for otherwise there would be no navigation. *Lex Mercat.* 100.

A ship was let to freight by charter-party from a plaintiff to the defendant, and there

was a clause in the deed thus: "And it is covenanted and agreed between the parties, that 40 days shall be allowed for unloading and loading again." This was held to be a covenant from the freighter not to detain the ship for the purposes specified *longer than* the 40 days. *Randal* v. *Lynch*. 12 *E. R.* 179.

The owners of a vessel performed the legal stipulations of a charter-party, but in so doing provoked confiscation by the illegal and piratical act of a foreign state; it was held that they did not thereby avoid their assurance. *Sowel* v. *Assur. Co.* 4 *Taunt. R.* 856.

Charter-party provided that "*in case of the inability of the ship to execute, or proceed on the service,* certain persons should be at liberty to make such *abatement* out of the freight as they should think reasonable." It was held that the inability of the ship to proceed to sea, *only from the want of men to navigate her, because the original crew were disabled from illness, and no substitutes could be procured,* was still within the proviso of the agreement. *Beatson* v. *Schank*. 3 *E. R.* 233.

Covenant in a charter-party of affreightment to pay freight and demurrage to the owner for the hire of a vessel, bill of sale during the voyage of the ship by the owner, who became bankrupt. Question was, whether the vendee of the ship under the bill of sale becomes entitled to the freight and demurrage due from the freighter upon the charter-party, or the assignees of the bankruptcy; held that the assignees were entitled. 10 *E. R.* 279.

By the common form of the East India Company's charter-parties, the company are warranted in sending any chartered ship on a war expedition in aid of government, and under command of a king's officer placed on board. Such ship remains under the charter-party, though she do so go on a war expedition under command of a king's officer, and though alterations be made to increase her number of guns, &c. &c. *Dobree* v. *East India Company*. 13 *E. R.* 290.

CHASE, in maritime affairs, is to pursue a ship in order to come up with her.

CHASE-GUNS, are those which are placed in the head and stern of the ship: the former are useful in chasing another vessel, and the latter when chased or pursued.

CHASER, an artist who raises figures on the cases of watches, tweezers, the lids of snuff-boxes, &c. His art does not consist in casting, but in chasing or embossing. This is performed by having the figures to be chased cut deep in a piece of steel, and a thin plate of silver or gold being made of a proper form, and laid upon a piece of lead, the piece of steel on which is the impression is fastened to the end of a spindle, and is pressed with great violence upon the metal, when the lead giving way, and the gold or silver being pressed into all the interstices of the mould, swells into every hollow, and takes the impression of every figure.

CHATTELS, or Catals, all sorts of goods and property, moveable or immoveable, except freehold property.

CHAYE, Schai, or Chay, is the smallest silver coin that is made, or current in Persia. It is worth four sols, seven deniers, and one maille of France, or fourpence sterling.

CHEATS, are deceitful practices in defrauding or endeavouring to defraud another of his known right by means of some artful device, contrary to the plain rules of common honesty; as by playing with false dice, or by causing an illiterate person to execute a deed to his prejudice, by reading it over to him in words different from those in which it was written. By 30 Geo. 2. c. 24. persons convicted of obtaining money or goods by false pretences, or of sending threatening letters in order to extort money or goods, may be punished by fine and imprisonment, or by pillory, whipping, or transportation. But it has been determined on this statute that a false assertion or affirmation, without an artful device or contrivance, will not amount to a false pretence; and therefore it was held in the *K.* v. *Lara*, that it was not a false pretence within this statute to purchase goods and to give a bill for them drawn upon a banker with whom the drawer had no effects. 6 *T. R.* 565.

But this statute not having been found sufficiently comprehensive, 52 Geo. 3. c. 64. enacts, that all persons who knowingly and designedly, by false pretences, obtain from any person, *or body politic*, any money, goods, wares, or merchandizes, or any bond, bill of exchange, bank note, promissory note, or *other security* for the payment of money, or *warrant or order* for the payment of money, or for the delivery or transfer of *goods, or other valuable things*, with intent to defraud, &c., or shall send any letter threatening to accuse any person with any crime punishable with death, transportation, pillory, or other infamous punishment, with a view to extort any *bond, bill, bank note, promissory note, or other security, &c., or any warrant or order, &c., for payment of money or delivery or transfer of goods or valuable things*, shall be liable to punishment in like manner as if they had obtained money, &c.

CHECKS, or *drafts*, on bankers, are instruments by means of which a creditor may assign to a third person, not originally party to the contract, the legal as well as equitable interest in a debt raised by it, so as to vest in such an assignee a right of action against the original debtor. 1 *H. B.* 602.

These instruments are uniformly made payable to bearer, which constitutes a cha-

racteristic difference between them and bills of exchange; and the legislature has considered them in a more favourable point of view by exempting them from the stamp-duties, under certain restrictions. They are equally negotiable with bills, although, strictly speaking, not due before payment is demanded. When given in payment they are considered as cash; and it is said, may be declared upon as a bill of exchange; and the moment this resemblance begins, they are governed by the same principles of law as bills of exchange. Checks payable on demand, or where no time of payment is expressed, are payable on presentment without any indulgence, or days of grace; but the presentment should be made within a reasonable time after the receipt, otherwise the party upon whom the check is drawn, will not be responsible, and the person from whom the holder received it will be discharged. Therefore, where circumstances will allow of it, it is advisable for the holder of a check to present it for payment on the same day it is received.

CHEDA, a pewter coin made and current in the kingdom of that name in the East Indies. There are two sorts of this coin: the one of an octagon, and the other of a round figure. The first weighs one ounce and a half, and passes in the country for the value of two sols tournois, or 1*d.* English. The second *cheda*, worth four deniers, has eighty cowries, or Maldivian shells, given for it.

CHEEK, is a general name among mechanicks for almost all parts of machines, instruments, &c., which are double, or have two places exactly similar. Thus we have cheeks of a printing-press, cheeks of a lathe, cheeks of a mortar in gunnery, cheeks of a mast in ship-building, &c. &c.

CHEESE, (Ger. *Käse*. Du. *Kaas*. Da. and Sw. *Ost*. Fr. *Fromage*. It. *Formaggio*, *Cacio*. Sp. *Queso*. Port. *Queijo*. Rus. *Sur*. Pol. *Ser*. Lat. *Caseus*,) the curd of milk separated from the whey, and hardened by a slow heat. The principal manufactures of cheese in England are in the counties of Chester, Gloucester, Wilts, and Leicester. Cheeses from these counties are an article of export to all parts of the world, but liable to high duties in some countries, as for instance in Russia by the last tariff. By stat. 4 W. & M. c. 7. the supply of cheese for the London market is provided for and regulated under penalties to be summarily levied before justices of the peace.

Holland is the great rival of Great Britain in the cheese trade, but though the Dutch cheeses are good, they are generally inferior to ours. The Italians make a cheese which they call Parmesan, from its being first produced in the duchy of Parma; and the Swiss a cheese called Gruyere. They are both excellent, but considered rather as luxuries, than as a staple commodity for extensive traffic.

Sage cheese is made by introducing the bruised tops of young red sage into the milk with the rennet. There is also a sort of butter made without the process of churning, but merely by draining off the serum or whey, which is called *Cream Cheese*. This is eaten fresh, and is considered a great luxury.

CHEMISTRY, or Chymistry, is that branch of science, the object of which is to ascertain the simple substances or elements of bodies, the properties of these, and their action on each other. The methods made use of to obtain this knowledge are analysis and synthesis. Chemistry comprehends almost all the changes in natural objects, with which we are more immediately connected, and in which we have the greatest interest; it is subservient to the various arts of life, and the several branches of manufacture which are carried on in every civilized state. Dyeing, bleaching, tanning, glass-making, the working and composition of metals, &c. are all processes in chemistry. In agriculture, chemistry investigates the nature of soils; it explains the phenomena of the growth and nourishment of vegetables, and the nature and action of manures. As a science it is connected with all the phenomena of nature, the causes of rain, snow, hail, dew, wind, and earthquakes: it has been called in to the aid of culinary arts; and its high importance in medicine has been long acknowledged. Chemistry therefore is highly worthy of our attention, because beyond every other branch of study it increases our knowledge, extends the number of our resources, and is thus calculated to promote our enjoyments, and augment our power over the material world.

CHERAFIS, or *tela*, are golden medals stamped in Persia, erroneously supposed by some to be current coin, but the Persians make none of gold; so that all the money passing in that empire of this metal is foreign, and not coined there.

CHERAY, or Chahy, a Persian weight used in commerce; it is called the *cidil* or common weight, and is double that named the legal weight.

CHERIF, a small gold coin made current in Egypt, worth about four shillings sterling.

CHERRY-TREE, (Lat. *Cerasus*,) so called from a city in Pontus, from which the tree was imported to Rome in the year of the city 680. It is said to have been introduced *here* about A. D. 55. Since then several species have been found in other parts of the world, and most of them are now common in this kingdom. The fruit is too well known to be dwelt upon, but the use of the wood seems to be less general

than it deserves to be. The French make cabinet-work of it in great variety, but with us, it is only applied to trifling articles of turnery ware.

CHERT, among miners, denotes a kind of flinty stone, found in thin strata in quarries of lime-stone. It is called by Mr. Kirwan, horn-stone, and by him is said to consist of 72 parts of silica.

22	alumine.
6	carbonate of lime.
100	

CHESNUTS, (Ger. *Kastanien*. Du. *Kastanien, Karstengen*. Da. and Sw. *Kastanier*. Fr. *Chataignes*. It. *Castagne*. Sp. *Castanas*. Port. *Castanhas*. Rus. *Kaschtanii*. Pol. *Kasztany*. Lat. *Castaneæ*,) the fruit of the chesnut-tree, which in France is used as a substitute for potatoes, and oftentimes for bread. Horse-chesnuts are the fruit of the wild chesnut-tree. Starch of very excellent quality has been lately made from horse-chesnuts by a very simple process, similar to that used in transmuting potatoes into starch. *See* STARCH. The wood of the chesnut-tree is the most durable of any that is grown here, next to oak, for buildings. Many of our old churches and colleges are roofed with it.

CHILLA-WEED. *See* ORCHILLA.

CHIMNEY SWEEPERS. By 28 Geo. 3. c. 48. the churchwardens and overseers of parishes, with the consent of two justices, may bind any boy of the age of eight years or more, chargeable to the parish, or who begs, or with the consent of the parent, to be apprentice to a chimney-sweeper, until 16 years of age.

His age to be mentioned in the indenture, as taken from the register, or where none, according to information. *Ibid.*

The form of the indenture is given, but they are not chargeable with the duty now chargeable on parish indentures. *Ibid.*

Covenants for keeping boys under eight years are void; and taking them otherwise, is 10*l.* penalty, and not less than 5*l.* *Ibid.*

Overseers of the poor of any township or village may act. *Ibid.*

Any justice may determine complaints between masters and apprentices. *Ibid.*

No one shall keep more than six apprentices at one time, on like pain; and every master is to affix a brass plate, with his name and place of abode, on the front of a leathern cap for the boy to wear when upon duty, on like pain. *Ibid.*

Masters ill treating apprentices, or being guilty of a breach of covenant, subjected to like pain. *Ibid.*

Masters are not to let apprentices to hire, nor cause them to call the streets before seven, nor after twelve between Michaelmas and Lady-day; nor before five and twelve, between Lady-day and Michaelmas, on like pain. *Ibid.*

A magistrate may convict; and the penalties are recoverable by distress; but not to issue till six days after conviction, and order for payment served; appeal lies to the informer. *Ibid.*

CHINA-ORANGES. *See* ORANGE.

CHINA-ROOT. (Ger. *Chinawurzel*. Du. *Chinawortel*. Da. *Chinarod*. Sw. *Chinarot*. Fr. *Squine, Esquine*. It. *Radice China*. Sp. *Raiz China, Cocolmeca*. Port. *Esquina, Eschineza, Raiz da China*. Rus. *Koren tschaputinskii*. Pol. *Chyna Korzen*.) There are two kinds of this root in the shops, one brought from the East Indies, and the other from the West. The oriental, which is the only sort here intended, is a thick jointed root, of the reed kind, heavy, woody, and full of unequal knots. Its bark is of a brown colour, of a reddish cast; the inside of the root is white, with a reddish tinge. It has very little taste or smell. That which is fresh, close, solid, heavy, and which, upon being chewed, appears to be full of a fat unctuous juice, is to chosen for medicinal purposes.

CHINA-WARE. (Ger. *Porzellan*. Du. *Porcelein*. Da. *Porcelin, Porcelaine*. Sw. *Porcellan, Porcellin*. Fr. *Porcelaine*. It. *Porcellana*. Sp. *Loza ó barro de la China Porcelana*. Port. *Louça da India ou do Japao, Porcelana*. Rus. *Farfor*. Pol. *Porcelana, Farfura*.) *See* PORCELAIN.

CHINTS, or Chintz, (Ger. *Zitze*. Du. *Sits*. Da. *Zits, Zits-Kattun*. Sw. *Zitskattun*. Fr. *Indiennes*. It. *Indiane*. Sp. *Chites, Zaraza*. Port. *Chitas*. Rus. *Siz*,) fine printed callico, first manufactured in the East Indies, but imitated in other countries. The most beautiful are imported from the coast of Coromandel.

CHIP-HATS, (Ger. *Spahnhüto*. Du. *Spaanhoeden*. Da. *Spaanhatte*. Sw. *Spänhattar*. Fr. *Chapeaux de copeaux*. It. *Cappelli di truciolo e di stele*. Sp. *Sombreros de viruta*. Port. *Chapeos de cavacos*,) are principally imported from Leghorn and different parts of Italy, where they are manufactured in the greatest perfection; a coarse sort is manufactured in England for home consumption, but it is not equal to the Italian.

CHISEL, (Ger. *Meissel, Betels*. Du. *Beitels*. Da. *Huggejern*. Sw. *Huggjärn*. Fr. *Ciseaux*. It. *Tenogge*. Sp. *Escoplos*. Port. *Escopros*. Rus. *Dolota*. Pol. *Dlota*,) is an iron or steel instrument, sometimes made with, and sometimes without, a wooden handle, used by carpenters and masons to pare wood and stone. Chisels are manufactured at Birmingham, Wolverhampton, Sheffield, &c.

CHISSELS are the coarsest part of flour or meal, after the finer parts are separated from it by the process of dressing or sifting.

They are in fact a mixture of the coarsest part of the flour and the finest of the bran, and are used for many domestic purposes; principally for feeding poultry and pigs, and are not unfrequently given to horses mixed with chopped hay and straw.

CHLORINE. This name is given to what was formerly supposed to be oxy-muriatic gas, or a combination of oxygen gas with muriatic acid gas. Oxygen, however, cannot be detected in it, and it is, in the present state of our knowledge, to be considered a simple substance. It may be obtained by heating a mixture of black oxide of manganese and muriatic acid over a lamp, in a glass retort; it is soon copiously evolved, and may be collected over warm water, (it is rapidly absorbed by cold water,) in a pneumatic apparatus.

Chlorine is an elastic gaseous fluid of a pungent and disagreeable smell, and highly injurious when respired, even when largely diluted. 101 cubic inches weigh 75.375 grains, at the temperature of 60°. Water absorbs twice its bulk of chlorine gas. This solution is of a yellowish-green colour, and has an astringent, nauseous taste. Many substances burn in chlorine gas with much brilliancy, and phosphorus, and several of the metals, take fire spontaneously in it. The combinations of it with some of the metals are acid; others are somewhat similar to the combinations of the same substances with oxygen; those combinations are termed Chlorides.

Chlorine united with oxygen in different proportions forms two different substances, an oxide, and an acid. The oxide, called Euchlorine by Sir H. Davy, may be obtained by stirring together sulphuric acid and oxy-muriate of potash, with a platinum knife; and putting the mixture into a retort, exposed to a temperature of 150°. Euchlorine passes, and may be collected, over mercury. The smell of this substance somewhat resembles that of chlorine. Its taste is astringent, but not acid.

The acid cannot be obtained in a separate state, it must be combined with water, or some other base.

Chlorine is employed in the arts for bleaching, and whitening paper; but it is very improper for the latter purpose, as manuscripts on such paper must, in no great length of time, become completely obliterated.

CHOCOLATE, (Ger. *Schokolate.* Du. *Chocolade.* Da. *Skokolade.* Sw. *Schokolad.* Fr. *Chocolat.* It. *Cioccolata.* Sp. and Port. *Chocolate.* Rus. *Schokolad.* Pol. *Szokolata.* Lat. *Succulata,*) a kind of paste, or cake, prepared chiefly from the cacao-nut. When the cacao is properly roasted, and well cleaned, it is pounded in a mortar, to reduce it to a coarse mass, which is afterwards ground on a stone, till it is of the necessary fineness: the paste being sufficiently ground, it is put hot into tin moulds, in which it congeals in a very little time. The form of these moulds is arbitrary; the cylindrical ones hold two or three pounds. The larger the cakes are, the longer they will keep. These cakes must be carefully wrapt up in paper, and kept in a day place. The Spaniards mix with the cacao-nuts too great a quantity of cloves and cinnamon, besides other drugs, as musk, ambergris, &c. The grocers of Paris use few or none of these ingredients; they only choose the best nuts, which are called *Caracca,* from the place whence they are brought; and with these they mix a very small quantity of cinnamon, the freshest vanilla, and the finest sugar, but very seldom any cloves. In England, the chocolate is made of the simple cacao, excepting that sometimes sugar, and sometimes vanilla, is added. Chocolate, fresh from the mill, as it cools in the tin pans into which it is received, becomes strongly electrical, and it retains this property some time after it has been turned out of the pans. Chocolate ready made, and cacao-paste, are prohibited to be imported from any part beyond the seas. If made and sold in Great Britain, it pays an inland duty of 1*s.* 6*d.* per pound weight; it must be enclosed in papers containing one pound each, and produced at the excise-office to be stamped. Upon three days' notice given to the officer of excise, private families may make chocolate for their own use, provided no less than half a hundred weight of nuts be made at one time.

CHOENIX, a dry measure, containing the forty-eighth part of a medimnus, or six bushels.

CHOWTARS, a species of Bengal callicoes.

CHRISTMAS. Any observation on this as a great religious festival would be misplaced here; but as one of the divisions of the year, called "*quarter days,*" and also as the season when commercial men in general close the accounts of the preceding year, strike balances, and present demands, it is entitled to some notice.

The short interval between the day on which this feast is celebrated, (25th December,) and the 1st day of the succeeding January, to use a technical phrase among lawyers, as applied to the days when no business is done at the offices attached to their profession, is a sort of continued "*dies non;*" for then it is, in general, that all their accounts are gone through, and all their books of the preceding year concluded; in order to accomplish which, by a sort of general consent, very little business out of their own compting-houses is transacted.

CHRONOMETER, in general, denotes any instrument, or machine, used in measuring time. Several machines have been

invented for measuring time, under the name of chronometers, upon principles very different from those on which clocks and watches are constructed. The lamp chronometer consists of a chamber-lamp, which is a cylindrical vessel about three inches high, and one inch diameter, placed in a stand. The inside of this vessel must be every where exactly of the same diameter. To the stand is fixed a handle, which supports a frame about twelve inches high, and four wide. This frame is to be covered with oiled paper, and divided into twelve equal parts by horizontal lines; at the end of which are written the numbers for the hours, from 1 to 12, and between the horizontal lines are diagonals, that are divided into halves, quarters, &c. On the handle, and close to the glass, is fixed a style or gnomon. Now, as the distance of the style from the flame of the lamp is only half an inch, if the distance of the frame from the style is only six inches, then, while the float that contains the light descends by the decrease of the oil one inch, the shadow of the style on the frame will ascend twelve inches, that is, its whole length, and show by its progression the regular increase of the hours with their several divisions. It is absolutely necessary, however, that the oil used in this lamp should be always of the same sort, and quite pure, and that the wick also be constantly of the same size and substance; as it is on these circumstances, and the uniform figure of the vessel, that the regular progress of the shadow depends.

CHRYSOCOLLA, a substance much used by the ancients, particularly in soldering gold; it is found in the form of powder, or of a green sand in the copper mines.

CHRYSOLITE, a gem which the ancients knew under the name of the topaz; and the true chrysolite of the ancients, which had its name from its fine gold-yellow colour, is now universally called topaz by modern jewellers.

CHURCH, is a temple or building consecrated to the honour of God and religion, and anciently dedicated to some saint, whose name it assumed; or it is an "assembly of "persons united by the profession of the "same Christian faith, met together for "religious worship;" and if it hath administration of the sacraments and sepulture, it is in law adjudged a church.

Not only the freehold of the whole church, but of the church-yard, are in the parson or rector; and the parson may have an action of trespass against any one that shall commit any trespass in the church or church-yard; as in the breaking of seats annexed to the church, or the windows, taking away the leads, or any of the materials of the church, cutting the trees in the church-yard, &c. *Co. Lit.* 644, 645.

Also a man may be indicted for digging up the graves of persons buried, and taking away their burial dresses, &c. the property whereof remains in the party who was the owner when used; and it is said an offender was found guilty of felony in this case, but had his clergy. *Co. Lit.* 113.

The property of the bells, books, and other ornaments, and the goods of the church, is in the parishioners; but the custody of them is in the churchwardens, who may maintain action of trespass against such as shall wrongfully take them away. 1 *Rol. Rep.* 255.

The use of the body of the church, and the seats fixed to the freehold, is common to all the parishioners that pay to the repairs thereof. The chancel of the church is to be repaired by the parson, unless there be a custom to the contrary.

By 1 Eliz. c. 2.; 23 Eliz. c. 1.; and 3 Jac. 1. c. 4. every person is to repair to his parish church every Sunday, on pain of forfeiting 1*s.* for every offence; and being present at any form of prayer used contrary to the Book of Common Prayer, is punished with six months' imprisonment, &c. Persons above sixteen years of age, who absent themselves from church above a month, are to forfeit 20*l.* per month to the king, and if they keep any inmate thus irreligiously disposed, in their houses, they forfeit 10*l.* per month. But protestant dissenters are exempted from the penalties by 1 W. & M. c. 18. And Roman catholics by 31 Geo. 3. c. 52.

No ill language is to be used, or noise made in churches or church-yards; and persons striking others there are to be excommunicated, and lose one of their ears: and a man may not lawfully return blows in his own defence in these cases. 5 & 6 Edw. 6. c. 4. Disturbing dissenting or Roman catholic ministers performing divine service, incurs three months' imprisonment, and a forfeiture of 20*l.* by stat. 1 M. c. 3. and 1 W. & M. c. 18., 31 G. 3. c. 52., any person may be indicted for indecent or irreverent behaviour in the church.

CHURCHWARDENS, are ancient officers, chosen yearly in Easter week, by the minister and parishioners of every parish, to look to and take care of the church and church-yard, and the things belonging to the same.

They are to be chosen by the joint consent of the parishioners and minister; and by custom the minister may choose one, and the parishioners another; or by custom the parishioners alone may elect both, though it be against the canon. 1 *Vent.* 267.

Exemptions. — All peers of the realm, by reason of their dignity, are exempt from the office of churchwarden. *Gibs.* 215. So are all clergymen, by reason of their order. *Id.* In like manner, all parliament men, by reason of their privilege. *Ibid.*

If an attorney be made a churchwarden of a parish, he shall have a writ of privilege,

showing his privilege to be discharged thereof, by reason of his attendance in court. *Ibid.*

Apothecaries who have served seven years, by 6 W. 3. c. 4.

Freemen of corporation of surgeons in London, by 18 Geo. 2. c. 15.

Visitors of incorporated workhouses, by 22 Geo. 3. c. 83.

Persons not inhabitants. *Gibs.* 215.

Dissenting teachers. 1 W. 3. c. 18.

Catholic ministers. 31 Geo. 3. c. 32.

Persons having prosecuted a felon to conviction. 10 & 11 W. 3. c. 23.

Serjeants, corporals, and drummers, in the militia, and privates, during service. 26 Geo. 3. c. 107.

CIDER, or CYDER, (GER. *Zider, Apfelwein.* DU. *Cider, Appeldrank.* DA. & SW. *Cider.* FR. *Cidre.* IT. *Cidro.* SP. *Sidra.* PORT. *Cidra.* RUS. *Sidor,*) an excellent drink extracted from the juice of apples, as perry is from that of pears. The manufacturing of these liquors forms an interesting portion of agricultural labour in those counties which are particularly devoted to this beverage. It is also an article of extensive commerce. The first process is to collect the fruit into heaps, where it undergoes a degree of fermentation that brings it to maturity. The common test of the ripeness of the fruit is that of the flesh having acquired such a degree of mellowness, and its texture such a degree of tenderness, as to yield to moderate pressure; thus, when the knuckle, or the end of the thumb, can, with moderate exertion, be forced into the pulp of the fruit, it is deemed in a fit state for grinding in a mill; the only preparation for which is to keep the ripe and unripe separate from each other; but this cannot be done without a considerable degree of labour, for as, by numberless accidents, the ripe and unripe fruit are frequently confounded together, there cannot be any effectual method of separating them but by the hand; and this is one of the grand secrets of cyder-making, peculiar to those who excel in the business. The mill itself differs little from a common tanner's mill for grinding bark, but for the greater convenience of putting the fruit into the mill, every mill should have a fruit chamber over it, with a trap-door to lower the fruit down to the mill. The best manner in which this can be accomplished is to have the valve over the bed of the mill, and furnished with a hose or tunnel reaching down to the trough in which the stone moves; no straw is used in the lofts, but sometimes the fruit is turned. In Herefordshire it is generally believed that grinding the rinds and seeds of the fruit, as well as the fleshy part, to a pulp, is necessary towards the perfection of the cyder, whence it is proper that every kind of pains should be taken to perform the grinding in the most perfect manner. A mill with smooth rollers will not lay hold of the fruit sufficiently to force it through. Another thing requisite in the cyder mills, is to prevent the matter in the trough from rising before the stone in the last stage of grinding. To effect this, it is best to grind the fruit first in the mill to a certain degree, and then put it between two smooth rollers to finish the operation perfectly. It is an error to grind too much at once, as this clogs the mill, and prevents it from going easily. The usual quantity for a middle-sized mill is a bag, containing four bushels; The quantity put in at one time is to be taken out when ground. The usual quantity of fruit ground in a day is as much as will make three hogsheads of perry, or two of cyder. Some allow the ground fruit to lie 24 hours or more after grinding, and even regrind it, in order to have, in the most perfect manner, the flavour and virtues of the seeds and rinds.

Pressing the fruit, and management of the residuum. — This is done by folding up the ground fruit in pieces of hair cloth, and piling them up above one another in a square frame or mould, which squeezes out the juice, and forms the matter into thin and almost dry cakes. The first runnings come off foul and muddy, but the last, especially in perry, will be as clear and fine as if filtered through paper. It is common to throw away the residuum as useless; but it is found that even breaking the cakes of the refuse with the hands, gives the press fresh power over them; for though they have been apparently pressed to the last drop, a gallon or two of liquor additional may be got in this manner: regrinding them has still a greater effect; as in this state of the materials, the mill gains a degree of power over the more rigid parts of the fruits, which, in the first grinding, it could not reach. The reduced fruit ought to remain some time between the grinding and pressing, that the liquor may form an extract with the rinds and kernels; but this must not be pushed too far, as in that case the colour of the cyder would be hurt; and the most judicious managers object to the pulp remaining more than twelve hours without pressure; thence, upon the whole, the most eligible management in this stage of the process appears to be this: grind one press full a day; press and regrind the residuum in the evening; infuse the reduced matter all night among part of the first runnings, and in the morning re-press while he next pressful is grinding.

A press upon an improved construction is advertised by one Baker, of Fore Street, Cripplegate.

Fermentation. — The common practice is to have the liquor tunned, *i. e.* put into casks or hogsheads, immediately from the press, and fill them quite full; but it is undoubt-

edly more proper to leave some space empty to be filled up afterwards. No accurate experiment has been made with regard to the temperature of the air proper to be kept up in the place where the fermentation goes on. Frost is prejudicial; but when the process usually commences, that is about the middle of October, the liquor is put into airy sheds, where the warmth is scarcely greater than the open atmosphere. In a complete manufactory of fruit liquor, the fermenting-room should be under the same roof with the mill-house, a continuation of the press-room, or at least opening into it with windows or doors on every side, to give a free admission of air into it, with sufficient defence against frost; fruit-lofts over it, and vaults underneath, for laying up the liquors after fermentation, with small holes in the crown of the arch to admit a hose or pipe for the purpose of conveying the liquors occasionally from the one to the other. In making of fruit liquors no ferment is used as in making of beer, though it seems far from being unnecessary. Owing to this omission, the time of the fermentation is entirely uncertain. But liquor which has been agitated by carriage, though but just taken from the press, will pass almost immediately into a state of fermentation. The continuance of the fermentation is as uncertain as its commencement. Liquors, when much agitated, will go through it perhaps in one day; but when allowed to remain and rest, the fermentation commonly goes on two or three days, and sometimes five or six. The fermenting liquor, however, puts on a different appearance according to circumstances: when produced from fruits properly matured, it generally throws up a thick scum resembling that of malt liquor, and of a thickness proportioned to the species and ripeness of the fruit; the riper the fruit, the greater will be the scum. Perry gives but little scum, and cyder will sometimes do the same. After having remained some time in the fermenting vessel, the liquor is racked or drawn off from the lees, and put into fresh casks. The ordinary time for racking perry is before it has done hissing, or sometimes when it begins to emit fixed air in plenty. The only intention of the operation is to free the liquor from its feculencies, by a cork placed at a little distance from the bottom, after which the remainder is to be filtered through a canvas or flannel bag; this filtered liquor differs from the rest in having a higher colour, having no longer any tendency to ferment; but, on the contrary, checking the fermentation of that which is racked off, and if it loses its brightness, it is no longer easily recovered. A fresh fermentation usually commences after racking; and if it become violent, a fresh racking is necessary in order to check it, in consequence of which the same liquor will be racked off five or six times: but if only a small degree of fermentation takes place which is called fretting, it is allowed to remain in the same cask, though even here the degree of fermentation which requires racking is by no means determined. The best manufacturers, however, repeat the rackings until the liquor be quiet or nearly so; or if it be found impracticable to accomplish this by the ordinary method of fermentation, recourse must be had to fumigation with sulphur, which is called stumming the casks. For this fumigation it is necessary to have matches made of thick linen cloth, about ten inches long, and an inch broad, thickly coated with brimstone for about eight inches of their length. The cask is then properly seasoned, and every vent except the bung-hole tightly stopped; a match kindled is lowered down into the cask and held by the end undipped until it is well lighted, and the bung driven in, thus suspending the lighted match within the cask. Having burnt as long as the contained air will supply the fire, the match dies, the bung is raised, the remnant of the match is drawn out, and the cask suffered to remain before the liquor is put into it for two or three hours more or less, according to the degree of power the sulphur ought to have. The liquor retains a smell of the sulphureous acid; but this goes off in a short time, and no bad effect is observed to follow. In some places the liquor is left to ferment in open casks, in which it stands till the first fermentation has subsided; after which the froth or yeast collected upon the surface is taken off, it being supposed that it is this yeast mixing with the clear liquor which causes it to fret after racking. The fermentation having totally ceased, and the lees subsided, the liquor is racked off into a fresh cask, and the lees filtered as above directed.

Cyder is made of three kinds, viz. rough, sweet, and of a middle richness. The first is usually destined for common use, and made with little attention or care. The rougher it is the farther it will go. The method of producing this austere liquor is to grind the fruit in a crude under-ripe state, and let the liquor completely ferment. For the sweet liquor, make choice of the sweeter fruits, mature them fully, and check the fermentation of the liquor. To produce liquors of a middle richness, the fruits are to be chosen from amongst such as yield strong and rich juices; though much depends on a proper management. Open vats are preferable to close vessels; but if casks are used at all, they ought to be very large and not filled, nor ought they to lie upon their sides, but to be set on their ends, with their heads out, and to be filled only to such a height as will produce the requisite degree of fermentation; but in whatever way the liquor is put

to ferment, the operation ought to be allowed to go on freely for the first time, though after being racked off any second fermentation ought to be prevented as much as possible.

It would be almost unnecessary to observe, (if it were not on account of a practical inference to which it leads,) that, independently of the *mode of manufacturing*, the flavour of this liquor must depend materially on the *kind* of apple, as well as the state of maturity in which the fruit is used. Apples have recently become an article of extensive import from France, Belgium, America, and Russia. Of those from the two first-mentioned countries, which partake in flavour of the mildness of their original Asiatic climate, (being, as we are informed, natives of Palestine, and introduced into Italy, as a delicacy in the Augustan age,) little cyder is likely to be made, as neither the quantity nor quality of the juice produced seems so well adapted to the purpose, as that from the fruit of colder climates. The apple-trees of this country, in all probability, were introduced from countries of milder temperature, as France and Italy, and are conjectured to have degenerated of late years from an increased coldness in the atmosphere of this island. The more than ordinary produce of this particular year, the warmest which has occurred during a long period, seems to confirm the hypothesis; and if that be admitted, it follows that our stock of apple-trees ought in prudence to be replenished by grafts or cyons from Russia. Experiment, so far as it has proceeded, appears to confirm this suggestion, for it is well known that the few apple-trees which have been introduced into this country from Russia, thrive beyond all parallel with other trees of the same description, and produce a fruit which promises to excel for the strong and rough species of cyder.

Correcting, provincially called Doctoring.—The imperfections which art attempts to supply in these liquors are, want of strength, want of richness, want of flavour, want of colour and brightness. The want of strength is supplied by brandy, or any other spirit, in sufficient quantity to prevent the acetous fermentation. The want of richness is supplied by what are generally termed sweets. To supply the want of flavour an infusion of hops is sometimes added, which is said to communicate an agreeable bitter, and at the same time a fragrance. The want of colour is supplied generally by burnt sugar, which gives the desired colour; the sugar is prepared either by burning it on a salamander and suffering it to drop as it melts, or by boiling it over the fire (in which case brown sugar is to be used) until it acquires an agreeable bitter; then pouring in boiling water in the proportion of a gallon to two pounds of sugar, and stirring it until the liquor becomes uniform; a pint of this preparation will colour a hogshead of cyder. Brightness is obtained by a mixture of the blood of bullocks or sheep, which must be stirred as it is drawn from the animal to prevent the parts from separating, and it ought to be stirred both ways, for a quarter of an hour: the liquor, however, is not always in a proper condition for being refined with this ingredient, on which account a little of it ought always to be tried in a phial: a quart or less will be sufficient for a hogshead. After the blood is poured in, the liquor should be violently agitated to mix the whole intimately together: this is done by a stick slit into four, and inserted into the bung-hole, working it briskly about in the liquor, until the whole be thoroughly mixed; in about twenty-four hours the blood will have subsided, the liquor ought instantly to be racked off, as by remaining upon the blood it will receive a taint. This refinement with the blood carries down not only the feculencies, but the colour also, rendering the liquor, though ever so highly coloured before, almost as limpid as water. Isinglass and eggs are also used for refining cyder.

Shutting up the Cyder in close Casks.—In the practice of the most cautious managers, the bungs are first driven in lightly when the liquor is fine and the vinous fermentation is judged to be over; and some time afterwards, when all danger is past, the casks are filled up, and the bung driven securely with a rag, and both resined over at top. Most farmers are of opinion, that after the liquor has done fermenting it ought to have something to feed upon; that is, to prevent its running into the acetous fermentation, wherefore isinglass is as proper as any thing.

Bottling.—This depends greatly on the quality of the liquors themselves: good cyder can seldom be bottled with propriety until a year old, sometimes not till two. The proper time is when it has acquired the utmost degree of flavour and richness in the casks: and this it will preserve for many years in bottles. It ought to be quite fine at the time of bottling; or if not so naturally, ought to be fined artificially with isinglass and eggs.

The liquor called *cyderkin*, purre, or perkin, is made of the gross matter remaining after the cyder is pressed out. To make this liquor, it is put into a large vat with a proper quantity of boiled water, which has stood till it is cold again; if half the quantity of water is used that there was cyder, it will be good, if more it will be small. The whole is left to infuse forty-eight hours, and then well pressed; what is squeezed out by the press is immediately tunned up and stopped: it is fit to drink in a few days. It clarifies itself, and serves as small beer. It will keep if boiled after pressing with a convenient quantity of hops.

Cyder wine is made from the juice of the apples taken from the press and boiled: when kept three or four years, it is said to resemble Rhenish. The method of preparing this wine, as communicated by Dr. Rush of America, consists in evaporating in a brewing copper the fresh apple-juice, till half of it is wasted; the remainder is then conveyed into a wooden cooler, and afterwards put into a proper cask with an addition of yeast, and is fermented in the ordinary way. This wine, however, so prepared is found to contain a minute impregnation of copper, sufficient to put the public on their guard.

Perry is a most wholesome pleasant liquor of the cyder kind, some of which is so excellent as to pass for Champaign in taverns and other places of public resort.

Perry is prepared from pears, in the same manner as cyder is from apples. The harsher sorts of pears make the best perry, though they are infinitely too acerb for eating. The most esteemed for the purpose are the Bosbury pear, in Worcestershire, and the squash pear, as it is called, in Gloucestershire; in both which counties, as well as in some of the adjacent parts, they are planted in the hedge-rows and most common fields. There is this advantage attending pear-trees, that they will thrive in lands where apples will not so much as live: and that some of them grow to such a size, that a single pear-tree, particularly of the Bosbury kind, has been known to yield in one season from one to four hogsheads of perry. The Bosbury pear is thought to yield the most lasting and vinous liquor. Pears, as well as apples, should be fully ripe before they are ground. Crab apples are frequently mixed with the pears, and are said to improve the perry. Cyder is subject to the laws of excise, as also perry, if made for sale. 43 Geo. 3. c. 69. and 45 Geo. 3. c. 30.

CIMOLIA *alba*, the name of the earth of which tobacco-pipes are made. Its distinguishing characters are, that it is a dense, compact, heavy earth, of a dull colour, and very close texture; it will not easily break between the fingers, and slightly stains the fingers in handling. It adheres to the tongue, melts slowly in the mouth, and is not readily diffused in water. It is found in the Isle of Wight, Dorsetshire, and Staffordshire.

CIMOLIA *nigra*, is of a dark lead-colour, hard, dry, and heavy; it does not stain the hands, and is not acted upon by acids. It burns perfectly white, and acquires a great degree of hardness. It is found in Northamptonshire, where it is used in the manufacture of tobacco-pipes.

CINNABAR, (Ger. *Zinnober*. Du. *Cinaber, Vermilioen*. Da. *Zinober*. Sw. *Cinnober*. Fr. *Cinnobre*. It. *Cinabro*. Sp. and Port. *Cinabrio*. Rus. *Kinowar*. Pol. *Cynobr*. Lat. *Cinnabrium*.) *Native cinnabar* is a ponderous mineral substance composed of mercury and sulphur, found in Spain, Hungary, and in several other parts of the world. The finest sort is brought from the East Indies: this is of a red colour, which improves much upon being ground into a fine powder: there is another sort of a good colour, in roundish drops, smooth on the outside, and striated within. Cinnabar reduced to powder is vermillion, used by painters.

CINNAMON. *See* BARK.

CINQUE-PORTS, (*quinque portus.*) The cinque-ports, as we now account them, are, Dover, Sandwich, Rumney, Winchelsea, and Rye; and to these we may add Hythe and Hastings, which are reckoned as part or members of the cinque ports: though by the first institution it is said that Winchelsea and Rye were added as members, and that the others were the cinque ports; there are also several other towns adjoining that have the privileges of the ports. These cinque-ports have an especial governor, called lord warden of the cinque-ports, and divers privileges granted them, as a peculiar jurisdiction; their warden having not only the authority of an admiral amongst them, but of sending out writs in his own name, &c. Stat. 32 Hen. 8. c. 48. 4 Inst. 222. To hold pleas, &c. and the king's writs do not run there.

If any erroneous judgment is given in the cinque-ports before any of the mayors and jurats, writ of error lies not in B. R. but it shall be redressed, according to the custom, *coram domino custode quinque portuum apud curiam suam, &c.* And the mayor and jurats may be fined, and the mayor removed, &c. 4 *Inst.* 334. *Crompt. Jurisd.* 138.

The cinque ports cannot award process of outlawry. *Cro. Eliz.* 910. And a *quo minus* from the Exchequer lies to the cinque-ports, *Ibid.* 911. Also if a man is imprisoned at Dover by the lord warden, an *habeas corpus* may be issued. *Cro. Jac.* 543. 1 *Nels. Abr.* 447.

Also a *certiorari* lies to the cinque ports, to remove indictments, before the mayors, barons, &c. as justices of peace, on late statutes, &c. *Cro. Car.* 252. *See titles* NAVIGATION and PILOTS.

CIRCULAR *letters*, are printed epistles, sent by merchants or others to their various correspondents, either to inform them of dissolutions of partnerships, or the forming of new connections, &c.

CIRCULAR *sailing*, in navigation, is the method of sailing by the arch of a great circle.

CITRON, (Ger. Du. and Sw. *Succade*. Da. *Sukkat*. It. *Confetti di cedro*. Sp. *Acitron verde*. Port. *Cidrão*. Fr. *Citronat verd*,) an agreeable fruit, resembling a lemon in colour, smell, and taste. The inside is white, fleshy, and thick, containing

but a small quantity of pulp, in proportion to the size of the fruit; it comes to us preserved or candied from Madeira of the finest quality.

CIVET, (Ger. *Zibeth.* Du. *Civet.* Da. and Sw. *Zibet.* Fr. *Civette.* It. *Zibetto.* Sp. and Port. *Algalia.* Rus. *Zibet.* Pol. *Zybet.* Lat. *Zibetta, Zibethum,*) a perfume taken from the civet cat. This little animal is not unlike the domestic cat; and the perfume is formed like a kind of grease, in a bag under its tail. *See* MUSK.

CLAMP, *in a ship,* denotes a piece of timber applied to a mast or yard, to prevent the wood from bursting: and also a thick plank lying fore and aft under the beams of the first orlop, or second deck, and is the same that the rising timbers are to the deck.

Clamp is likewise the term for a pile of unburnt bricks built up for burning.

CLAMPING, in joinery, is the fitting a piece of board with the grain to another piece of board across the grain. Thus the ends of tables are commonly clamped to prevent their warping.

CLAP-BOARDS, (Ger. *Klappholz.* Du. *Klaphosut.* Da. *Klapholt.* Sw. *Klappholts.* Fr. *Bordillon.* Sp. *Madera para cubas y teneles.* Rus. *Klepki duboüjga,*) are small boards cut in order to make casks or vessels.

CLARET, a French red wine, made in the neighbourhood of Bourdeaux, &c. *See* WINE.

CLARION, a kind of trumpet, the tube of which is narrower, and its tone acuter and shriller, than that of the common trumpet; it is now used among the Moors, and Portuguese, and served anciently for a treble to several trumpets, which sounded tenor and bass.

CLASPS, (Ger. and Du. *Spangen.* Da. *Hegter. Kroge.* Sw. *Spännar.* Fr. *Boucles, Agraffes.* It. *Fibbiagli, Borchie.* Sp. *Broches. Corchetes.* Port. *Broches, Colchetes.* Rus. *Präshkü,*) are made of brass, steel, silver, &c. as hold-fasts for pocket-books, letter-cases, &c. and are principally manufactured at London, Birmingham, Sheffield, &c.

CLAY, (Ger. *Thon.* Du. *Kley.* Da. *Leer.* Sw. *Lera.* Fr. *Argile.* It. *Argilla, Argiglia.* Sp. *Arcilla, Barro.* Rus. and Pol. *Glina.* Lat. *Argilla,*) in a general sense, signifies unctuous or tenacious earth: there are various kinds of clay which are used in many manufactures, such are pipe-clay, potter's earth, &c.

CLEAT, on ship-board, a piece of wood fixed to the yard-arm, to keep the ropes from slipping off.

CLERK, in the way of trade and business, is one who exercises any function with the pen.

CLERK *of the market,* an officer of the king, to whom is given the charge of the king's measures and weights, the standard of those that ought to be used all over England.

CLEW *of a sail,* in naval affairs, is the lower corner of it, to which are made fast the sheets and tacks: a square sail has no clew.

CLEW-GARNET, a rope made fast to the clew of the sail, and running thence to the block, seized to the middle of the main and fore-yard; which in the furling, hales up the clew of the sail close to the middle of the yard.

CLEW-LINE, the same to the topsails, top-gallant-sails, and sprit-sails, that the clew-garnet is to the main-sail and fore-sail, and of the same use.

CLINCH, that part of a cable which is bent about the ring of the anchor, and then seized, or made fast.

CLINCHING, a kind of slight caulking at sea, about the ports.

CLOCK, (*Clocks.* Ger, *Uhren, Grosse Uhren, Wanduhren.* Du. *Uuren, Uurwerken, Horologien.* Da. *Uhrverk, Stueühr.* Sw. *Ur, Klockor.* Fr. *Horloges.* It. *Orologgi, Oriuoli.* Sp. *Relojes.* Port. *Relogios.* Rus. *Tschasii.* Pol. *Zegar,*) a kind of movement or machine, serving to measure and strike time. The usual chronometers are watches and clocks: the former are such as show the parts of time; the latter, such as publish it by striking; though the name *watch* is commonly appropriated to pocket clocks; and that of *clock* to larger machines, whether they strike or not.

By stat. 9 & 10 W. 3. c. 28. s. 2. no person shall export out of this kingdom any outward or inward box, case, or dial-plate, of gold, silver, brass, or other metal, for clock or watch, without the movement in or with every such box, &c. made up fit for use, with the maker's name engraved thereon; nor shall any person make up any clock or watch, without putting his name and place of abode, or freedom, and no other name or place on every clock or watch, on penalty of forfeiting every such box, case, and dial-plate, clock and watch, not made up and engraven as aforesaid; and 20*l.* one moiety to the king; the other to those that shall sue for the same.

By 27 Geo. 2. c. 7. clock and watch makers are specially protected against the frauds of their servants and workmen, by summary process before justices of the peace, under heavy penalties.

CLOFF, that in which any kind of goods are packed, for the convenience of carriage, as the bags of pepper, pimento, cotton, coffee, hops, &c.

CLOTH, (Ger. *Tuch, Laken.* Du. *Doek, Laken.* Da. *Klæde.* Sw. *Kläde.* Fr. *Drap.* It. *Panno, panno lano.* Sp. *Pano.* Port. *Pano, pano de laa.* Rus. and Pol. *Sukno,*) a manufacture made of wool woven on the loom. The term is applicable also to

other manufactures made of hemp, flax, &c. But in a more particular sense it implies the web or tissue of woollen threads interwoven; some whereof called the warp, are extended in length from one end of the piece to the other; the rest called the woof, disposed across the first, or breadthwise of the piece. The best wool for the manufacturing of cloths are those of England and Spain.

The fine cloths manufactured in England were formerly, if not wholly, at least partly, composed of wool imported from Spain, and in the manufacture so produced, the French, who were supplied from the same market, much excelled us. Of late, however, partly from the introduction of the Merino breed of sheep, and partly from more attention having been paid to some kinds that were indigenous, especially the South-down, our fine cloths are arrived at a state of great perfection, and rival the French in all the markets of the world. Our coarse cloths still retain that superiority for demand which they have always had. The former are principally manufactured in Wiltshire, and the western counties, the latter in Yorkshire.

By reference to the *titles* AFRICA, ASIA, and AMERICA, respectively, it may be seen what are the principal markets on those continents for British cloths. The recent convulsions of Europe having diverted the trade of Great Britain from many of its accustomed channels, and the new regulations of the continental states, arising principally from transfers of territory, render it a matter of more difficulty to define with precision the course of the European trade in this article. Suffice it here to observe, that, among the prohibited articles of Russian import by the tariff of 1817, are "fine black cloth, and *all* coarse cloths and baizes." For further information, *see title* EUROPE.

The woollen manufacture is protected by divers statutes. By the 23 Hen. 8. c. 17. amended by 28 Geo. 3. c. 38. the winding of wool is regulated.

By 49 Geo. 3. c. 109. the true working of woollen cloth is directed. The fulling of woollen cloth by 7 Edw. 4. c. 3.

By 49 Geo. 3. c. 109. the dyeing of woollen cloth is regulated, and certain searchers appointed.

By the same statute the manner of stretching it is pointed out, and it is protected from the depredations of thieves while on the tenters. The cloths of the west counties especially are regulated and protected by 10 Ann. c. 16. and 1 Geo. 1. c. 15. Those of Yorkshire by 11 Geo. 2. c. 28. 5 Geo. 3. c. 51. 6 Geo. 3. c. 23. and 49 Geo. 3. c. 109. *See further* 2 *Dick. Pract. Expos.* 1106.

CLOTHES. *See* WEARING APPAREL,

CLOTHIER, or CLOTH-WORKER, the manufacturer of woollen cloths. There is a public company in London, called the *Cloth-workers' Company.*

CLOUGH, or *draught*, an allowance of two pounds to every three hundred weight, for the turn of the scale, that the commodity may hold out when sold by retail.

CLOVE, a term used in weights. Seven pounds of wool make a clove. In Essex, eight pounds of cheese and butter go to the clove.

CLOVER, (GER. *Klee.* DU. *Klaver.* DA. *Klever, Klöver.* SW. *Väpling.* FR. *Trefle, Luzerne.* IT. *Trifoglio.* SP. *Trebol.* PORT. *Trevo.* RUS. *Trilistnik.* POL. *Konicz, Konik.* LAT. *Trifolium,*) an excellent sort of grass, the seed of which was usually imported from Holland, and is of two sorts, the *red* and *white.* Considerable quantities are now produced in Great Britain, equal to that of Holland.

According to the modern mode of husbandry, this seed stands pre-eminent above all others for *laying down* land, as it is usually termed, or converting arable land into pasture. The red sort is only considered as an annual, though in fact it will continue two, or even three years; but the white is a perennial, and is that which, together with rye-grass, is used to make permanent pastures.

CLOVES, (GER. *Näglein, Gewürznelken.* DU. *Kruidnagelen.* DA. *Nelliker, Krydenelliker.* SW. *Kryddneglikor.* FR. *Clous de girofle, Girofles.* IT. *Chiovi di garofano, Garofani, Garoffoli.* SP. *Clavos de especia, Clavillos.* PORT. *Cravos da India, Cravos girofes.* RUS. *Gwosdika.* POL. *Gozdziki Kranne.* LAT. *Caryophylli,* or *Caryophilli aromatici.*) The clove is a native of the Molucca islands.

At Amboyna the company have allotted the inhabitants 4000 parcels of land, on each of which they were at first allowed, and about the year 1720 compelled, to plant about 125 trees, amounting in all to 500,000. Each of these trees produces annually on an average more than two pounds of cloves, and consequently the collective produce must weigh more than a million. *See title, Islands of* ASIA.

COACH, (*Coaches.* GER. *Kutschen.* DU. *Koetsen.* DA. *Kareet.* SW. *Kuskvagn.* FR. *Carosses.* IT. *Carrozze.* SP. and PORT. *Coches.* RUS. *Karetii.* POL. *Karety,*) a commodious vehicle for travelling, so well known as to need no description. Their invention was owing to the French, about the reign of their Francis I. Coaches on the most elegant construction are made in London, whence they are exported to the continent, the East Indies, and America; but are now among the articles prohibited to be imported into Russia.

All kinds of coaches travelling for hire in Great Britain, are under regulations by different statutes. For coaches travelling post, *see* 2 *Dick. Pract. Expos.* 751. For

hackney coaches in London, *see 3 Dick. Pract. Expos.* 307.

COACHMAKER. The wares of coachmakers shall be examined by persons appointed by the saddler's company. 1 *Jac.* c. 22. And every coachmaker shall take out an annual licence from the excise office, and pay a duty of 20s. for every four-wheeled carriage, and 10s. for every two-wheeled carriage, built by him for sale. Coachmakers were incorporated into a company in the year 1677, in the reign of Charles II.

COAK is used for exciting intense heats, for chemical purposes, or for smelting iron ore, and for operations in which common coal would be detrimental, as the drying of malt. Coak is fossil coal previously charred by an operation similar to that by which charcoal is made. *See* CHARCOAL.

COAL, (Ger. *Steinkohlen.* Du. *Steenkoolen.* Da. *Steenkull.* Sw. *Stenkol.* Fr. *Charbon de terre.* It. *Carboni fossili.* Sp. *Carbones de tierra, Carbones de piedra.* Port. *Carvoes de terra, ou de Pedra.* Rus. *Ugolje Kamennoe.* Lat. *Lithanthrax,*) or *pit-coal.* The substances belonging to this genus are composed chiefly of carbon and bitumen. There are six species, viz.

1. *Jet.* This substance is found in France, Spain, Germany, Britain, and other countries. It is found in detached kidney-form masses, of various sizes, from an inch to seven or eight feet in length, The colour is full black: internal, glossy, opaque: not so brittle as asphaltum: texture striated; fracture conchoidal. Specific gravity 1.259. It has no smell except when heated, and then it resembles asphaltum in its odour. It melts in a strong heat, burns with a greenish flame, and leaves an earthy residuum. Becomes electric by friction; and when distilled, it yields a peculiar acid.

2. *Cannel coal* is found in Lancashire, and in different parts of Scotland. The colour is black, opaque: structure sometimes slaty: texture compact: fracture conchoidal: brittle. Specific gravity 1.232 to 1.426. Does not stain the fingers. Kindles easily, and burns with a bright white flame like a candle, which lasts but a very short time; it is susceptible of polish; and like jet, is often wrought into trinkets, tea ware, &c. *See* CANNEL COAL.

3. *Common coal.* This very useful combustible is never found in the primitive mountains, but only in the secondary mountains, or in plains formed of the same materials with them. It is always in strata, and generally alternates with clay, sand-stone, or lime-stone. The colour is black, more or less perfect. Lustre usually greasy or metallic. Opaque. Structure generally slaty. Texture often foliated. Fracture various. Specific gravity 1.25 to 1.37. Usually stains the fingers. Takes fire more slowly, and burns longer than the last species. Cakes more or less during combustion. Of this species there are many varieties, distinguished in Great Britain by the names of caking coal, rock coal, &c. which are too well known to require any description.

4. *Spurious coal* is generally found amidst strata of genuine coal. It is also called *Parrot-coal* in Scotland. Its colour is greyish black. Structure usually slaty. Texture earthy. Specific gravity 1.5 to 1.6. Generally explodes, and bursts when heated. Composed of charcoal, maltha, and asphalt, and above twenty of stony matter.

5. *Anthracite.* Dolomieu informs us, that this substance is found exclusively in the primitive mountains. It is commonly amorphous, sometimes crystallized in short hexagonal prisms. Colour black, or brownish black. Structure slaty. Specific gravity 1.300. Often stains the fingers. Burns precisely like the last species, and leaves .40 of white ashes.

6. *Kilkenny coal.* This mineral has been found in Hungary, Italy, France, Ireland, and Wales. It occurs in stratified masses, or in lumps nested in clay. The colour is black. Opaque. Texture foliated. Specific gravity 1.4 to 1.526. Often stains the fingers. Insoluble in acids. Deflagrates with nitre. Does not burn till wholly ignited, and then consumes slowly without emitting flame or smoke. It consists almost entirely of charcoal.

For particulars relative to the British Coal Trade, *see article* EUROPE.

COAL, SMALL, a sort of charcoal prepared from the spray and brushwood stripped off from the branches of coppice-wood, sometimes bound in bavins for that purpose, and sometimes charred without binding, and then it is called coneing it together. The wood they dispose on a level floor, and setting a portion of it on fire, they throw on more and more as fast as it kindles, whence arises a sudden blaze, till all is burnt that was near the place. As soon as all the wood is thrown on, they cast water on the heap from a large scoop, and thus keep plying the heap of glowing coals, which stops the fury of the fire; while, with a rake, they spread it open, and turn it with shovels till no more fire appears. Then they shovel them up into great heaps, and when thoroughly cold, put them in sacks, to be used by divers artificers to temper and anneal their several works. Small-coal was formerly much used in kindling-fires, but at present it is dispensed with for that purpose.

COAL-LAWS. Sea-coal brought into the Thames shall be sold by the chaldron, containing 36 bushels heaped up in the form of a cone, according to the bushel sealed for that purpose at Guildhall.

Coals, within the bills of mortality, shall be carried in linen sacks, sealed by the proper officer, which shall be at least four feet four inches in length, and twenty-six inches in breadth; and sellers of coals by the chal-

dron, or less quantity, shall put three bushels of coals into each sack. 3 and 32 Geo. 2. c. 26. and 27.

All sellers of coals are to keep a lawful bushel, which bushel and other measures shall be edged with iron and sealed; and using others, or altering them, incurs a penalty of 50*l*. Any purchaser dissatisfied with the measure of any coals, may, on delivery to him of the meter's ticket, have the same remeasured, by sending notice thereof to the seller, and to the land coal-meter's office for the district in which the coals were sold; on which a meter (not being the same under whose inspection the coals were originally measured) must, within two hours, attend to remeasure the coals, and shall remeasure the same sack by sack, in the presence of the seller and purchaser (if they attend), and also in the presence of a meter from the two other districts (whose attendance within London and Westminster is enforced by a penalty of 5*l*. but not in Surry); for this attendance the purchaser is to pay each coal-meter attending 6*d*. per chaldron. If the coals prove deficient in measure, the seller shall forfeit 5*l*. for every bushel deficient, and also forfeit the coals to the poor. The meter under whose inspection the coals were measured at the wharf, shall also forfeit 5*l*. per bushel deficient, to be recovered (if not in five days) of the principal coal-meter; and coal-porters 2*s*. 6*d*. per bushel. The carman is to be paid 2*s*. 6*d*. for his horses, &c. for each hour, whilst the coals are remeasuring.

Any coal-factor receiving, or coal-owner giving any gratuity for buying or selling any particular sort of coals, and selling one kind of coals for and as a sort which they really are not, shall forfeit 500*l*. 3 Geo. 2. c. 26.

Owners or masters of ships shall not enhance the price of coals in the river Thames, by keeping turn in delivering coals there, under the penalty of 100*l*. 4 Geo. 2. c. 30.

Contracts between coal-owners, &c. and merchants of ships, for restraining the buying of coals, are void, and the parties shall forfeit 100*l*. 9 Ann. c. 28.

Wilfully and maliciously setting on fire any mine, pit, or delph of coal, or cannel-coal, is felony without the benefit of clergy. 10 Geo. 2. c. 32.

Setting fire to, demolishing, or otherwise damaging, any engine or any other thing belonging to coal-mines, is felony and transportation for seven years. 9 Geo. 3. c. 29. and 56 Geo. 3. c. 73.

COASTING. That part of navigation where the places assigned are not far distant, so that a ship may sail in sight of land, or within soundings, between them. In this there are only required a good knowledge of the land, and the use of the compass and lead, or sounding-line.

COATS, in a ship, are pieces of tarred canvas put about the masts at the partners to keep out water. They are also used at the rudder's head, and about the pumps at the decks, that no water may go down there.

COBALT, (Ger. *Kobalt*. Du. *Kobald*. Da. *Kobold*. Sw. *Cobolt*. Fr. *Cobalt*. It. Sp. and Port. *Cobalto*. Rus. and Pol. *Kobolt*. Lat. *Cobaltum*,) a metal found in the form of an ore, in Saxony, Sweden, in the Mendip Hills in Somersetshire, and in Cornwall. It is principally employed in the state of oxide, in which it is of a beautiful blue colour, called zaffre. There is also a black oxide of cobalt. The oxide of cobalt is the most permanent blue with which we are acquainted, and is much used for staining glass, and painting on porcelain: it was formerly employed in painting. Muriate of cobalt, much diluted, forms Hellot's sympathetic ink. Whatever is written on paper with this, remains invisible when cold, but on heating it, it assumes a fine green or blue colour: the former happens when it contains iron. *See title* INK.

COBILE, Covid, or Coude, a long measure used in several parts of India, being unequal, and varying as the yard does in Europe. At Surat, Mons. Tavernier makes it two feet and sixteen lines, and it is divided into twenty-four tasots, each tasot a trifle more than an inch.

COCCULUS INDICUS, a poisonous berry, too frequently mixed with malt liquors, in order to make them intoxicating; but this practice is expressly forbidden by act of parliament, 12 Ann. c. 2. and 56 G. 3. c. 58. which latter statute prohibits druggists from even selling to brewers this and other noxious drugs, under very severe penalties. Fishermen have a mode of mixing it with paste; this the fish swallow greedily, and are thereby rendered lifeless for a time, and float on the water.

COCHINEAL, (Ger. *Koschenilje*. Du. *Conchenilje*. Da. Sw. and Fr. *Cochenille*. It. *Cocciniglia*. Sp. *Cochinilla, Grana*. Port. *Cochenilha*. Rus. *Konssenel*. Pol. *Konszenel*. Lat. *Cochinella, Cocci cacti*,) a drug, in many respects approaching to the nature of *kermes*. Though properly an animal, it has, like the other, been long accounted a vegetable production. Cochineal is a small body of an irregular figure: it is always, however, oblong, convex on one side, and a little concave on the other; it is marked with several transverse furrows, like the incisures on the backs of the generality of insects. It is very light, and of a friable texture, easily crumbled to pieces between the fingers. Its colour is a dark purplish, almost black on the surface, and a fine strong crimson within. Some of it is of a dusky grey on the surface, with a mixture of red in it, and this is esteemed the finest of all. It is brought to us from Mexico,

where it is collected in very great quantities. We likewise import an inferior sort of cochineal from the East Indies, but this sort is only worth from 3*s.* to 6*s.* per pound, while that brought from Mexico sells from 25*s.* to 35*s.* per lb. according to its quality. This article is used very much in the scarlet dye, and other kinds of red dyes, (*see* DYEING and CARMINE,) which it readily communicates to wool and silk, but with more difficulty to linen and cotton. The two sexes of this insect are exceedingly dissimilar in their appearance. The female, which alone is valuable for its colour, is ill-shaped, tardy, and stupid: its eyes, mouth, and antennæ, are fixed so deep, and are so concealed in the folds of the skin, that it is impossible to distinguish them without a microscope. The male is very scarce, and one is sufficient for 300 females or more: it is very active, small, and slender, in comparison with the female; its neck is narrower than the head, and still narrower than the rest of the body.

The cochineal insect may, in some circumstances, be compared to the silk-worm, particularly in the manner of depositing its eggs. The insects destined for this purpose are taken at a proper time of their growth, and put into a box well closed, and lined with a coarse cloth, lest any of them should be lost; and in this confinement they lay their eggs and die. The box is kept close shut till the time of placing the eggs on the nopal, when, if any motion is perceived, it is a sufficient indication that the animalcule has life, though the egg is so minute as hardly to be perceived; and this is the seed placed on the foliage of the *cactus cochenilifer*, or Indian fig, known to the Spaniards by the name of nopal, the quantity contained in the shell of a hen's egg being sufficient for covering a whole plant. At Oaxaca, cochineal insects are gathered in large quantities, and form a branch of commerce; the cultivation of these little creatures being there the chief employment of the Indians. In trade, four sorts of cochineal are distinguished, *mastique*, *campeschane*, *tetraschale*, and *sylvester*; of which the first sort is esteemed the best, and the last sort the worst.

COCK-BOATS, those used only in rivers and near the shores.

COCKEIN, an imaginary specie, used in Japan, in accounts, like the pistole in many parts of Europe, being in value about ten livres French money, or 8*s.* 4*d.* British.

COCKET, Cockettum, Cocketum, the cocket-office in the Custom-house, where goods to be exported are first entered, and pay their custom. Where the exporter is to have a cocket (written on a piece of parchment), signifying that his merhcandise is customed, and may be discharged. *See* CUSTOMS.

COCK-PIT, *in a ship of war*, a place on the lower floor or deck, abaft the main-capstan, lying between the platform and the steward's room, where are partitions for the purser, surgeon, and his mates.

COCKSWAIN, by corruption, Coxen, an officer on board a ship of war, who has the care of the barge and all things belonging to it, and must be also ready with his crew to man the boat on all occasions: he sits at the stern of the boat, and steers.

COCK-WATER, *among miners*, a stream of water, brought into a trough, to wash away the sand from tin ore, while stamping in the middle.

COCOA, or Cacao Nut, (Ger. Da. Sw. and Rus. *Kakao*. Fr. It. Sp. Port. and Lat. *Cacao*. Du. *Kakau*. Pol. *Kakaowy orzech*,) in natural history, is a kind of nut growing on a tree, common in the West Indies. The cocoa or chocolate-nut is a fruit of an oblong figure, resembling a large olive in size and shape, but rather thinner in proportion to its length, and in some degree approaching to the almond or pistachia-nut: it is larger, however, than either of these last. It is composed of a thin, but hard and woody coat or skin, of a dark blackish colour, and of a kernel within this, filling up its whole cavity, fleshy, dry, firm, and flattish to the touch, of a dusky colour, with a mixture approaching to red on the surface, and of a greyish-brown within. It is composed of several irregular and unequal parts, which, however, cohere firmly enough together, and it is of a very fragrant and agreeable smell, and of a pleasant and peculiar taste, with something of the acerb in it.

The *cocoa* or *chocolate-nuts* are found in the cavity of the large nut, and are usually to the number of 30 in each fruit; and it is of those nuts that *chocolate* is manufactured. *See* CHOCOLATE.

COCOS, (*Cocoa Nuts*. Ger. *Kokosnüsse*. Du. *Kokosnooten*. Da. *Kokosnödder*. Sw. *Cocosnotter*. Fr. Sp. and Port. *Cocos*. It. *Cocchi*. Rus. and Pol. *Kokos*. Lat. *Nuces Indicæ*,) the tree which produces the *cocoa-nut*. This tree is supposed to be a native of the Maldive and other islands in the East Indies, and thence to have been transported to all the warm parts of America: for it is not found in any of the inland parts, nor any where far distant from settlements. It frequently grows to the height of 60 feet. The nuts hang at the top of the trunk in clusters of a dozen each. Each nut, next the stem, has three holes closely stopped; one being wider, and more easily penetrated, than the rest. When the kernel begins to grow, it encrusts the inside of the nut in a blueish, jelly-like substance: as this grows harder, the enclosed liquid, distilled into the nut from the roots, becomes somewhat acid; and the kernel, as

the nut ripens, becomes still more solid, and at length lines the whole inside of the nut for above a quarter of an inch thick, being as white as snow, and of the flavour of a filberd. The quantity of liquor in a full-grown nut is frequently a pint and upwards. The husky tegument of the nut consists of strong, tough, stringy filaments, which, when removed from the fruit, resembles coarse oakum. The leaves are wrought into brooms, hammocks in form of nets, mats, sacks, and other useful utensils. The tree is propagated by planting the nuts, which in six or eight weeks will come up, provided they are fresh and thoroughly ripe: this is what few of them are, when brought into this country; for they are always gathered before they are ripe, that they may keep during the passage.

COD. (Ger. *Kabljau, Bakalau.* Du. *Kabeljaauw, Baukaelja.* Da. *Kabliau, Skreitorsk, Bakelau.* Sw. *Kabeljo, Bakelau.* Fr. *Morue, Cabillaud.* It. *Baccala, Baccalare.* Sp. *Bacalao.* Port. *Bacalhão.*) "The general rendezvous of the cod-fish," says Mr. Pennant, "is on the banks of Newfoundland, and the other sand-banks that lie off the coasts of Cape Breton, Nova Scotia, and New England. They prefer these situations on account of the quantity of worms produced in those sandy bottoms, which tempt them to resort thither for food; but another cause of this particular attachment to these spots is their vicinity to the polar seas, whither they return to spawn: there they deposit their roe in full security, but want of food forces them, as soon as the first more southern seas are open, to repair thither for subsistence. Few are taken north of Iceland, but on the south and west coasts they abound: they are again found to swarm on the coast of Norway, in the Baltic, off the Orkney and the Western isles; after which their numbers decrease, in proportion as they advance towards the south, when they seem quite to cease before they reach the mouth of the Straits of Gibraltar." The great sand-bank on which the cod-fish are taken, is represented as a vast submarine mountain, of above 500 miles long, and near 300 broad, and seamen know when they approach it by the great swell of the sea, and the thick mists that impend over it. The water on the bank is from twenty-two to fifty fathoms; on the outside from sixty to eighty; and on the smaller banks much the same: the increase of shipping that resort to these fertile banks is now incalculable: Great Britain still enjoys the principal share, and it ought to be esteemed one of our chiefest treasures, bringing wealth to individuals, and strength to the state. All this immense fishery is carried on by the hook and line only: the principal baits are herring, the small fish called a capelin, the shell-fish called clams, and pieces of sea-fowl; and with these are caught sufficient to find employ for upwards of fifteen thousand British seamen, and to afford subsistence to a much more numerous body of people at home, who are engaged in the various manufactures which so vast a fishery demands. The fish, when taken, are properly cleaned, salted, and dried, and in this state sent to various parts of the continent of Europe. The territory, as well as the fishery, from their incalculable value to this country, are protected by more numerous statutes than almost any other dependancy of the British crown. *See* FISHERY and NEWFOUNDLAND.

COD-OIL. (Ger. *Leberthran.* Du. *Levertraan.* Da. *Levertran.* Sw. *Lefvertran.* Fr. *Huile de morues.* It. *Olio di baccala o merluzzo.* Sp. *Aceite de Merluza.* Port. *Oleo de bacalhäo.*) This oil, extracted from the cod-fish, is usually imported by us from Newfoundland, and other parts of America. Cod-oil is applied to nearly the same purposes as whale-oil: it is much used by curriers, and is a good lamp-oil.

COFFEE, (Ger. *Koffe, Koffebohnen.* Du. *Koffy, Koffiboonen.* Da. *Kaffe, Kaffebönner.* Sw. *Koffé.* Fr. It. and Port. *Caffé.* Sp. *Café.* Rus. *Kofé.* Pol. *Kawa.* Lat. *Coffea, Caffea,*) the berries of a shrub common in Arabia Felix. *Coffee* has some medicinal virtues, which it is foreign to our purpose to expatiate upon, but it is used principally as a food. It is a fruit approaching to an oval or semi-oval form; smaller than a horse-bean, and is of a tough, close, and very hard texture. It is prominent on one side, and flatted on the other, with a large deep furrow which runs along the flatted side. It is moderately heavy, hard to break before it is roasted, and is of a pale greyish colour. There are 10 species, but that which is most worthy of attention is supposed to be a native of Arabia Felix. The *Coffea Arabica* seldom rises more than 16 or 18 feet in height: the main stem grows upright, and is covered with a light brown bark; the branches are produced horizontally and opposite, crossing each other at every joint. The leaves also stand opposite; and when full grown are about four or five inches long, and two broad in the middle, decreasing towards each end; the borders are waved, and the surface is of a lucid green. The flowers are produced in clusters at the root of the leaves, sitting close to the branches; they are tubulous, and spread open at the top, where they are divided into five parts; they are of a pure white, and have a grateful odour, but are of short duration. The fruit, which is the useful part, resembles a cherry. It grows in clusters, and is ranged along the branches under the axillæ of the leaves, of the same green as the laurel, but something longer. When it becomes of a deep red, it is gathered

for exportation. The coffee-tree, we have already observed, is said to have been an indigenous plant of Arabia Felix. It is of little importance to the commercial inquirer, how, or at what period it first passed into other countries. It is sufficient for *our* purpose to observe, that it was in very early repute at Mocha, a port situated at the entrance of the Red Sea, to which place coffee was brought from all the neighbouring districts for exportation. To this day Mocha coffee bears its pristine reputation, as well in Asia, as in Europe, being considered the finest in flavour, as it is the most expensive in price. The next in quality is that from the Isle of Bourbon. It does not appear whether the plant was indigenous there also, but ever since the French took possession of it in 1654, the coffee-tree has been sedulously cultivated. The next coffee in point of reputation in Europe, is that from the island of Java, where the Dutch have cultivated it for more than a century and a half. It is said to have been first carried to Martinico by the French, in 1727; and from thence it soon spread over all the West India Islands. That cultivated by the Dutch in St. Eustatia is best in flavour. We find coffee first noticed in the laws in England, by a statute of 1660, whereby a duty of 4*d.* was laid on every gallon of coffee sold.

By 20 Geo. 3. c.35. dealers in coffee, chocolate, &c. must take out an annual licence.

The duties are regulated by 59 Geo. 3. c. 53.

And by 43 Geo. 3. c. 129. If any burnt, scorched, or roasted pease, beans, or other grain or vegetable substance prepared or manufactured for the purpose of being in imitation of, or in any respect to resemble coffee or cocoa, *or to serve as a substitute* for coffee or cocoa, or alleged or pretended by the possessor or vendor so to be, shall be made or kept for sale, or offered or exposed to sale, or found in the possession of any dealer in or seller of coffee or cocoa; or if such imitation shall be called by the preparer, possessor, or vendor thereof, *English* or *British* coffee, or by the name of *American cocoa*, or *English* or *British* cocoa, the same shall be forfeited together with the packages, and shall be seized by any officer of excise, and the party preparing or selling the same shall forfeit also 100*l.* But now by 3 Geo. 4. c. 53. persons not being dealers in coffee may roast and sell corn, pease, beans, or parsnips, under such name and with a licence, and subject to the various regulations contained in the act. Persons not conforming to the directions of the act to forfeit 100*l.*

COFFILA, a weight of Mocha; 10 coffila make 1 tuckea, 40 tuckea the maun, 10 mauns 1 trassel, 15 trassels the bahar of Mocha, which weighs 420 lbs.

COHI, a large dry measure used in the kingdom of Siam for corn, &c. It weighs exactly 5000 lbs. British.

COIANG, both a weight and measure of Cambaye in the East Indies, of which five make a last.

COIL, a quantity of rope or cordage, rolled up in the form of a ring.

COIN denotes all the several stamps and species of money in any nation. In earlier times, when the necessity of traffic put men upon the expedient of having money; and metals, on account of their firmness, cleanness, and durability, were chosen for that end, each person cut his metal into different sizes and forms, according to the quantity to be given for any merchandise, or according to the demand of the seller, or the quantity stipulated between them. It was usual then to go to market laden with metal in proportion to the purchase to be made; and furnished with instruments for proportioning it, and with scales for dealing it out according as occasion required. By degrees it was found more convenient to have pieces ready weighed; and as there were different weights required, all those of the same weight were distinguished with the same mark and figure. At length, the growing commerce of money beginning to be disturbed with frauds both in the weights and the matter, the public authorities interposed, and hence arose the first stamps or impressions of money, to which succeeded the name of the moneyers, and at length the effigies of the prince, the date, legend, and other precautions, to prevent the alteration of the specie; thus were coins completed, and gradually brought to their present perfection. (*See* COINAGE, generally, and for the coins of the world, *see* MONEY.)

The etymology of a word, buried in the remotest antiquity, is of very inferior importance to the reader of a merely practical and elementary book; but of all the conjectures which have been offered on this part of the subject, the most simple and the most natural, seems to be the derivation from the French word *coign*, signifying a *corner;* every piece of early coin being, according to the foregoing exposition, a square piece of metal having four corners. *Cromp. Jur.* 71. 220.—Coin, at all events, is a generic term, however derived, and comprises "all manner of the several stamps and species of money in any kingdom: and this is one of the royal prerogatives belonging to every sovereign prince, that he alone, in his own dominions, may order and dispose the quantity, value, and fashion, of his coin. But the coin of one king is not current in the kingdom of another; though our king by his prerogative may make any foreign coin lawful money of England at his pleasure, by proclamation." *Terms de Ley.*

Any person may break or deface pieces of *silver money* suspected to be counterfeit,

or diminished otherwise than by wearing; but if such pieces, on breaking, &c. are found to be *good coin*, it will be at the breaker's peril, who shall stand to the loss of it. 9 & 10 W. 3. cap. 21.

The coin of these realms is, indeed, protected by numerous statutes, too numerous to be individually more than merely adverted to here. Suffice it therefore to notice, that counterfeiting the king's money, or bringing false money into the realm counterfeit to the money of England, clipping, washing, rounding, filing, impairing, diminishing, falsifying, scaling, lightening, edging, colouring, gilding; making, mending, or having in one's possession any puncheon, counter-puncheon, matrix, stamp, dye, pattern, mould, edger, or cutting engine: all these incur the penalty of high treason. And if any person shall counterfeit any such kind of gold or silver, as is not the proper coin of the realm, but current therein by the king's consent, he shall be guilty of high treason. If any person shall tender in payment any counterfeit coins, he shall for the first offence be imprisoned six months, for the second offence two years, and for the third offence shall be guilty of felony without the benefit of clergy. Blanching copper or other base metal, or buying or selling the same; and receiving or paying money at a lower rate than its denomination imports; and also the offence of counterfeiting copper pence, halfpence, and farthings, incur the penalty of felony, but within the benefit of clergy. Counterfeiting coin not the proper coin of this realm, nor permitted to be current therein, is misprision of treason. A person buying or selling, or having in his possession clippings or filings, shall forfeit 500*l.* and be branded in the cheek with the letter R. And any person having in his possession a coining press, or casting bars, and ingots of silver in imitation of Spanish bars or ingots, shall forfeit 500*l.*

Bullion and foreign coin of gold and silver may be imported duty free; but the exportation of gold and silver coin is prohibited without the king's licence, except foreign coin upon entry. *Sec* 1 *Dick. Pract. Expos.* 299.

The last statute, which was "for the providing a new silver coinage, and regulating the currency of the gold and silver coin of this realm," was the 56 Geo. 3. c. 68. This statute commences by repealing 18 Car. 2. c. 5. which encouraged the bringing in of silver to the mint, by permitting it to be delivered out again in *coin*, according to its intrinsic value, without charge; also 7 & 8 W. 3. and 14 Geo. 3. c. 42. as to the weight of the silver coin; also the 38 Geo. 3. c. 59. prohibiting the importation of light silver coin; and enacts that the pound troy of silver of standard and fineness of eleven ounces two pennyweights of fine silver, and eighteen pennyweights of alloy in the pound troy, and in weight after the rate of 66*s.* to every pound troy, may be coined into crowns, half-crowns, shillings, sixpences, and pieces of lower denomination. That old *silver coin of the realm*, within a certain period brought to the mint, may be exchanged for its full nominal value in new silver coin. After a certain period (to be determined by proclamation) silver *coin and bullion* brought to the mint shall be coined at the rate of 66*s.* per pound troy of standard silver, eleven ounces two pennyweights fine, &c. of which 62*s.* per pound shall be delivered to the party bringing the bullion, and 4*s.* retained for assaying, loss, and coinage.

Sect. 11. of this statute recites, that gold and silver coin had been at different periods equally a legal tender for payments to any amount, but that inconveniences having arisen therefrom, gold coin only shall hereafter be the only legal tender for any sum above 40*s.*, the said gold coin to be of the weight and fineness prescribed by the present indenture, with his Majesty's Master and Worker of the Mint. And sect. 13. enacts, that such current gold coin shall not be received or paid for more or less than its value according to its legal denomination; and persons offending against this provision shall be deemed guilty of a misdemeanor, and be imprisoned for six months, and find sureties for good behaviour for six months more.

By 59 G. 3. c. 49. gold and silver coin may be exported and melted.

Before we entirely quit this part of the subject, it may not be amiss to enter rather briefly upon an explanation of some of the elementary items which contribute to a perfect comprehension of it, especially with reference to the comparative value of *gold* and *coin* during the fluctuations of their respective commercial values; and also with reference to the terms used in the last mentioned statute, which, for the present period at least, determines the standard of the gold and silver coin of this kingdom.

The weight used for the appreciation of precious metals is the pound, called troy-weight, which was introduced into England in 1066, by William the Conqueror. It derived its origin from the pound instituted by Charlemagne, and its name from Troyes, a city of Champagne, where it was first adopted. The pound troy is divided into 12 ounces, each of 20 pennyweights, which are each divided into 24 grains. The pound is therefore composed of 5760 grains, and the ounce of 480 grains: by a peculiar subdivision of the latter into 20 mites, of a mite into 24 droits, of a droit into 20 periots, and, finally, of a periot into 24 blanks, it required no less than 230,400 blanks to compose a grain; but the lowest denomination which

is now practically used is that of the grain.

The weight agreed upon as the unit of reference of fine gold is that of 24 carats; and in order to express the degrees of inferior fineness, the carat is itself divided into 4 grains, which, being of a different weight from the grains of the pound troy, are distinguished by the appellation of carat-grains. The fractions of such grains have not any particular denomination. Standard gold is that which is to fine gold as 22 are to 24; or, in other words, it is of 22 carats, or 88 carat-grains, being the degree of fineness which is used in the coinage of this metal, and which is also understood when we speak of the commercial price of gold. In the mass, therefore, weighing 24 carats, which we call a pound of standard gold, there are 22 carats of fine gold, the supplementary quantities introduced being 1 carat of fine silver, and 1 carat of fine copper.

The weight agreed upon as the unit of reference of fine silver is that of 12 ounces, each of which is divided into 20 pennyweights, and these are again subdivided into grains of the pound troy. Standard silver is to fine silver in the proportion of 11 ounces 2 pennyweights, or $\frac{37}{40}$, being the degree of fineness which is referred to in the commercial price of silver, and used in the coinage of this metal. In the mass, therefore, weighing 12 ounces, which we call a pound of standard silver, there are 11 oz. 2 dwts. of fine silver, with addition of 18 dwts. of fine copper.

In order to ascertain the degree of fineness of the metals which the Bank of England purchases, they are assayed at the mint. In this process, the refiner prepares his materials by taking a few grains of the metal to be assayed, whether cuttings or scrapings; and, cleansing them from dross, he puts them into the cupel, or test, with a piece of clean lead on the fire, till it be refined to the highest degree. After taking the metal from the fire, the refiner lets it cool, beats it clean, and, having a pair of scales curiously glazed, he puts the refined metal into one scale, and a weight corresponding with the weight of the metal before the operation into the other scale. He then weighs the cupelled metal, computing, by the loss of weight upon the quantity taken, the proportion of loss which there would have been, if a pound or an ounce had been cupelled. By this means, the degree of purity of the mass itself is accurately determined at the Bank, according to the written report of the assay-master, which, in respect to gold, is in carats, carat-grains, and the fractions thereof; and, in respect to silver, in ounces, pennyweights, and half pennyweights.

COINAGE, or, more correctly, the art of coining, or making money, is either performed by the hand, or by a mill. Formerly the fabric of coins was different from what it is at present. They cut a large plate of metal into several little squares, the corners of which were cut off with sheers. After having shaped these pieces, so as to render them perfectly conformable in point of weight to the standard coin, they took each piece in hand again, to make it exactly round by gentle hammering: this was then called a planchet, which was ready for immediate coining. The engravers then prepared a couple of steel masses in form of dyes, cut and terminated by a flat surface, rounded off at the edges. They engraved or stamped on them the hollow of a head, a cross, a scutcheon, or any other figure, according to the custom of the times, with a short legend. As one of these dyes was to remain dormant, and the other moveable, the former ended in a square prism, that it might be introduced into the square hole of the block, which, being fixed very fast, kept the dye as steady as any vice could have done. The planchet of metal was horizontally laid upon this inferior mass, to receive the stamp of it on one side, and that of the upper dye, wherewith it was covered, on the other. This moveable dye, having its round engraved surface resting on the planchet, had, at its opposite extremity, a flat, larger, and square surface, upon which they gave several heavy blows with a hammer of an enormous size, till the double stamp was sufficiently in relievo, impressed on each side of the planchet. The strong tempering which was, and is still, given to the two dyes, rendered them capable of bearing those repeated blows. This art, however, has been improved and rendered very expeditious by several ingenious machines, and by a wise application of the surest physical experiments to the methods of fining, dyeing, and stamping, the different metals. This may perhaps be sufficient for explanation of the mere science of coining, as it is a public concern, not an art or mystery to be executed by individuals with impunity.

The historical detail of the improvements successively made in the manner of accomplishing the coinage, so far as is necessary for the information we profess to give, is contained within a small compass.

During the continuance of the hammered money, or, as it has sometimes been called, the "sledge coining," the best that has ever been produced in this kingdom has been said to be during the Protectorate of Cromwell; but certain it is, that till after the restoration of Charles II. this hammered, or sledge coined money, was the current coin of the realm, and did not cease to be current till the reign of William III., when that method was superseded by the invention of better machinery under the influence of the then Earl of Halifax. The chief coinage of Great Britain is performed in the Tower of London; but of late years Messrs. Bolton and Watt of Soho, near Birming-

ham, have, in consequence of a contract entered into between them and the government, coined at their aforesaid manufactory farthings, halfpence, pence, and two-penny pieces of copper; and to such a state of perfection have these gentlemen, and their successors in the manufactory, brought their machinery, that the method discovered by them has been altogether in principle, and to a great degree in practice, adopted by the master and managers of the mint.

COINING, in the tin works, is the weighing and stamping the blocks of tin with a lion rampant, performed by the king's officer: the duty for every hundred weight being four shillings.

COLE-SEED, (Ger. *Rapsaat, Kohlsaat.* Du. *Raapzaad.* Da. *Rapsaat.* Sw. *Rapsat.* Fr. and It. *Colza.* Sp. *Colzat.* Port. *Colsa,*) produces a species of cabbage called cole or colza, which grows abundantly in the northern parts of France, and in the Low Countries. There is likewise some of this cabbage grown in Great Britain. The seed called cole-seed yields an oil which is used for burning, as an article of food, and as an ingredient in the manufacture of soap, and the preparation of leather and wool. For the laws respecting its importation, *vide* 2 W. & M. c. 4.; 30 G. 3. c. 41.; 35 G. 3. c. 117.; and 36 G. 3. c. 113.

COLCOTHAR, the *caput mortuum* of vitriol.

COLLAR *of a ship*, a rope fastened about her beak-head, into which the deadman's eye is seized, that holds her mainstay. Also, the rope which is wound about the mainmast-head, to save the shrouds from galling, is called a collar.

COLLAR-*beam*, a beam framed cross betwixt two principal rafters.

COLLAR *of a plough*, an iron ring fixed in the middle of the beam, wherein are inserted the tow and bridle chains. *See* PLOUGH.

COLLECTORS *of the Customs*, being sued by any but the king, may plead the general issue. 13 & 14 Car. II. c. 17. *See* CUSTOM-HOUSE OFFICERS.

COLLET, in glass-making, is that part of the glass vessels which sticks to the iron instrument wherewith the metal was taken out of the melting-pot: this is afterwards used for making green glass.

COLOCYNTHIS, Coloquintida, or *bitter apple*, (Ger. *Koloquinten.* Du. *Bitter-appelen.* Da. & Sw. *Coloquinter.* Fr. *Coloquintes.* It. *Coloquintida.* Sp. *Coloquintidas.* Port. *Coloquintidas.* Rus. *Kolozintii.* Pol. *Kolokwintyda.* Lat. *Colocyntidum poma,*) is a round, white, dry, cellular substance, containing in the cavities seeds like those of the cucumber, but round, less flat, and harder: the kernel is oily and of a sweet taste. This drug is the pulp of a fruit about the size of an orange: it is at first of a green colour, but turns yellow as it approaches maturity. The pulp, which is the only part used in medicine, is very nauseous, acrimonious, and extremely bitter: it is brought to us from Aleppo.

COLOPHONY, (Ger. *Kolophonium, Geigenharz.* Du. *Viioolhars.* Da. *Fiolinharpix, Colophonium.* Sw. *Fiolkada, Harts.* Fr. *Colophone.* It. *Colofonio.* Sp. *Colofonia.* Port. *Colophonia.* Rus. *Kanifol.* Pol. *Kalofonia.* Lat. *Colophonium,*) *in pharmacy*, a black resin, or turpentine, boiled in water, and afterwards dried, or the resin remaining after the distillation of the ethereal oil, being farther urged by a more intense and long-continued fire, it yields a thick oil, along with a heavy acid water, which discovers the genuine nature and properties of a resin. *Colophony*, when reduced to a powder, and thrown into the flame of a candle, takes fire and resembles lightning. It is used occasionally in healing of wounds, &c.

COLOUR, in paintings, is used to express the drugs, and the tints produced by those drugs, variously mixed and applied. A brief account of the different pigments or colours which are commonly used either in water, or oil, for the purposes of drawing or painting, must suffice.

Red. Lakes. This term is used to denote a species of colours, formed by the combination of alumina, or the oxyd of tin, with the colouring matters of vegetables. The lakes chiefly used are red colours; and these are of different qualities, according to the basis and colouring matter employed, such as carmine, Florence-lake, and madder-lake.

Carmine is a very rich, bright, crimson colour, and stands well in water. For the preparation of carmine, four ounces of finely pulverized cochineal are to be poured into four or six quarts of rain or distilled water, that has been previously boiled in a pewter kettle, and boiled with it for the space of six minutes longer. Eight scruples of Roman alum, in powder, are to be then added, and the whole kept upon the fire for one minute longer. As soon as the gross powder has subsided, and the decoction has become clear, it is to be carefully decanted into large cylindrical glasses covered over, and kept undisturbed till a fine powder is observed to have settled at the bottom. The liquor is then to be poured off from this powder, which is to be gradually dried. From the liquor, which is still much coloured, the rest of the colouring matter may be separated by means of the solution of tin, when it yields a carmine little inferior to the former.

Florentine lake is the kind in general use known by the name of lake. It is used in water and also in oil, but does not stand; which is much to be regretted, as it is a very beautiful colour, and there is no substitute that will completely answer all the purposes of lake. The best sort may be prepared from the sediment of cochineal that remains

in the kettle after making carmine, adding to it a small quantity of cochineal or Brazil-wood, and precipitating the colouring matter with a solution of tin.

Madder-lake is very little known as a colour. It is not so bright and rich a colour as the last-mentioned lakes, but has this valuable advantage, that it stands much better, and it may answer many of the purposes of Florence-lake. It is prepared nearly in the same manner as the foregoing.

Rose-lake. This is generally called rose-pink. It is a lake made by a basis of chalk, coloured by Brazil or Campeachy wood. It does not stand, and is only used for house-painting and paper-hanging.

Vermilion, a bright scarlet pigment, formed from sulphur and quicksilver; when of a coarse kind, it is called cinnabar. Its goodness is known by its brightness, and its inclining to a crimson hue. It is a very useful colour in oil, where it stands very well; but water is apt to turn it black.

Red-lead, or minium, is lead calcined till it acquires a red colour, by exposing it, with a large surface, to the fire. It is also made from litharge, which is a calx or oxyd of lead; but is not so good as when made directly from metallic lead. This colour is very apt to turn black, both in water and oil, and is therefore seldom used but for very coarse purposes.

Indian-red is a very useful colour, answering some of the purposes of lake: it stands well both in water and oil. It is difficult to procure the genuine kind, which comes from the East Indies. What is sold for Indian-red, is said to be chiefly made in this country.

Venetian-red is a native red ochre, rather inclining to the scarlet than the crimson hue: it is not far different from the common Indian-red, but fouler, and is chiefly used by house-painters.

Spanish-brown is also an earthy substance, found in the same state in which it is used: it is nearly of the same colour as Venetian-red, but coarser. It is used only for the commonest purposes. It does not change.

Light-red, or burnt ochre. This is common yellow ochre, heated red-hot in the fire, till the colour changes from yellow to red. It is a very excellent colour, both in water and oil; having the quality in common with all the ochres, of standing perfectly well.

Red-chalk. This is the same substance as is used for drawing on paper, in the manner of a crayon. It is very much like light red, and is used instead of it for some purposes. It stands perfectly well, and may be used both in water and oil.

Burnt terra di Sienna. This colour is made by calcining raw terra di Sienna till it acquires a red colour. It is of a very rich tint, and is much used both in water and oil. It stands well in both.

Blue. Ultramarine is prepared from lapis lazuli, by calcining and washing it very clean. When genuine, it is an extremely bright blue colour, somewhat transparent both in oil and water, and stands perfectly well. On these accounts it is of the utmost value, being excellent in every kind of painting, even in enamel; but its great price prevents the general use of it.

Ultramarine ashes. These are the residuum after washing the lapis lazuli, in which a portion of the ultramarine still remains. They are very subject to be adulterated. Their colour is not so bright as ultramarine: having like that colour, a tint of red and white in them. When genuine, they stand well.

Prussian-blue. This colour is iron combined with a peculiar acid, called the prussic acid. It is made in the following manner: two parts of purified potass are most intimately blended with three parts of dried and finely pulverized bullock's blood. The mass is first calcined in a covered crucible, and on a moderate fire, until no smoke or flame appears; and it is after this brought to a complete yet moderate ignition: or equal parts of potass and finely powdered coals, prepared from bones, horns, claws, &c. are mingled, and heated in a covered crucible to a moderate redness. This done, either of these two calcined masses is, after cooling, lixiviated with boiling water, and the lixivium filtered. Nothing remains now but to make a solution of one part of green vitriol and two parts of alum; and to add to it while yet hot the above lixivium, little by little however; and to separate the greenish-blue precipitate which then forms by means of a filter. If afterwards a slight quantity of diluted muriatic acid is affused upon this precipitate, it assumes a beautiful dark blue colour. The operation is terminated by edulcorating and drying the pigment thus prepared. Prussian-blue is an extremely beautiful colour when properly prepared, and stands well. Common Prussian-blue is apt to contain some iron, which causes it to turn greenish or olive.

Verditor is a blue pigment, obtained by adding chalk or whiting to the solution of copper in aqua-fortis. The best sort is prepared by the refiners, who employ for this purpose the solution of copper which they obtain in the process of parting, by precipitating silver from aqua-fortis by plates of copper. Common verditer is made from the sulphate of copper or blue, by the manufacturers in Sheffield and Birmingham. Verditer is only used for very coarse purposes, chiefly by the paper-stainers. It has been sometimes called sanders-blue, a corruption of the term *cendres blue*, or blue ashes, the French name for it.

Indigo. This colour is extracted from a plant that grows in the East and West Indies. It is not so bright as Prussian-

blue, but it is cooler, and has the advantage of being very durable. It cannot be dissolved by water, but may be by the sulphuric acid; and it then forms Scott's liquid blue, so much used for colouring silk stockings, &c.

Smalt. This is glass, coloured with cobalt, and ground to a fine powder. Its coarseness prevents its being used much for painting in oil, or water. It is employed sometimes by strewing it upon a ground of oil-paint. It is also used in enamel-painting. It stands well.

Bice is only smalt more finely levigated.

Yellow. Indian-yellow. This is the brightest of all yellows for water-colours, and is perfectly durable. It is said to be procured from the urine of the buffalo. In the East Indies it is a very common and cheap colour: the natives there use it commonly for colouring their calicoes, which they do without any mordant, so that the colour is washed out again when the cloth is dirty.

King's yellow. This colour is orpiment refined; which is a substance dug out of the earth, and consists of sulphur joined to arsenic; or it may be prepared by subliming sulphur with arsenic. It is of a very bright yellow, but does not stand well; and great caution should be used in employing it, as it is a strong poison.

Naples-yellow. This is a very durable and bright yellow; it comes from Naples, and is supposed to be prepared from lead and antimony.

Yellow-ochre. This is an earth coloured by oxyd of iron. It is a cheap colour, and not very bright; but is valuable on account of its standing well. Roman-ochre is a superior kind of yellow ochre.

Dutch-pink. This pigment is formed of chalk, coloured with the juice of French berries, or other vegetables affording a yellow colour. It does not stand, and is chiefly used for common purposes.

Gamboge is a gum brought from the East Indies. It readily dissolves in water, and is a fine bright yellow. It is used only in water, and is very serviceable.

Massicot is an oxyd of lead, prepared by calcined white lead. It is very little used, the colour not being very bright.

Gall-stones. This is a concretion or hard substance, formed in the gall-bladders of beasts; or it may be obtained from the gall of animals. It is a very rich colour, but does not stand.

Raw terra di Sienna is a native ochreous earth brought from Italy. It is a fine warm colour, and stands well.

Orange-lake is the tinging part of annotto precipitated together with the earth of alum. It does not stand.

Brown-pink is the tinging part of some vegetable substance precipitated upon the earth of alum It is of a fine rich greenish yellow, but does not stand.

Green. There are few colours in more general use than greens. It is the practice with artists to form them by the mixture of blue, and yellow, colours. By varying the proportions of these respectively, a vast variety of green tints may be obtained.

Verdigris. If plates of copper, moistened from time to time with vinegar, are left exposed to the air, they will be converted into a green oxyd, called verdigris. This is prepared in large quantities near Montpellier in France, by stratifying the copper-plates with husks of grapes, yet under vinous fermentation, which soon grow acid, and corrode the copper. After the plates have stood thus, for a sufficient time, they are moistened with water and exposed in heaps to the air. The verdigris is scraped off the surface as it forms. Verdigris is of a bluish green, has no body, and does not stand. It anwers best when used in varnishes.

Distilled or crystal-verdigris, is prepared by dissolving common verdigris in vinegar. It is of a very bright green,, and is used chiefly for varnishes, and in colouring maps.

Sap green is the concreted juice of the buckthorn berries. It is never used in oil. It is employed chiefly in flower-painting, and colouring prints, &c.

Brown colours. Bistre is the finer part extracted from the soot of burnt wood. It is much used in water-colours. There is an excellent sort prepared in Ireland.

Cologne earth is a mineral substance of a blackish brown.

Burnt umber is a native ochreous earth.

Raw umber is only the last mentioned colour calcined in the fire. It is a deep, rich brown, and stands perfectly well.

Asphaltum is used in oil, and is of a very rich, deep brown. It is a transparent or glazing colour.

White. White lead is the same colour as flake-white, only of an inferior quality. It is the only white used in oil-painting, and it is very useful; but in water it always turns black, and should never be used.

Pure carbonate of lime is very useful as a white in water colours, as it stands perfectly well.

Egg-shell white, and oyster-shell white, are only egg-shells, or oyster-shells, calcined, by which the animal gluten is destroyed, leaving the lime behind, which soon attracts the carbonic acid again from the atmosphere.

Well-washed Spanish-white, or common whiting, answers the same purpose.

Black. Lamp-black is the soot of oil collected after it is formed by burning. It is very generally used, both in oil, and water, and stands perfectly well.

Ivory-black is the coal of ivory or other bones, formed by giving them a great heat, while they are deprived of all access of air. It is of a more intense black than lamp-black.

Blue-black is the coal produced by burning vine-stalks in a close vessel. It is like ivory-black, with a tint of blue.

COLOUR, in dyeing. *See* DYEING.

To COLOUR *stranger's goods*, is when a freeman allows a foreigner to enter goods at the custom-house in his name.

COLOURING, in painting, is the art of applying, and disposing, various colours in such a manner, as to be productive either of an imitation of the natural hues of the objects represented, of harmonions arrangement of tints, or of force and brilliancy of effect.

COMB, an instrument to clean, untangle, and dress, flax, wool, hair, &c. Combs for wool are prohibited to be imported into Great Britain.

COMB *in a ship*, a little piece of timber set under the lower part of the beak-head, near the middle. It has two holes in it, and supplies to the fore-tacks, what the chest-trees do to the main-tacks; that is, it brings the fore-tacks aboard.

COMBS, (for the hair,) (GER. *Kamme*. DU. *Kammen*. DA. *Kamme*. SW. *Kammar*. FR. *Peignes*. IT. *Peltini*. SP. *Peines*. PORT. *Pentes*. RUS. *Grebnii*. POL. *Grzebienie*. LAT. *Pectines*,) are generally made of horns of bullocks, or of elephants' and sea-horses' teeth: some are made of tortoise-shell, and others of box or holly-woods. Bullocks' horns are thus prepared in order to manufacture combs. The tips are first sawn off; they are then held in the flame of a wood fire: this is called roasting, by which they become nearly as soft as leather. While in that state they are slit open on one side, and pressed in a machine between two iron plates: they are then plunged into a trough of water, from which they come out hard and flat. The comb-maker next saws them into lengths according to the sized combs he wants. To cut the teeth, each piece is fixed in a tool called a clam. The teeth are cut with a fine saw, or rather a pair of saws, and they are finished with a file.

The process used for making ivory combs is nearly the same as that already described, except that the ivory is first sawed into thin slices.

Tortoise-shell combs are much used, and an imitation of them in horn is done in the following manner: the horn to be dyed must be first pressed into a flat form, and then spread over with a paste made of two parts of quick-lime and one of litharge, brought into a proper consistence with soap-ley. This paste must be put over all the parts of the horn, except such as are proper to be left transparent, to give it a nearer resemblance to tortoise-shell. The horn must remain in this state till the paste is quite dry, when it is to be brushed off. It requires taste and judgment to dispose the paste in such a manner as to form a variety of transparent parts of different figures, to look like nature. Some parts should also be semi-transparent; which may be effected by mixing whiting with a part of the paste, to weaken its operation in particular places: by these means spots of a reddish brown will be produced, so as greatly to increase the beauty of the work. This kind of stained horn, if well executed, is little inferior to tortoise-shell.

COMBINATIONS to do unlawful acts are punishable by the common law before the unlawful act is executed; and this is to prevent the consequences of combinations and conspiracies, &c. 9 *Rep.* 57.

By 39 and 40 Geo. 2. c. 106., every workman who shall enter into any contract for obtaining an advance of wages, altering the usual time of working, decreasing the quantity of work, or the like, (except contracts between masters and men,) shall be committed to the common gaol for not more than three months, or the house of correction for not more than two, on conviction before two justices: as also any workmen entering into any combination for advancing wages, or the like, as above, or who shall wilfully and maliciously endeavour to prevent any workman from hiring himself, or prevail on him to quit his employ, or who shall hinder any master from employing any person, or, without reasonable cause, shall refuse to work with any other workman, and also all persons who shall attend any meeting for the purpose of making any such illegal contract, or who shall summon, or by intimidation, or otherwise, endeavour to induce any journeyman to attend any such meeting for such purpose. s. 1, 2, 3, 4.

No person shall contribute for any expenses incurred for acting contrary to this act, or towards the support of any person to induce him not to work, on penalty not exceeding 10*l.*, and any person collecting money for such purposes shall forfeit not exceeding 3*l.*, one moiety to his majesty, and the other to the informer and the poor of the parish. s. 5.

The offences shall be determined in a summary way before two justices, who shall fix the penalty, and if not paid shall cause it to be levied by distress, or in default thereof shall commit the offender to the common gaol or house of correction. s. 5.

Contributions made for any prohibited purposes shall be forfeited, one moiety to the king, and the other to the person who shall sue for the same. s. 6.

Offenders may be compelled to give evidence, and shall be indemnified from prosecution for any offence whatever to which they give testimony. s. 9.

Justices may summon offenders: and on their not appearing, or in the first instance, may issue warrants for their apprehension, and also on their appearing, or on proof

of their absconding, may convict or acquit the parties. s. 10.

Justices may summon witnesses, and for non-appearance, or refusal to give evidence, may commit them until they submit. s. 11.

No master in the trade in which any offence is charged to have been committed, shall act as a justice under this act. s. 16.

All contracts between masters or other persons for reducing the wages of journeymen, or for altering the usual hours of working, or increasing the quantity of work, shall be void, and masters convicted thereof shall forfeit 20*l.*, one moiety to his majesty, and the other to the informer, and the poor of the parish, which may be levied by distress, and if not paid the offender may be committed for not exceeding three, nor less than two, calendar months. s. 17.

But disputes between masters and workmen may be settled by arbitration. If arbitrators shall not decide the matter within three days after submission to their award, either party may require them to go before a justice, who shall finally determine the same. s. 18. See further, 2 *Dicks. Pract. Expos.* 879.

COMFIT, (Ger. *Comfits. Konfekt, Konfitüren.* Du. *Confyt, Banket.* Da. & Sw. *Confect.* Fr. *Confiture, Sucrerie.* It. *Confetti.* Sp. *Dulces.* Port. *Doces, Confeitos.* Rus. & Pol. *Konfekt,*) a kind of sweetmeat, made by the confectioners, of almonds, carraway-seed, coriander-seed, &c. covered over with a mixture of sugar, flour, and water.

COMMANDERS, *or captains of trading vessels,* are such head-officers, as have the chief direction and command of merchantmen.

COMMASSE, *or* CONNUASSE, a small money current at Mocha, and the only one made there; 60 *commasses* and 80 caveers (or cabeers, in which accounts are kept) make a French crown, and are equivalent to 5*s.* British.

COMMERCE, the exchange of commodities for other articles, or for some representative of value, for which other commodities can be procured. At first commerce consisted merely in exchanging the surplus of some particular article of produce, which an individual possessed beyond what he found necessary for his own use, for the similar surplus of some other article possessed by another individual, which kind of traffic is now generally called barter. By the introduction of metallic, and paper, money, the operations of commerce were much facilitated, while the increase of population rendered them of greater magnitude. Improvements in the art of navigation extended their boundaries, the advancement of science, and increase of luxury, multiplied the objects of trade, and the various duties and regulations established by different governments rendered the subject more complicated to individuals, but at the same time of increased importance to the state. The advantages of commerce began to engage the attention of mankind at a very early period. About 1300 years after the flood, the commerce of the Phœnicians had attained to a considerable extent; they possessed manufactures, entered into commercial partnerships, made long voyages, had resident agents in foreign countries, and had adopted the practice of lending money on bottomry. The Greeks and Romans, particularly the latter, carried on an extensive trade, considering the imperfect state of navigation. The reign of Augustus was particularly favourable to commerce, as the general peace which then prevailed, enabled the merchants to pursue their concerns unmolested. At this period, Malta was famous for its number of workmen and its various manufactures, particularly of fine cloths. The inhabitants were the descendants of the ancient Phœnicians and, like them, pursued commerce with avidity. Under Tiberius, we find the Romans extending their protection to the north; and the town of Havern, the most ancient in Friesland, founded. The cultivation of vines in France, Spain, and Portugal, seems to have increased about this time; and from the inhabitants neglecting to cultivate corn, and turning much of their arable land into vineyards, we may presume the latter afforded considerable profit. About the year 50, the capital of England was first described as a place famous for merchandise. In the 9th century, the Venetians carried on a very beneficial commerce with the Levant, whence they brought spices, silks, drugs, and fruits from the East in great abundance, and supplied the greater part of Europe with these commodities. The crusades contributed materially to the revival of commerce during the 12th and 13th centuries, by introducing an acquaintance with the luxuries of the East, which multiplied the objects of trade. About this time, the commercial towns bordering on the coast of the Baltic, finding their trade much interrupted by pirates, entered into an agreement for mutual support and assistance. This union, which became very celebrated under the title of the Hanseatic League, at first consisted only of twelve towns, but finally of upwards of seventy, including all the principal commercial places of Europe, and embracing nearly all the foreign trade then carried on. The invention of the mariner's compass, which enabled trading vessels to make much longer voyages, and led to a discovery of a passage to the East Indies by the Cape of Good Hope, with the settlements made on the coast of Africa, in Arabia, and in India, affected very materially the commerce of the Mediterranean and of the Hanse Towns, and threw the principal part of the foreign trade into the hands of the Portuguese. The discovery of America opened a new and exten-

sive field for commercial adventure, while the establishment of manufactures produced new articles of trade. The persecutions of the Spaniards drove great numbers of industrious workmen from the Netherlands into England, and other countries, who introduced several manufactures into England, and greatly improved others which were already established. While the different branches of Britain's manufactures were thus improving, its colonial possessions in the East and West Indies were greatly increased, and England was enabled to rival the Dutch, not only in manufactured goods, but also in the principal articles of colonial produce. During the last century, the trade of Holland rapidly declined; and the decided naval superiority maintained by Great Britain, extended and raised her commerce to a magnitude unparalleled in the history of the world. The natural advantages arising from the situation of this country, and her extensive colonial possessions, particularly in the East Indies, have favoured and protected her commercial intercourse; while the accumulated capital of individuals has gradually enabled them to give very considerable credit to their customers, which of late years has been of much importance in increasing the commerce of Great Britain to its present extent.

In the reign of Edward III. the countries with which England had commercial intercourse, were chiefly France, Spain, Portugal, Flanders, Brabant, and Germany. The total value of commodities exported in one year was reckoned at 294,184*l.* and of all the imports at only 38,970*l.*, sums that are considerably less than the value of the goods now entered in one day. The exports consisted of wool of the value of 277,606*l.*, leather 96*l.* and cloths 16,260*l.* The imports were, cloths, of the value of 11,083*l.*, wax, 815*l.*, wine, 3,841*l.*, linen cloth, mercery, and grocery, 22,943*l.* The policy of the times was by no means calculated to encourage trade: our merchants were very jealous of foreigners participating in their commercial profits, though it was to such persons they were indebted for the little knowledge of trade they possessed; and the government being at times still more jealous in this respect than individuals, many injudicious restrictive laws were made: amongst others, an act was passed in 1429, prohibiting persons from selling goods to aliens, except for ready money. It was, however, soon found necessary to repeal this prohibition, and permission was then given to sell to aliens, upon giving not more than six months' credit. Charles II. imposed a duty of 5 per cent. on goods exported, as well as imported, on domestic manufactures, as well as foreign merchandise, and double taxes on all goods when exported by aliens. In 1672, however, the duties payable by aliens on the exportation of all goods of British manufacture were repealed.

This salutary principle was still more extended in 1700 by removing the imposts previously laid on every kind of woollen goods exported, and on corn, meal, and bread. It was however by the law "*for the further encouragement of manufactures,*" passed in 1722, that every one was allowed to export duty-free all kinds of merchandise, the produce of Great Britain, except a few particular articles: while drugs and other commodities used for dyeing were also to be permitted to be imported duty-free. This period forms a memorable epoch in commercial policy; and the subsequent increase of trade is the best proof of the wisdom of the regulations then adopted. The various articles of foreign commerce being subject to great fluctuations in their value, a book of rates was adopted at the custom-house in 1696, for the purpose of valuing uniformly the several articles imported and exported; and, consonantly to these estimates, the following statement shows the total amount of the imports and exports of Great Britain every 20th year from 1700 to 1820.

Years.	Imports.	Exports.
1700	£4,956,975	£6,034,724
1720	6,054,800	8,132,669
1740	7,270,743	10,822,696
1760	8,877,145	14,253,377
1780	11,663,211	13,337,562
1800	30,570,605	43,152,019
1820	29,681,836	42,802,810

The American war produced a memorable effect on the foreign trade of this country. Previously to that event, our manufacturers were not much in the habit of exporting on their own accounts. The prohibition in America of importation from this country, compelled them to seek new markets, and to improve those already known: and from this date commenced that rapid increase of export to the continent of Europe, which has chiefly enabled us to sustain the burthen of wars in which we have been since engaged. From the peace of 1783, our manufacturers have almost universally acted as merchants, and shipped their goods on their own account. They have gained possession of the foreign market, in part from the superiority of their skill, but far more from the superiority of their capital, which has enabled them to give a credit considerably superior to that which the exporters of other countries can allow. The rapid increase of our commerce which is daily taking place, leaves no room for doubting, that at the expiration of a similar period to that which we have taken for our systematic exposition, the prosperous situation of our commerce will be further exemplified and confirmed; at the same time it is not possible for a reflecting mind to view the prohibitory tariffs of some European powers,

and the naturalization, as it were, of many of our manufactures in America, altogether without apprehension.

Of the total exports of Great Britain, about two-thirds of the value consists of British produce and manufactures, and one-third of foreign merchandise.

The following statement of the year ending 5th January 1821, will show the proportions of the commerce of Great Britain with different parts of the world at that time.

	£.	s.	d.
To Ireland -	3,387,873	11	11
Russia - -	3,668,383	0	4
Denmark -	308,575	18	11
Prussia	1,312,580	6	0
Germany -	9,894,108	0	2
Holland - -	2,047,612	8	6
Flanders -	1,542,330	16	6
France - - -	1,162,756	4	0
Portugal - -	1,824,904	19	9
Italy - - -	3,767,621	14	0
British West Indies -	4,347,042	18	6
United States of America	3,920,219	13	8
British America - -	1,676,316	4	4
Asia - - -	3,390,903	10	10
Africa - - -	566,050	14	11
All other parts - -	8,913,336	16	6
Total -	£51,730,616	18	10

In the commercial intercourse between Great Britain and Ireland, a very unjust and oppressive species of policy was long exercised, by which the latter country was debarred from the enjoyment and use of its own resources. It was shut out from every species of commerce, and restrained from sending the produce of its soil to foreign markets. Under such circumstances, it cannot be supposed that its commerce, even with the country that monopolized it, could be very great.

Early in the last century, some little relaxation of the restrictive system had taken place, and something more had been done in the reign of George II.; but in the year of 1780, Ireland obtained a free trade, and ever since has continued its exports to the markets abroad.

The want of large capitals however among its manufacturers retard its commercial importance; and at the same time its principal imports continue to be the manufactures of Great Britain.

Such was the general state of British commerce at the period up to which we have treated of the particular items which compose it. Since then the fluctuations of it have been so extraordinary and unnatural, first from the success which attended the French Emperor's efforts to shut us out from the commerce of the continent of Europe, and subsequently from the revulsion occasioned by the overthrow of his gigantic power, that any attempt at further illustration for the purpose of conveying elementary knowledge by inferences and deductions from annual exemplifications of its progress, decline, and subsequent restoration, however curious, could lead to no accurate, or useful, conclusions.

We must close this article, therefore, with a general reference, for more particular information on any of the detached subjects which go to compose its comprehensive signification, to *titles* EUROPE, ASIA, AFRICA, AMERICA, CUSTOMS, REVENUE, but especially EXPORTATION and IMPORTATION; only adding, that the total value of the commerce of the United Kingdom, exclusive of intercourse between Great Britain and Ireland, for the preceding year stood, on the 5th of Jan. 1823, as follows:

	£.	s.	d.
Official value of Imports	30,500,094	17	4
Ditto of Exports, viz.			
British and Irish produce and manufactures -	44,236,533	2	4
Foreign and Colonial merchandise - -	9,227,589	6	11
Total Exports	£53,464,122	9	3

This subject is further illustrated by the number of vessels, tonnage, and number of persons employed in carrying on this commerce. It is thus officially stated up to September 30. 1821.

Vessels.		Tons.	Men.
United Kingdom	21,163	2,329,213	150,424
Guernsey, Jersey, Man, &c. -	489	26,639	3,859
Plantations -	3,384	204,350	14,896
Total -	25,036	2,560,202	169,179

COMMISSION, in Commerce. *See* FACTORAGE.

COMMISSIONER, is he that has a commission, as letters-patent, or other lawful warrant to execute any public office, as

COMMISSIONERS *of the Customs, of Bankrupts*, &c. &c.

COMMITTEE, is he, or they, to whom the consideration, or ordering of any matter, is referred or committed, either by some court, or by consent of the parties to whom it belongs. As in a parliament, a bill being read, is either consented to and passed, or denied, or neither, but referred to the consideration of a committee appointed by the house. When a parliament is called, and the speaker and members have taken the oaths, there are committees appointed to sit on certain days, viz. the committee of privileges and elections, of religion, of trade, &c. which are standing committees. Sometimes the whole house resolves itself into a committee, on which occasion each person has a right to speak and

reply as often as he pleases, which is not the case when the house is not in a committee.

COMMODORE, an officer of the British navy, commissioned by the lords of the admiralty, or by an admiral, to command a squadron of men of war in chief. He carries a broad pendant at the main top-mast head, and is the next officer in rank and command to a rear-admiral.

COMPAN, a silver money, current in several parts of India, particularly at Patane: it is worth about nine sols French money, or 4½*d.* British, though it rises and falls; and is near the same in value and alloy with the mamoudi of Cambaye.

COMPANY, is a society of merchants, or mechanics, joined together in one common interest. When there are only two or three joined together, it is called a partnership; the term *company* being restrained to societies consisting of a considerable number of members associated together by a charter obtained from the sovereign. The mechanics of all corporations, or towns incorporated, are thus erected into companies, which have chartered privileges and large immunities. Those of London are very numerous. The Mercers were incorporated in the 17th of king Richard II. in the year 1393; the Grocers in the 20th of Edward III. ann. 1345; the Drapers in the 11th of Henry VII. ann. 1430; the Fishmongers in the 28th of Henry VIII. ann. 1536; the Goldsmiths in the 16th of Richard II. ann. 1392; the Skinners in the 1st of Edward III. ann. 1327; the Merchant-Taylors in the 17th of Henry VII. ann. 1501; the Haberdashers in 26 Henry VI. ann. 1447, and 17 Henry VII. ann. 1501; the Salters in the 20th of Henry VIII. ann. 1530; the Ironmongers in the 3d of Edward IV. ann. 1462; the Vintners in the reign of Edward III. and the 15th Hen. VI.; and the Clothiers in the 22d Henry VIII. Besides these, which are the twelve principal companies in London, there are other very considerable ones; as the dyers, brewers, leather-sellers, pewterers, barbers and surgeons, armourers, white bakers, wax-chandlers, cutlers, girdlers, butchers, sadlers, carpenters, cordwainers, painters, curriers, masons, plumbers, innholders, founders, embroiderers, poulterers, cooks, coopers, bricklayers, tylers, bowyers, fletchers, blacksmiths, joiners, plaisterers, weavers, fruiterers, scriveners, bottle-makers, horners, stationers, musicians, lorimers, tallow-chandlers, brown bakers, wood-mongers, upholsterers, turners, glaziers, clerks, watermen, apothecaries, throwsters.

The word *company* seems now more particularly appropriated to those grand associations set on foot for the commerce of the remote parts of the world, and vested by charter with peculiar privileges. When companies do not trade upon a joint stock, but are obliged to admit any person properly qualified, upon paying a certain fine, and agreement to submit to the regulations of the company, each member trading upon his own stock and at his own risk, they are called *regulated* companies. When they trade upon a joint stock, each member sharing in the common profit or loss in proportion to his share in this stock, they are called *joint stock* companies. Such companies, whether regulated, or joint stock, sometimes have, and sometimes have not, exclusive privileges. Regulated companies resemble, in every respect, the corporations of trades so common in cities and towns of all the different countries of Europe; and are a sort of enlarged monopolies of the same kind. As no inhabitant of a town can exercise an incorporated trade, without first obtaining his freedom in the corporation, so in most cases no subject of a state can lawfully carry on any branch of foreign trade, for which a regulated company is established, without first becoming a member of that company. The monopoly is more, or less, strict, according as the terms of admission are more, or less, difficult, and according as the directors of the company have more, or less, authority, or have it more, or less, in their power to confine it to themselves and their particular friends.

The regulated companies of Great Britain for foreign commerce, are the *Hamburgh*, *Russia*, *Eastland*, *Turkey*, and *African Companies*.

The Hamburgh Company is the oldest trading company in the kingdom, though not always known by that name, nor restrained to those narrow bounds to which it is now confined. It was first called the company of Merchants trading to Calais, Holland, Zealand, Brabant, and Flanders: then it acquired the general title of Merchant-Adventurers of England, as being composed of all the English merchants who traded to the Low-Countries, the Baltic, and the German Ocean. Lastly, it was called by its present name. This company was first incorporated by Edward I. in 1296, and their privileges have been confirmed by many of his successors. The revolutions which happened in the Low-Countries towards the end of the sixteenth century, and which laid the foundation of the republic of Holland, having hindered the company from continuing their commerce with their ancient freedom, they were obliged to turn it almost wholly to the side of Hamburgh, and the cities on the German Ocean.

The Russian Company was first projected towards the end of the reign of king Edward VI. and executed in the first, and second, years of Philip and Mary; but had not its perfection till its charter was confirmed by

act of parliament under queen Elizabeth in 1566. It had its rise from certain adventurers who were sent in three vessels on the discovery of new countries, and to find out a north-east passage to China. These, falling into the White Sea, and putting into the port of Archangel, were exceedingly well received by the Muscovites, and at their return, solicited letters-patent to secure themselves the commerce of Russia, for which they had formed an association. This company subsisted with reputation almost a whole century, till the time of the civil wars. It is said, the Czar then reigning, hearing of the death of Charles I. ordered all the English in his states to be expelled: of which the Dutch taking advantage, settled in their room. After the restoration, the remains of the company re-established part of their commerce at Archangel, but never with the same success as before, the Russians being now well acquainted with the Dutch merchants and merchandise. This company subsists still under the direction of a governor, four consuls, and assistants; and by the 10th and 11th of William III. c. 6. the fine for admission was reduced to 5*l*.

The Eastland Company was incorporated by Queen Elizabeth. Its charter is dated in the year 1579. By the first article, the company is erected into a body politic, under the title of the Company of the Merchants of the East, to consist of Englishmen all real merchants, who have exercised the business thereof, and trafficked through the Sound before the year 1568, into Norway, Sweden, Poland, Livonia, Prussia, Pomerania, &c. excepting Narva, Muscovy, and its dependencies. Most of the remaining articles grant them the usual prerogatives of such companies, as a seal, governor, courts, laws, &c.

The Turkey or Levant Company had its rise under Queen Elizabeth in 1581. James I. confirmed its charter in 1605, adding new privileges. During the civil wars, there happened some innovations in the government of the company, many having been admitted members, not qualified by the charters of Queen Elizabeth and King James, or that did not conform to the regulations prescribed. Charles II., upon his restoration, endeavoured to settle it upon its ancient basis; to which end he gave them a charter, containing not only a confirmation of their old one, but also several new articles of reformation. By this the company is erected into a body politic, capable of making laws, &c. under the title of the Company of Merchants of England trading to the Seas of the Levant. The number of members is not limited, but is ordinarily about 300. The principal qualification required is, that the candidate be a freeman of London, and a wholesale merchant, either by family or by serving an apprenticeship of seven years.

The Company of Merchants trading to Africa, established in 1750. Contrary to the former practice with regard to regulated companies who were reckoned unfit for such sort of service, this company was subjected to the obligation of maintaining forts and garrisons. It was expressly charged at first with the maintenance of all the British forts and garrisons that lie between Cape Blanc and the Cape of Good Hope; and afterwards that of those only which lie between Cape Rouge and the Cape of Good Hope. The act which establishes this company (the 23d of Geo. II. c. 31.) seems to have had two distinct objects in view; first, to restrain effectually the monopolizing spirit which is natural to the directors of a regulated company; and secondly, to force them, as much as possible, to give an attention, which is not natural to them, towards the maintenance of forts and garrisons. For the first of these purposes the fine for admission is limited to forty shillings. The company is prohibited from trading in their corporate capacity, or upon a joint stock; from borrowing money upon a common seal; or from laying any restraints upon the trade, which may be carried on freely from all places, and by all persons being British subjects, and paying the fine. The government is in a committee of nine persons, who meet in London, but who are chosen annually by the freemen of the company at London, Bristol, and Liverpool; three from each place. No committee-man can be continued in office for more than three years together. Any committee-man might formerly be removed by the board of trade and plantations, now by a committee of council, after having been heard in his defence. The company are forbidden to export negroes from Africa, or to import any African goods into Great Britain; but as they are charged with the maintenance of forts and garrisons, they may for that purpose export from Great Britain to Africa goods and stores of different kinds. Out of the money which they shall receive of the company, they are allowed a sum not exceeding 800*l*. for the salaries of their clerks and agents at London, Liverpool, and Bristol; the house-rent of their offices in London, and all other expenses of management, commission, and agency, in England. What remains of this sum, after defraying those different expenses, they may divide among themselves, as a compensation for their trouble, in what manner they think fit. For the second purpose mentioned, (the maintenance of the forts and garrisons,) an annual sum has been allotted to them by parliament. For the proper application of this sum, the committee is obliged to account annually to the cursitor baron of the ex-

chequer, which account is afterwards to be laid before parliament.

Joint Stock Companies, established either by royal charter or by act of parliament, differ in several respects, not only from regulated companies, but from private copartneries. In a private copartnery, no partner, without the consent of the company, can transfer his share to another person, or introduce a new member into the company; each member, however, may, upon proper warning, withdraw from the copartnery, and demand payment of them out of the common stock, of his share. In a joint stock company, on the contrary, no member can demand payment of his share from the company; but each member can, without their consent, transfer his share to another person, and thereby introduce a new member. The value of a share in the joint stock is always the price which it will bring in the market; and this may be either more, or less, in any proportion, than the sum which its owner stands credited for in the stock-book. In a private copartnery, each partner is bound for the debts contracted by the company to the whole extent of his fortune. In a joint stock company, on the contrary, each partner is bound only to the extent of his share. The trade of a joint stock company is always managed by a court of directors. This court, indeed, is frequently subject, in many respects, to the controul of a general court of proprietors; but the greater part of these proprietors seldom pretend to understand any thing of the business of the company, and give themselves no trouble about it, but receive contentedly such half-yearly, or yearly, dividend as the directors think fit to make to them. This total exemption from trouble and risk, beyond a limited sum, encourages many people to become adventurers in joint stock companies, who would upon no account hazard their fortunes in any private copartnery. Such companies, therefore, commonly draw to themselves much greater stocks than any private copartnery can boast of. The principal joint stock companies at present subsisting in Great Britain, are the South Sea, the East India, and the Hudson's Bay Companies.

The South Sea Company. — During the long war with France in the reign of Queen Anne, the payment of the sailors of the royal navy being neglected, they received tickets instead of money, and were frequently obliged by their necessities to sell those tickets at a discount of 40, and sometimes 50 per cent. By this and other means, the debts of the nation unprovided for by parliament, and which amounted to 9,471,321*l.*, fell into the hands of certain monied men, who were afterward incorporated under the title of "The Governor and Company of Merchants of Great Britain trading to the South Seas, and other parts of America, and for encouraging the fishery, &c." It would be an unprofitable waste of time here to trace a history of alternate avarice, and extravagance, which distinguished this company, till at length, in the year 1722, they petitioned parliament to be allowed to divide their immense stock of more than 33,800,000*l.*, the whole of which had been lent to government in two equal parts; the one half, or upwards of 16,900,000*l.* to be put upon the same footing with other government annuities, and not to be subject to the debts contracted, or losses incurred, by the directors of the company in their mercantile projects; the other half to remain as before, a trading stock, and to be subject to those losses and debts. The petition was too reasonable not to be granted. In 1733, they again petitioned parliament that three-fourths of their trading stock might be turned into annuity stock, and only one-fourth remain as trading stock. Both their annuity and trading stock had by this time been reduced more than 2,000,000*l.* each, by several different payments from government; so that this fourth amounted only to 662,784*l.* 8*s.* 6*d.* In 1748, all the demands of the company upon the King of Spain, in consequence of the Assiento contract, were, by the treaty of Aix-la-Chapelle, given up for what was supposed an equivalent: an end was put to their trade in the Spanish West Indies; the remainder of their trading stock was turned into annuity stock, and the company ceased in every respect to be a trading company. This company is governed by a governor, sub-governor, deputy governor, and 21 directors: but no person is qualified to be a governor, his majesty excepted, unless such governor has in his own name and right 5000*l.* in the trading stock; the sub-governor is to have 4000*l.*; the deputy-governor 3000*l.*; and a director 3000*l.* in the said stock. In every general court, every member having in his own name and right 500*l.* in trading stock, has one vote; if 2000*l.* two votes; if 3000*l.* three votes; and if 5000*l.* four votes.

EAST-INDIA COMPANY, a corporation styled by 6 Ann. c. 17. s. 13. "*The United Company of Merchants of England trading to the East Indies;*" that is, according to the 9 & 10 Will. 3. c. 44. s. 61. trading "in, to, and from, the East Indies in the countries and parts of Asia and Africa, and in, to, and from, the islands, ports, havens, cities, creeks, towns, and places of Asia, Africa, and America, or any of them beyond the Cape of Good Hope to the Straights of Magellan, where any trade or traffic of merchandize is, or may be, used or had, and to, and from, every of them.

After the discovery of the passage by sea to the peninsula of India, at about the close of the 15th century, several attempts were

made by private individuals to open a trade in that part of the world: but these proving unsuccessful, Q. Eliz. by a charter, dated Dec. 31. 1600, established an incorporated company, under the name of "*The London East India Company.*"

This company on an accidental failure in the payment of a small duty imposed on their capital stock (4 & 5 W. & M. c. 15. s. 10. 12.) forfeited their charter: but afterwards, in the same year, the crown revived their powers and exclusive privileges by a new charter. However, by stat. 9 & 10 W. 3. c. 44. two new companies were established, and the subscribers to a loan of 2,000,000*l.* for carrying on the then war, were incorporated into a *general society*, with liberty for each individual member to trade to India within the exclusive limits of the said company to the extent of his share of this loan, and power was granted to such of the subscribers as should choose to convert their subscriptions into a joint stock, to do so, and they were to be incorporated by a separate charter, by the name of "*The English East-India Company.*"

The old company, to whose prejudice these two new corporations were to be erected, became subscribers for a very large proportion of the loan of two millions, and *united* with the English company in 1702, which union was afterwards confirmed by parliament, by stat. 6 Ann. c. 17. and the separate traders of *the general society*, whose subscription to the loan amounted to only 2700*l.* at the time of the union, soon afterwards joined *the united company.*

This is a brief account of the rise and progressive establishment of the present East-India Company.

In the year 1708, the interest, which then stood at eight per cent. upon the two millions thus advanced to government, was reduced to five per cent. At the time that this interest was reduced, the company granted a new loan of 1,200,000*l.* to the public, without any additional interest; and, in consideration thereof, they obtained from parliament a prolongation of its extensive privileges for a limited period; and a new charter was granted, incorporating it under the title of "*The United Company of Merchants trading to the East Indies.*" This exclusive right of trade was afterwards prolonged from time to time, upon its making new loans to government; and although in the year 1730 the company's exclusive privileges were extended to 33 years, yet the interest of their capital, then amounting to 3,190,000*l.* was reduced to three per cent., and is known by the name of the "India three per cent. annuities." It may be here observed, that these annuities are different in their nature from the trading stock of the company. The proprietors of the company's stock, instead of receiving a regular annuity, have dividends paid them upon their respective shares of stock, according to the profits of the company's trade; and these dividends rise, or fall, conformably to circumstances, real, or fictitious, like the national funds.

Further than this it is unnecessary to expatiate upon the succession of regulations for the government of this great and powerful company, till we come to the most recent statutes for their government.

In 1773, the situation of India was largely discussed in the parliament of Great Britain, and certain general regulations affecting the whole of the company's territorial, judicial, and commercial concerns, were enacted. Troubles, however, broke out, and were followed by commercial distresses; and after a lapse of ten years, new provisions were submitted to parliament by two successive administrations for the government of India. Under the latter of these, commonly known by the name of "Mr. Pitt's bill," as the former was by that of "Mr. Fox's," the affairs of the India company, both at home and abroad, have been governed till very lately, when a new system has been adopted, on which it is unnecessary to dilate, as it will be best collected from the following extract of "An Act for continuing to the India Company, for a further term, the possession of the British territories in India, together with certain exclusive privileges, &c."

By 53 Geo. 3. c. 155. the charter of the India Company is further continued from 10th day of April, 1814, till the expiration of three years' notice after the 10th day of April in the year 1831, together with the payment of what may be due from the public to the Company. During the period hereby granted, the Company are to continue the exclusive trade to China, and the territorial acquisitions in Asia mentioned in the statute of 33 of Geo. 3., with such other acquisitions as they may since then have obtained on the continent of Asia, or on any islands situate to the north of the equator, with the revenues thereof respectively. Sect. 1, 2, 3.

But thenceforth any of his majesty's subjects may trade to and from the United Kingdom, from and to the ports and places within the Company's present limits (except China) in ships navigated according to law.

And the navigation act of 12 Car. 2. c. 18. shall not prevent the importation of goods, the produce of any place within the charter, except tea, from any other place within the charter, except China. Sect. 6, 7.

But it shall not be lawful for any person, without the special licence of the Company given in writing, to trade in tea from any place in India; nor to export to any place on the continent of Asia, between the river Indus and the town of Malacca, or to any island under the government of the said Company

north of the equator, nor to their factory of Bencoolen and its dependencies, any military stores. Sect. 8, 9.

All ships in the private trade must clear out from some port in the United Kingdom; and all goods imported in the private trade must be brought to some of the ports in the United Kingdom which shall have been declared fit by an order in council. And no ships in the private trade shall proceed to any place within the limits before mentioned, except to some one of the principal settlements there, without a special licence from the directors, subject to the controul of the board of commissioners; who, if they differ from the directors, shall record their reasons. Sect. 10, 11.

No ships, except packets under 350 tons, to clear out, or be admitted to entry, at any place within the limits of the Company's charter. Sect. 13.

No ship in private trade to clear out, or enter, without a manifest; nor without giving an attested list of persons and arms, and accounting for them. Sect. 14, 15.

Articles of silk, hair, and cotton wool, imported, not to be entered, or taken out of warehouses, except for exportation, unless brought to the port of London and secured in the Company's warehouses; which articles shall be publicly sold to ascertain the duties. But the commissioners of his majesty's treasury may authorise such articles, when brought to out-ports, to be removed to the port of London to be sold for home consumption. And all such articles, when entered and taken out of warehouses, to be charged *ad valorem*. Sect. 17, 18, 19.

Goods exported or imported by the Company to be subject to the same duties, as those exported, or imported, in the private trade. And no duties imposed in India shall be valid till sanctioned by the directors, and approved by the board of controul. Sect. 24, 25.

The rates and duties due to the India Dock Company by statutes 43 Geo. 3. and 46 Geo. 3. on all goods, &c. cleared and discharged from ships, confirmed, &c. by sect. 28, 29.

The revenues arising from the territorial acquisitions *in India*, are directed to be applied as follows:

1st. In maintaining the forces, European as well as native, forts, garrisons, and establishments both naval and military.

2dly. In payment of the interest of debts accruing, owing, or thereafter to be incurred in India.

3dly. In defraying the expenses of the establishments of the several settlements in India.

4thly. In liquidating the territorial debts, and bond debts at home, of the said company. Sect. 55.

The profits of the company in Great Britain to be applied as follows:

1st. In paying bills of exchange accepted or to be accepted by the company.

2dly. In paying other debts and commercial outgoings (the principal of the bond debt excepted).

3dly. In the payment of a dividend of 10 per cent. on the present stock of the company; and from the time of that fund being exhausted, then 10½ per cent. on the future stock of the said company.

4thly. In reduction of the Indian debts, or bond debt at home. Sect. 57.

The home profits not to be liable generally to territorial charges till after the dividend shall have been provided for; and every deficiency of commercial profit at home in any year for dividend, to be made good out of surplus territorial revenues. Sect. 58.

And after reduction of the debt of the company bearing interest in India to ten millions of pounds, and the bonded debt in Great Britain to three millions, the surplus proceeds from territorial revenues and home profits shall go in repayment of capital of public funds created for the company: any further surplus to be paid into the exchequer, to be a guarantee fund, not exceeding twelve millions, for the capital stock and dividends, at the rate of 10*l*. 10*s*. per cent. One-sixth of any excess above twelve millions to belong to the company, the other five-sixths to the public, at the disposal of parliament. Sect. 59.

The three several statutes of 39 Geo. 3. c. 89., 50 Geo. 3. c. 86., and 51 Geo. 3. c. 75., regulated the manner in which the East India Company should be enabled to hire and take up ships by private contract. The 58 Geo. 3. c. 83. recites that these several acts were made in time of war, and that therefore the calculations on which the contracts were then made must, since the return of peace, be greatly erroneous; it therefore repeals the said statutes, and enacts that the company shall thenceforward not have, or contract for, any ships for their service, except in the manner thereby directed; which shall be by giving notice of their occasions to contract by public advertisement, stating the burdens of the ships wanted, the dimensions of timbers and planks, number of guns, manner of building, providing, furnishing, and storing; the time to be allowed for building, and other particulars necessary for judging of the expense and freight thereof; and the time, not less than four weeks, shall be fixed for receiving proposals for the same sealed up, &c.; the lowest of which offered shall be accepted, &c. And after the expiration of the time contracted for, may again be engaged for a limited number of voyages. Sect. 1, 2, 3.

Tables of prices of building and outfit of ships to be hung up in the India House. Sect. 5.

Court of directors, in cases of exigency, may hire ready built ships, with, or even without, advertisement; and also may hire by private contract any ships engaged in the transport service, for the purpose of bringing cargoes from China or India; provided the measurement of said ships be according to the regulations prescribed by stat. 53 Geo. 3. c.155. sect. 7, 8, 9. 11.

These provisions not to extend to vessels belonging to war marine establishment in India, nor to the consignment of any goods in private to any ships not chartered to, or in the service of, the India Company. Sect. 14.

Nothing remains to be noticed under this division of our subject, except that the net surplus revenue of our Indian possessions in 1815, after all disbursements, was estimated at 1,342,273*l.*

Thus much is all that has been thought necessary respecting what may be denominated the legislative, the territorial, and the politico-commercial concerns of the India Company. A very brief account of the internal arrangements, so far as they are required for the information of those who may wish to become proprietors of their stock, or to be acquainted with the domestic transaction of their business, shall close this tedious article.

A proprietor of stock to the amount of 1000*l.*, whether male or female, native or foreigner, has a right to be a manager, and to give a vote in the general council; 2000*l.* is a qualification for a director. The directors are twenty-four in number, including the chairman and deputy chairman, who may be re-elected in turn. There are six directors annually chosen, in place of six who go out by rotation, and remain in office for four years successively. The chairman and deputy chairman have each a salary of 500*l.* a year, and each of the other directors has a salary of 300*l.* The meetings of the court of directors are to be held once a week least; but they are oftener summoned if occasion require it. There are several committees formed of these directors, and each committee has the superintendency of the various branches of the company's business and concerns.

The several commitees are as follow:

1. House committee
2. Committee of correspondence
3. Ditto of buying
4. Ditto of treasury
5. Ditto of warehouse.
6. Ditto of shipping
7. Ditto of accounts
8. Ditto of law-suits
9. Ditto to prevent the growth of private trade.

Each of these committees has under it a secretary, a cashier, clerks, and warehouse-keepers.

The commerce of the company has, not only from the prohibitions, and privileges, imposed upon it, or extended to it, by the authority of the legislature at different periods; but also by the fluctuations of commerce, independent of extraneous causes, but merely from the effects of taste, fashion, invention, and a thousand other causes uncontrollable by any positive enactment of laws, undergone great changes as to the articles of which it consists.

The exports are chiefly woollen-cloth, stationery, books, hardware, cutlery, assortments of all sorts of works of taste; together with great quantities of bullion, lead, clocks, and watches.

Our imports consist of tea, spices, raw silk, sugar, muslins, calicoes, nankins, cotton, indigo; china, which was formerly a great article, but now to a small amount; diamonds, pearls, and precious stones. *See title* ASIA.

When goods are received in the private trade warehouses, they are brought to sale with all possible dispatch. In these warehouses an even beam is never admitted; but in such cases, *one pound weight* is always added to the tare; and on all packages taring *one quarter of a cwt.* or upwards, *one pound super* tare is allowed.

In those goods which, for their better preservation, have an interior packing, as *cassia lignea, cinnabar, aloes,* &c. a proportionate allowance is always made.

Upon packages weighing one quarter of a cwt. gross, a two-ounce weight is placed in the scale by way of giving a turn in favour of the trade; one pound is also allowed for draught on goods of the above weight; and in case of an even beam, one pound is also deducted.

On all articles sold by the pound, there is a further allowance of *tret,* or four pounds for every 104, which consists chiefly in the following articles: viz annotto, Carmenia wool, cotton wool, cotton yarn, cardamoms, cloves, cubebs, cinnabar, indigo, mace, nutmegs, opium, quicksilver, rhubarb, senna, tortoise-shells, and white copper.

Weighable goods of a different description are sold by the cwt.

Regulations in the Bengal Trade.

On all weighable goods, no weight is made use of less than a pound, a two-ounce weight excepted, which is always kept in the scale where the weight is placed.

On all weighable goods (raw silk excepted), one pound is allowed for draught on every package that weighs more than 28lbs. gross, and on every draught of goods, not in packages, exceeding 28lbs.

Weighable goods sold by the pound, except raw silk, have an allowance for *tret,* after the rate of 4lbs. for every 104lbs.

Where some of the packages only of any parcel of goods are *tared,* if, on averaging the whole there should be a fraction, it is

made up a pound by adding the fraction wanting.

On all weighable goods (tea and coffee excepted), one pound is allowed for *super tare;* on all packages that *tare* 28lbs. and upwards, and where the *tare* is taken on an average, and there should be a fraction, one pound and the fraction.

Allowances.

Quarter Chest.—If, on averaging those tared, they turn out even pounds, unless the chests weigh gross 84lbs. or upwards, no allowance is made; in which case, one pound super tare is allowed on each package.

Half Chests.—If, on averaging those tared, it turns out even, one pound only is allowed for super tare on each package; but where there is a fraction, one pound, and such fraction as above.

Whole Chests.—If the average of those tared should turn out even, two pounds are allowed on each package for super tare; but if there be a fraction, one pound, and the fraction as above.

Coffee.—If, on averaging the bales tared, it turns out even, two pounds are allowed on each for super tare; but if there be a fraction, two pounds and the fraction, as in the preceding articles.

The following Goods are sold at the Company's Sales by the cwt.

Aloes, benjamin, borax, camphor, cassia, cambogium, china root, coffee, cubebs, elephants' teeth, fossil alkali, gallanga root, galls, ginger, gum arabic, gum tragacanth, gum unrated, hemp and flax, long pepper, mother-of-pearl shells, munject, myrrh, olibanum, red-wood, rice, saltpetre, sapanwood, sago, sal ammoniac, seedlac, shellac, sticklac, turmeric, vegetable alkali, wax.

Articles sold at the Company's Sales by the Pound.

Cardamoms, Carmenia-wool, cinnabar, cinnamon, cloves, cotton yarn, cotton thread, cotton wool, indigo, mace, nutmegs, opium, pepper, quicksilver, raw silk, rhubarb, tea.

East-India Piece Goods.

These, consisting of white calicoes, white, plain, checked, or flowered muslins, and white or yellow nankin cloth; muslins, cossacks, and other sorts rated as muslins, receive 10*l.* per cent. drawback in full of every allowance.

Calicoes three-fourths yard wide, and up to one one-fourth, are entitled to 6*d.* per yard drawback, in manner following:

Each 10 yards is called a calico, and receives 5*s.* drawback.

Each ditto, from one one-half yard wide and upwards, upon each six yards (exclusive of 14 one-half per cent. from the original price,) 5*s.* ditto.

Diaper and dimity draws per yard, exclusive of 14 per cent. as above, 1*s.* 5*d.* ditto.

Brokers' Charges.

Piece-goods, purchased of the East-India company, one-fourth to one-half per cent. to be paid by the buyer.

Goods managed for proprietors in privileged private trade, &c. one-fourth to one-half per cent. to be paid by the employer.

For all piece-goods bought in other public sales, one-half per cent. to be paid by the buyer.

Ditto by private contract, one-half per cent. by the seller, unless othewise agreed.

Valuation of piece-goods, one-fourth per cent.

HUDSON'S BAY COMPANY. The vast countries which surround Hudson's Bay abound with animals whose furs and skins are excellent, being far superior in quality to those found in less northerly regions.

In 1670 a charter was granted to a company not consisting of above ten persons, for the exclusive trade to this Bay; and it has been acted under ever since with great benefit to the company and the country in general. They have several forts, viz. Prince of Wales's, Churchill river, Nelson, New Severn, and Albany, which stand on the west side of the bay, and are garrisoned by 186 men. The French, in May 1782, took and destroyed these forts and the settlements, &c. valued at 5,000,000*l.* They are said to export commodities to the value of 16,000*l.*; and to bring home returns to the value of 29,340*l.* This includes the fishery in Hudson's Bay. This commerce, small as it is, affords immense profits to Great Britain in general; for, the commodities we exchange with the Indians for their skins and furs, are all manufactured in Britain; and as the Indians are not very nice in their choice, such things are sent as would find no other market. On the other hand, the skins and furs we bring from Hudson's Bay enter largely into our manufactures, and afford us materials for trading with many nations of Europe to great advantage. This company do not find their trade so beneficial now as it was before we got possession of Canada. The only attempt made to trade with Labrador has been directed towards the fishery. *See further, title* EUROPE, *article* LONDON.

COMPASS, (Ger. *Ein Kompass.* Du. *Zeekompas.* Da. *Söekompass.* Sw. *Sjöcompass.* Fr. *Boussole, Compas de mer.* It. *Bussola.* Sp. *Aguja de marear.* Port. *Compasso de marear.* Rus. *Kompass korabelnüi.*) or mariner's compass, an instrument composed of a needle and card, by which the ship's course is directed. The needle, with little variation, always points towards the north, and hence the mode of steering by the compass. The origin of this invention is buried in the darkness of antiquity, but the honour of it is generally given to the Chinese, long before the Christian æra.

COMPASSES, (Ger. *Ein Zirkel, Passer.* Du. and Da. *Cirkel, Passer.* Sw. *Cirkel, Passare.* Fr. *Compas.* It. *Compasso.* Sp. *Compas.* Port. *Comspasso.* Rus. *Zirkul.*) A pair of compasses, is a mathematical instrument for describing circles, or measuring lines. It is made of iron, brass, or other metal, and is used by almost all mechanics in their respective operations. Draughtsmen of all descriptions, carpenters, and masons, depend on compasses for the correctness of their operations: the companies, or fraternities, of the two last-mentioned trades take the compasses as a distinguishing feature in their armorial bearings.

COMPOSITION, is a term of such diversified and multifarious signification, according to the subject to which it is applied, that it becomes impracticable to give any exposition of it here, beyond what bears a direct and immediate reference to trade and its correlative pursuits. In commercial language, it generally is used to signify a contract between an insolvent debtor and his creditors, by which the latter accept of a part of the debt in compensation for the whole, and give a general acquittance accordingly.

COMPOSITION, in printing, commonly called composing, the arranging of several types or letters, in the composing-stick, in order to form a line; and of several lines ranged in order in the galley, to make a page; and of several pages to make a form. *See* PRINTING.

COMPOUND, *to*, in commerce. *See* COMPOSITION.

COMPROMISE, is a mutual promise of two or more parties at difference, to refer the ending of their controversies to arbitration of indifferent persons, and to abide their award.

COND, CONN, or CON, in sea language, signifies to guide or direct the ship to her right course, by giving directions to the man at the helm how to steer.

CONDERS, a term used in the herring-fishery, for people who stand on cliffs or eminences near the sea-coast, to direct the fishermen which way the shoal of herrings passes; their course being more conspicuous to those who stand on high cliffs ashore, than to those on board the vessels.

CONDORIN, a sort of small weight at Canton in China, used for weighing silver received and paid in trade, value about three farthings sterling, ten of them making one mace, and ten maces one tale or tael.

CONDURI, in Malayan, or *laga* in the Javan language, is a scarlet bean with a black spot on its side, which the people of Malay and Java use for weighing gold and silver.

CONEY-WOOL, (Ger. *Kaninchenwolle.* Du. *Konynhair.* Da. *Kaninhaar.* Sw. *Kaninhar.* Fr. *Poil de lapin.* It. *Pelo di Coniglio.* Sp. *Conejuna.* Port. *Lãa de coelho.* Rus. *Krolikowiia Koshi.* Pol. *Kroliki.* Lat. *Cuniculi lana,*) rabbits' fur, principally used by hatters, &c. of which large quantities are imported annually from various parts of the world. Since the general inclosure of our commons and heaths, we depend in an increased degree upon importation for this commodity.

CONGER, the sea-eel.

CONGIUS, a liquid measure of the ancient Romans, containing the eighth part of the amphora, or the fourth of the urna, or six sextarii. The congius, in English measure, contains 20.70676 solid inches; that is, seven pints, 4.942 solid inches.

CONODIS, a small coin used at Goa, and in all the kingdom of Cochin.

CONSCIENCE, *courts of.* These were courts originally instituted by act of parliament, in London and Westminster, and other trading and populous districts, for the recovering of small debts not exceeding 40*s.* but many of them have now an extended jurisdiction for the recovery of small debts to the amount of 5*l.* as by 39 & 40 G. 3. c. civ. as to London, and 46 G. 3. c. lxxvii. and c. lxxxviii. as to Southwark and the west hundred of Brixton.

And by 26 Geo. 3. c. 38. debtors committed by courts of conscience for debts not exceeding 20*s.* shall not be imprisoned more than 20 days, and where the debt does not exceed 40*s.* not more than forty days, which prisoners are to be discharged without gaol fees, and gaolers demanding or taking the same are to forfeit 5*l.* on conviction, before two justices within two months; and the process of courts of conscience shall not issue against both body and goods at the same time.

CONSIDERATION, is the material cause of a contract, without which it would not be effectual or binding. Consideration in contracts is something given in exchange, something that is mutual and reciprocal; as money given for goods sold, or work performed for wages; and a consideration of some sort or other is so absolutely necessary to the forming of a contract, that a *nudum pactum*, or agreement to do or pay any thing on one side, without any compensation on the other, is totally void in law, and a man cannot be compelled to perform it. 2 *Black.* 45. A consideration is necessary to create a debt, otherwise it is a *nudum pactum. Jenk.* 290. in *Pl.* 27.

CONSIGNMENT, the sending, or delivering over, goods, money, or other property to another person. It may be either consigned unconditionally, or for some particular purpose. Consigned goods are supposed in general to be the property of him *by* whom they are consigned, (who is called the *Consignor,*) but to be at the disposal of him to whom they are consigned, (who is called the *Consignee*).

CONSPIRACY, is an agreement of two

or more persons falsely to indict one, or to procure him to be indicted of felony, riot, or other misdemeanor; or to do some other injury to a third person, or to the public in general.

On an indictment for a conspiracy, if all the defendants but one are acquitted, that one must be acquitted also; because one person alone cannot be indicted for this crime; and husband and wife being but one person may not be indicted for a conspiracy, unless it be laid or proved that they conspired with others unknown. 4 *Black. Com.* 136.

CONSUL, is an officer established by virtue of a commission from the king and other princes, in all foreign countries of any considerable trade, to facilitate and dispatch business, and to protect the merchants of the nation. The consuls are to maintain a correspondence with the ministers of England residing in the courts whereon their consulate depends. They are to support the commerce and the interest of the nation, to dispose of the sums given, and the presents made to the lords and principals of places to obtain their protection, and prevent the insults of the natives on the merchants of their nation. By the treaty of Utrecht, between Great Britain and Spain, the consul residing in the king of Spain's dominions shall take inventories of the estates of the English dying intestate in Spain; and these estates shall be intrusted to two or three merchants, for the security and benefit of the heirs and creditors.

The statute of 9 Geo. 2. enacts, that it shall be lawful for persons appointed by the consuls at the ports of Cadiz and St. Mary's in Spain, with the majority of the British factory and merchants there, to receive from all English and Irish ships trading there, any sums of money not exceeding one rial of plate per ducat of the freight of goods and merchandise there imported, and on all tonnage goods not exceeding 2 rials of plate per ton, and all their bills of lading shall specify to pay the same under the denomination of contribution. And all British and Irish commanders trading to the said ports, and delivering there, shall, within ten days after their arrival, deliver a manifesto upon oath, specifying the particulars of the cargo, and to whom consigned; which oath is to be administered by the consul, or whom he he shall appoint, and the clearances outwards detained by him till payment of the money is made; and any departing without his clearances, the consul, on such master's return to any port in the king's dominions, may have an action at law against him for the said money. All monies raised to be applied to the relief of shipwrecked mariners, or other distressed persons, his majesty's subjects, and charitable uses, are distributed by the consul.

CONTENT, in geometry, the area or quantity of matter or space included in certain bounds. For example, the *content* of a ton of round timber is 43 solid feet. *See* GAUGING.

CONTRABAND, a prohibited commodity or merchandise bought or sold, imported or exported, in prejudice to the laws and ordinances of a state, or the public prohibitions of the sovereign. Contraband goods are not only liable to confiscation themselves, but also subject to a similar penalty, all other merchandise found with them in the same box, bale, or parcel, together with the horses, waggons, &c. which conduct them.

There are contrabands likewise, which, besides the forfeiture of the goods, are attended with several penalties and disabilities.

What shall, or shall not, be deemed contraband, depends on regulations which are fluctuating, according to the commercial relations between states; and the extent of punishment or forfeiture annexed to the offence of dealing in them respectively can only be collected by a reference to the statutes which prohibit the respective commodities. *See further, title* SMUGGLING.

CONTRACT, a covenant or agreement between two or more persons, with a lawful consideration or cause. Contracts are twofold, either express or implied. Express contracts are, where the terms of the agreement are openly uttered, as to pay a stated price for certain goods. Implied, are such as reason and justice dictate, and which, therefore, the law presumes that every man undertakes to perform: thus, if a man takes up goods and wares from a tradesman, without any agreement of price, the law concludes that he contracted to pay their real value. 2 *Black.* 449.

And by the statute of frauds, 29 Car. 2. c. 3. "all contracts, not to be performed in a year, are to be in writing, signed by the party, or no action may be brought on them." However, if no day is set, or the time is uncertain, they may be good without it. And by the same statute, "no contract for the sale of goods for 10*l.* or upwards shall be good, unless the buyer receive part of the goods sold; or gives something in earnest to bind the contract; or some note thereof be made in writing, signed by the person charged with the contract, &c. *See* AGREEMENT, *and* CONSIDERATION.

CONTRACT, *usurious*, is an agreement to pay more interest for money than the laws allow. *See* USURY.

It is a *devastavit* in executors to pay a debt upon an usurious contract.

CONTRATE-WHEEL, in watchwork, that next to the crown, the teeth, and hoop, of which lie contrary to those of the other wheels, whence it takes its name.

CONTRAYERVA, or Counter-Poison, (Ger. *Amerikanische oder Peruanische Giftwurzel.* Du. *Giftwortel.* Da. *Giftrod.* Sw. *Giftrot.* Fr. *Contrayerva.* It. *Contraerba.* Sp. *Contra-yerba.* Port. *Contra-erva.* Lat. *Contrayerva,*) is a root an inch or two long, about half an inch thick, full of knots, hard, and of a reddish colour. Long, tough slender fibres shoot out from all sides of it: these are sometimes loaded with knotty excrescences. The root is of a pale colour within, of an astringent taste, bitterish, with a light and sweetish kind of acrimony, and has a peculiar kind of aromatic smell. The fibrous part of the root has very little smell or taste: the tuberous therefore should only be chosen. It was formerly much used in medicine from its supposed virtues as an antidote to poisons; but it is now deservedly neglected.

CONTRIBUTION. *See* AVERAGE, SALVAGE, and INSURANCE.

CONVEX, an appellation given to the exterior surface of gibbous or globular bodies; in opposition to the hollow inner surface of such bodies, which is called concave: thus we say, a convex lens, mirror, &c.

CONVEYANCE, in law, a deed which passes land from one to another. Fraudulent conveyance to deceive creditors, defraud purchasers, &c. are void by divers statutes.

CONVEYANCER, is one who draws the deeds by which estates are conveyed. It is a particular branch of the legal profession, though sometimes exercised in conjunction with others. Conveyancers are so recognised by 55 Geo. 3. c. 184. which subjects them to an annual duty.

CONVOY. one or more ships of war, employed to accompany and protect merchant-ships, and prevent their being insulted by pirates, or the enemies of the state in time of war. Captains, officers, and seamen of ships appointed for convoy of merchant-ships, &c, neglecting their duty, are punishable by act of 13 Car. 2. stat. 1. c. 9. s. 1. art. 13.

COOMB, or *comb of corn*, a dry measure, containing four bushels, or half a quarter.

COOPER, one who manufactures casks, tubs of all sizes, pails, and other similar articles used by brewers, dealers in liquors, and for domestic purposes. The vessels are made generally of oak timber, a great part of which comes from America, cut up into narrow pieces or staves; they are sometimes bent, and sometimes straight, according to the purposes for which they are wanted. The staves are kept together by means of hoops made from hazel or ash, or of iron. To make them hold water, or other liquids, split flags are inserted, which swell by moisture, and effectually prevent the vessels from leaking. The coopers in London, and other maritime places, derive large profits, and almost constant employment, from the West India trade. The puncheons and hogsheads which they make are used for packing the coarse goods sent to the islands, whence those vessels return filled with rum and sugar.

Coopers, by 23 Hen. VIII. c. 4. shall make their vessels of seasonable wood; and make them with their own marks, on forfeiture of 3*s.* 4*d.*; and the contents of vessels are appointed to be observed under a like penalty.

COPAL, a substance of great importance as a varnish, obtained from the *rhus copalinum*, a tree in North America. It is a beautiful transparent resinous-like substance. When heated it melts like other resins; but it differs from them in not being soluble in alcohol, or in oil of turpentine, without peculiar management. Neither does it dissolve in the fixed oils, like other resins. The specific gravity of copal varies from 1.045 to 1.139.

COPARTNERSHIP, is the state of merchants, or others, carrying on a joint trade, &c. *See* PARTNER.

COPE, among miners, a duty of 6*d.* for every load of ore.

COPING, or *copping of a wall*, in architecture, the top or covert of a wall, made sloping to carry off the wet.

COPPER, (Ger. *Kupfer.* Du. *Koper.* Da. *Kobber.* Sw. *Koppar.* Fr. *Cuivre.* It. *Rame.* Sp. *Cobre.* Port. *Cobre.* Rus. *Mjed, Krasnoi mjed.* Pol. *Miedz.* Lat. *Cuprum,*) a metal, next to iron in specific gravity, but lighter than gold, silver, or lead. This metal is of a fine red colour, and has a great deal of brilliancy. Its taste is styptic and nauseous; and the hands, when rubbed for some time on it, acquire a peculiar and disagreeable odour. Its specific gravity, when melted, is 8.667. Its malleability is great; it may be hammered out into leaves so thin as to be blown about by the slightest breeze. Its ductility is also considerable. Its tenacity is such, that a copper wire 0.078 in diameter, is capable of supporting 302.26 pounds avoirdupois without breaking. In Germany and Sweden, there are very good mines of copper ore; and we have some in England, particularly in Cornwall and in Wales, not inferior to the finest Swedish. As to the method of obtaining copper from the ore, this last being previously washed and powdered, is smelted by means of a black flux; and the metal is found at the bottom of the vessel, when cold, in the form of a solid and malleable mass, which may be farther refined by repeating the operation.

Copper is usually employed in the manufacture of boilers, stills, pots, pans; and forms the substance of those ornamental chains which afterwards are gilt.

From its sonorous property when struck,

it is employed for making trumpets, bells, &c. and from its beautiful and brilliant colour, and not readily becoming oxidized, it is used for the manufacture of culinary vessels; but they should be kept very clean, and not used for containing acid substances; fat bodies also, when allowed to cool in them, quickly oxidize the metal, and form a compound highly deleterious to the animal economy. With acetic acid, it forms *verdigris;* and with sulphuric acid, *Roman,* or *blue vitriol.* By the addition of chalk to a solution of copper in nitric acid, a precipitate is formed of a beautiful blue colour, called *blue verditer.* Arseniate of pot-ash added to a solution of sulphate of copper, forms the fine green colour called *Scheele's green.* Ammonia, added to the same solution, produces a precipitate of a *deep violet* colour. The above are all of considerable use to paper-stainers and painters.

The alloys of copper, with various other metals, are much employed for domestic purposes. Brass is a combination of copper and zinc; for this purpose the native oxide, termed *calamine,* is employed. Tomback, or white copper, is an alloy of arsenic, copper, and tin. Pinchbeck is made by alloying copper or brass with a certain portion of metallic zinc. Bronze and gun-metal by the union of copper and tin in the proportions of 100 parts of the former to 10 or 12 of the latter. Bell-metal is a combination of copper with one-fourth of its weight of tin.

Fowling-pieces and tea-urns are browned by washing them with a solution of sulphate of copper.

COPPERAS, (Ger. *Grüner Vitriol, Elsenvitriol, Kupferwasser.* Du. *Groene vitriool, Yservitriool, Koperrood, Koperwater.* Da. *Grøn vitriol, Jernvitriol, Engelskt vitriol, Grönt Kobber.* Sw. *Grön victriol, Jernvitriol.* Fr. *Vitriol verd, martial ou couperose.* *Vitriol de fer, couperose verte.* It. *Vitriuolo di marte.* Sp. *Vitriolo de marte.* Port. *Vitriolo de marte.* Rus. *Selenui Kuparos.* Pol. *Koperwas zelaza.* Lat. *Vitriolum martis s. viride,*) a name given to the sulphate of green vitriol. Copperas is used in dyeing wool and hats black; in making ink, tanning leather, and in preparing a kind of Spanish brown for painters' use.

COPPER-PLATES, (Ger. *Kupferplaten.* Du. *Koperplaaten.* Da. *Kobberplader.* Sw. *Kopparplatar.* Fr. *Planches de cuivre.* It. *Piastre di rame.* Sp. *Laminas ó planchas de cobre.* Port. *Chapas s. pastas de cobre,*) a plate or piece of copper used by engravers. When the plate is ready to be worked off, the copper-plate printer rubs a kind of ink, made of lamp-black and oil, all over it, and placing it upon a grate over a small charcoal fire, works the ink in a moment into the smallest strokes of the graver. The ink on the surface of the plate is then lightly wiped off with a rag; and the workman, touching the palm of his hand with a little whiting, with a slight stroke cleans the surface of the plate, while all the ink continues in the lines made by the graver. It is then placed upon the press, where a board slides between two rollers, and a piece of paper well wetted being laid upon the plate, it is brought under the upper roller, which, pressing a piece of flannel upon the moistened paper, makes the latter sink into the smallest scratches made on the plate, and takes off the whole impression by imbibing the ink. *See* ENGRAVING.

COPYRIGHT, was by the common law of England, a perpetual and inviolable right vested in the author of any literary composition. But the enjoyment of this right has been abridged by the statute of Queen Anne, and all remedy for the violation of it is now taken away by that statute, after the expiration of the two several terms specified in the act. 4 *Burr.* 2303.

By this stat. 8 Ann. c. 19. (amended by 15 Geo. 3. c. 53.) it is now declared that the author and his assigns shall have the sole liberty of printing and reprinting his works for the term of 14 years *and no longer,* and hath also protected that property by additional penalties and forfeitures, (*see* BOOKS) directing further, that if, at the end of that time, the author himself be living, the right shall then return to him for another term of the same duration.

And by 41 Geo. 3. (U. K.) c. 107. in consequence of the Irish union, provisions similar to those in the stat. of Queen Anne, are re-enacted and extended to the whole of the United Kingdom.

Where an author transfers *all his right or interest* in his publication, upon his surviving the first fourteen years, the second term will result to his assignee, and not to himself. 2 *Bro.* 80.; and musical compositions are within the meaning and protection of the stat. *Cowp.* 623.

A *fair* and *bonâ fide* abridgment of any book is considered a new work; and however it may injure the sale of the original, yet it is not deemed in law to be a piracy or a violation of the author's copyright. 1 *Bro.* 451. 2 *Atk.* 141. *See title* BOOKS, *and* ENGRAVINGS.

CORAL *fishery.* (*Coral.* Ger. *Korallen.* Du. *Koraalen.* Da. and Sw. *Koraller.* Fr. *Corail.* It. *Corale.* Sp. and Port. *Coral.* Rus. *Korallü.* Pol. *Koralki, Koralü.* Lat. *Corallium.*) Red coral is found in the Mediterranean, on the shores of Provence, from Cape de la Couronne to that of St. Tropez; about the isles of Majorca and Minorca; on the south of Sicily; on the coasts of Africa; and, lastly, in the Ethiopic Ocean, about Cape Negro. The divers say, that the little branches are found only in the caverns, whose situation is parallel to the earth's surface, and open to the south.

Coral is principally used in making beads

for necklaces, and other ornamental parts of females' attire.

CORD *of wood*, a certain quantity of wood for burning, so called, because formerly measured with a cord. The dimensions of a statute cord of wood are eight feet long, four feet high, and four feet broad.

CORDAGE, (Ger. *Tauwerk*. Du. *Touwwerk*. Da. *Tougværk*. Sw. *Tagverk*. Fr. *Manoeuvres, Cordage*. It. *Caolame*. Sp. *Jarcia, Cordaje*. Port. *Caolame, Massame, Manobra*,) a term used, in general, for all sorts of cord, whether small, middling, or great, made use of in rigging of ships. "Cordage cable-laid," as the seamen term it, is made with nine strands, *i. e.* the first three strands are laid slack, and then three of them being closed together, make a cable. *See* CABLE.

The same for tacks, but they are laid tapering,

"*Cordage* hawser-laid," is made only with three strands.

Cordage-stays are cable-laid, but made with four strands, as cables are with three; with the addition of a heart, which goes through the centre of them.

Cordage, white, is that which has not yet been tarred.

Cordage tarred in spinning, is that which is made of rope-yarn ready tarred.

Cordage tarred in the stove, is that which has passed through hot tar, in coming out of the stove. Every quintal of cordage may take about twenty pounds of tar. Cordage re-made, is that which is made of ropes used before.

Cordage, when very old, is used for oakum to caulk the seams of ships.

When a rope is said to be six inches, it is understood of its circumference. A rope of sixty threads is one composed of so many rope-yarns.

There have been a prodigious number of statutes passed for the regulation of the *manufacture* of cordage, as well as for the protection of the manufactured article, after being dedicated to the service of his Majesty's navy. The first of which it is necessary to make mention is 25 Geo. 3. c. 56., respecting the manufacture of cordage. *See* 1 *Dick. Pract. Expos.* 355.

Those which have been enacted relative to cordage which is made for, and has been received into, his Majesty's stores, are too numerous to be particularised here. They have been frequent from 31 Eliz. c. 4. to the present reign; and within the few last years, 53 Geo. 3. c. 126. 54 Geo. 3. c. 60. 54 Geo. 3. c. 159. 55 Geo. 3. c. 77. and 56 Geo. 3. c. 80., have been added to the number. 3 *Dick. Pract. Expos.* 201.

The general purport and effect of these has been to protect the king's stores from embezzlement, by directing the particular marks which shall be manufactured *in*, or placed *upon*, them, and by prohibiting all persons from becoming possessed of such commodities (except in certain circumstances) under pain of being treated as receivers of stolen goods. 39 & 40 Geo. 3. c. 89.

CORDOVAN-LEATHER, (Ger. *Korduan*. Du. *Spaansleder*. Da. and Sw. *Korduan*. Fr. *Cordouan*. It. *Cordovano*. Sp. *Cordoban*. Port. *Cordovao*. Rus. *Kordowan*. Pol. *Kardyban, Kordyban*,) a sort of leather used in making boots and shoes, brought to us from Cordova, in Spain. A good imitation of this species of leather is manufactured in England.

CORIANDER-SEED. (Ger. Du. Da. and Sw. *Koriander*. Fr. *Coriandre*. It. *Coriandro, Curiandolo*. Sp. *Cilantro, Culantro*. Port. *Coentro, Coriandro*. Rus. *Koriander*. Pol. *Koryander*. Lat. *Coryandrum*.) Coriander-seeds are pretty regularly hemispherical. They are very light, and easily powdered, not so unctuous and moist, when bruised, as many other seeds, of a pale whitish colour. They should be chosen new, sound, and firm, of an aromatic smell, and pleasant taste. They are recommended as carminative and stomachic. Coriander-seeds yield by distillation a most delicious cordial, and are much used in confectionary.

CORK. (Ger. *Kork*. Du. *Kork, Kurk, Vlothout*. Da. *Kork, Korktræe*. Sw. *Korkträ*. Fr. *Liège*. It. *Sughero, Suvero*. Sp. *Corcho*. Port. *Cortica* (*de Sovreiro*.) Rus. *Korkowoe derewo*. Pol. *Korek, Kora, Korkowa*. Lat. *Suber*.) The cork-tree is an evergreen. It grows principally in Italy, Spain, Portugal, and on the French side of the Pyrenean mountains. The bark of this valuable tree is made into stoppers for bottles, serves fishermen, &c. as buoys, and when calcined yields ashes, from which Spanish black is made. The French cork-wood is the best we import.

CORK-CUTTER. The bark of the cork-tree is half burnt by the cork-cutter, and then, with a sharp knife, cut into corks for bottles, bungs for barrels, &c.

CORK-SCREWS. (Ger. *Korkzieher, Pfropfenzieher*. Du. *Korketrekkers*. Da. *Korktrekker*. Sw. *Korkskruf*. Fr. *Tire-bouchon*. It. *Rampinetta*. Sp. *Saca-corchos*. Port. *Saca-rolhas*.) The cork-screw is a well-known instrument for drawing corks out of bottles, &c. Cork-screws are manufactured chiefly at Birmingham, Sheffield, &c.

CORN, (Ger. *Corn, Getreide*. Du. *Graanen, Koren*. Da. *Korn*. Sw. *Säd, Spanmal*. Fr. *Bleds, Grains*. It. *Biade, Grani*. Sp. *Granos*. Port. *Graos*. Rus. *Chljeb*. Pol. *Zboze*. Lat. *Frumentum*,) is the grain or seed of plants separated from the spica or ear, and used for making bread, &c. Such are wheat, rye, barley, oats, maize, pease, &c.

CORN-LAWS. It is against the common law of England to buy or sell corn in the sheaf, before it is thrashed and measured: the reason whereof seems to be, because by such sale, the market is in effect forestalled. 3 *Inst.* 197.

Every person who shall sell or buy corn without measuring, or otherwise than by the Winchester measure, sealed and stricken by the brim, shall on conviction before one justice, on the oath of one witness, forfeit 40*s.* besides the whole of the corn so sold or bought, or the value thereof, half to the poor, and half to the informer.

On complaint to a justice, that corn has been bought, sold, or delivered, contrary to the act, the proof shall lie upon the defendant, to make it appear by oath of one witness, that he sold or bought the same lawfully; and if he shall fail therein, he shall forfeit as before mentioned, to be levied by distress and sale. 22 & 23 C. 2. c. 8. and 12; and *K.* v. *Arnold*, T. 33 Geo. 3.

And if any mayor, or other head officer, shall knowingly permit the same, he shall on conviction, at the county sessions, forfeit 50*l.* half to the prosecutor, and half to the poor, by distress and sale. For want of distress, to be imprisoned by warrant of the justices, till payment be made. 22 Geo. 3. c. 8. s. 3.

By 1 & 2 Geo. 4. c. 87. the acts of the 31st, 33d, 44th, and 45th Geo. 3. for regulating the importation and exportation of corn, grain, meal, and flour into Great Britain, are repealed, and further provisions made in lieu thereof. Returns are to be made as therein directed.

The object of these returns was to determine the average prices of corn, for the purpose of allowing the exportation, or importation, of it, and for regulating the duties and bounties thereon, which were specified and regulated by several subsequent statutes, according to the circumstances of the successive periods. *See* 1 *Dick. Pract. Expos.* 368.

By a late statute on this subject, 55 Geo. 3. c. 26. it is enacted, that "thenceforth all corn, meal, or flour, the growth, produce, or manufacture of any foreign country, which may now by law be imported into the United Kingdom, shall be at all times allowed to be imported, and warehoused there duty-free; and may be taken out again under the regulations now in force, and exported duty-free."

And all such corn, meal, and flour, may be taken out of warehouse, and entered for home consumption, subject to the regulations now in force, whenever foreign corn, &c. of the same sort is admissible into the United Kingdom for home consumption, duty-free.

Foreign corn, &c. admissible for home consumption, whenever the average price of British corn shall be as follows:

Wheat at or above -	80*s.* per quarter.
Rye, pease, and beans	53
Barley, beer, or bigg	40
Oats - - -	27

But when British corn shall be below these prices, no foreign corn shall be imported, nor taken out of warehouse for home consumption.

Corn, the *growth or produce of British America*, may be imported for home consumption, according to a different scale, viz. when

	Per Quarter.
Wheat shall be at, or above	67*s.*
Rye, pease, and beans -	44
Barley, beer, and bigg -	33
Oats - - - -	22

Corn, &c. from British America *may at all times* be imported and *warehoused* duty free, in order for future sale, duty free, when admissible by law for home consumption. 3 *Dick. Pract. Expos.* 206.

By 3 Geo. 4. c. 60. the above act is amended, and the importation of corn further regulated.

CORN-FACTOR, one who acts as factor both for the farmer and the buyer on commission. The factors sell at the Corn Exchange in Mark Lane, London, by sample, and send corn to other parts of Great Britain or Ireland, where corn is scarcer, or bears a better market.

CORNELIAN, (Ger. *Karniol.* Du. Da. and Sw. *Karneol.* Fr. *Cornaline, Sarde.* It. *Cornalina.* Sp. *Cornerina.* Port. *Cornelina, Corneirina.* Rus. *Seredolik.* Pol. *Sardyk.* Lat. *Carneolus, Sardus,*) a precious stone, of which there are three kinds, distinguished by three colours, a red, a yellow, and a white; it is found in roundish or oval masses, much like our common pebbles; and is generally met with between an inch, and two or three inches, in diameter. It is of a fine, compact, and close texture, of a glossy surface; and in the several specimens is of all degrees of red, from the palest flesh-colour to the deepest blood-red. The pieces of cornelian which are all of one colour, and perfectly free from veins, are those which our jewellers generally make use of for seals, though the variegated ones are much more beautiful.

The cornelian is tolerably hard, and capable of a very good polish. It is not at all affected by acid menstruums; the fire divests it of a part of its colour, and leaves it of a pale red; and a strong and long continued heat will reduce it to a pale dirty grey. The finest cornelians are those of the East Indies; but there are very beautiful ones found in the rivers of Silesia and Bohemia, and some very good found in Great Britain. Though the ancients have recommended the red cornelian as an astringent, and attributed a number of fanciful virtues to it, we know no other use of the stone than for seals and other ornaments, to which it is excellently adapted, as being not too hard for cutting, and yet hard enough not to be liable to accidents, and to take a good polish.

CORONER, is an ancient officer of this realm, so called because he deals wholly for the king and crown. *Bac. Abr. tit. Cor.*

Coroners are to be men of good ability, and have lands in fee in the county, where chosen, to answer all people; and if insufficient, the county shall answer for them. 2 *Inst.* 174.

There are coroners of the king's house-

hold, and of the verge of the king's palaces, of the Admiralty, of London, Southwark, and other particular franchises.

By the stat. *de officio coronatoris*, 4 *Ed.* 1. "The coroner is to go to the place where any person is slain or suddenly dead, and shall by his warrant to the bailiffs, constables, &c. summon a jury out of the four or five neighbouring towns, to make enquiry upon view of the body; and the coroner and jury are to enquire into the manner of killing, and all circumstances that occasioned the party's death, who were present, whether the dead person was known, where he lay the night before, &c. Examine the body if there be any signs of strangling about the neck, or of cords about the members, &c. Also all wounds ought to be viewed, and enquiry made with what weapons, &c. And the coroner may send his warrant for witnesses, and take their examination in writing: and if any appear guilty of the murder, he shall enquire what goods and lands he hath, and then the dead body is to be buried. A coroner may likewise commit to prison any person who is by his inquisition found guilty of the murder, and the witnesses are to be bound by recognizance to appear at the next assizes," &c.

By stat. 25 G. 2. c. 29, however, on every inquisition, (not taken upon the view of a body dying in gaol,) which shall be taken by the coroner in any township or place contributory to the rates directed by stat. 12 G. 2. c. 29, he shall have the sum of 20*s.*; and for every mile which he shall travel from the place of his abode, the further sum of 9*d.* shall be paid him out of the money arising by the said rates. And for every inquisition taken upon the view of a body dying in gaol, so much money, not exceeding 20*s.* shall be paid him as the justices at sessions shall think fit to allow, out of the money arising from the said rates. Provided that, over and above the recompence hereby appointed for inquisitions taken as aforesaid, the coroner who shall take an inquisition upon the view of a body slain or murdered, shall have the fee of 13*s.* 4*d.* payable, by stat. 3 H. 7. c. 1. out of the goods of the slayer or murderer, or out of the amerciaments upon the township, if the slayer or murderer escape. And coroners taking further fees shall be guilty of extortion.

But no coroner of the king's household, and of the verge of the king's palaces, nor any coroner of the Admiralty, nor of the county palatine of Durham, nor of the city of London and borough of Southwark, or of any of the franchises belonging to the said city, nor any coroner of any city, borough, town, liberty or franchise not contributory to the rates directed by stat. 12 G. 2. c. 29. or within which such rates have not been usually assessed, shall be entitled to any fee, recompense, or benefit given by this act.

CORPORATION, is a body politic or incorporate, so called, as the persons are made into a body, and of capacity to take and grant, &c. Or it is an assembly and joining together of many into one fellowship and brotherhood, whereof one is head and chief, and the rest are the body; and this head and body knit together, make the corporation: also it is constituted of several members like unto the natural body, and framed by fiction of law to endure in perpetual succession. *Bac. Abr. tit. Corp.*

Of corporations, some are sole, some aggregate: sole, when in one single person, as the king, a bishop, dean, or the like; aggregate, which is the most usual, consisting of many persons, as mayor and commonalty, dean and chapter, &c. Likewise corporations are spiritual or temporal: spiritual, of bishops, deans, archdeacons, parsons, vicars, and other ecclesiastical persons; temporal, of mayors, commonalty, bailiffs and burgesses, &c.: and some corporations are of a mixt nature, composed of spiritual and temporal persons, such as heads of colleges and hospitals, &c. And all corporations are said to be ecclesiastical, or lay.

Bodies politic or incorporate may be, 1st, by prescription; 2dly, by letters patent, or 3dly, by act of parliament; but they are most commonly by patent or charter. 1 *Inst.* 250. 3 *Inst.* 202. 3 *Rep.* 73.

By 7 Geo. 3. c. 48. in companies or corporations instituted for carrying on particular trades, or dealing with joint stocks, no member shall vote in general courts, unless possessed of his stock six months (except acquired by bequest, marriage, succession to intestate's estate, custom of London, or settlement); the oaths are required to be conformable to this act.

No declaration of a dividend shall be made, but at one of the half yearly or quarterly general courts, at five months distance from the last preceding declaration; and for no more than the half year. And no question for a proposed increase of dividend shall be decided, but by ballot taken three days after breaking up of the court. *Ibid.*

CORSAIR, a pirate, or armed vessel, which plunders merchant vessels, particularly in the Mediterranean, without commission from any prince or power.

CORTEX WINTERANUS, (Ger. *Winersrinde, Bittre zimmetrinde.* Du. *Wintersbark.* Da. & Sw. *Vintersbark.* Fr. *Ecorce de Winter, L'ecorce sans pareil, Ecorce de caryocostin.* It. *Scorza magellanica.* Sp. *Corteza Winterana ó Magelanica.* Port. *Canella de Winter.* Lat. *Cortex Winteranus, s. Magellanicus,*) or Winter's Bark. *See* BARK.

CORUS, *Omer, Homer,* or *Chomer,* in the Jewish antiquities, a measure containing 10 baths, 75 gallons, and 5 pints, as a liquid measure; and 32 pecks and 1 pint as a dry measure.

COSSAES, a species of Bengal muslin.

COSTS, in general acceptation, are the expenses incurred by proceedings at law or in equity, and these were not originally recoverable by the plaintiff or defendant at common law. 2 *Inst.* 288.

COS TURCICA, *Turkey-stone*, a species of stone of the garnet kind; it strikes fire with steel, and effervesces with acids. It is used as a whetstone; and those of the fairest grain are the best hones for the most delicate cutting tools, and even for razors, lancets, &c.

COSTUS, a long thick root, brought from the East Indies, of the colour of box, with a thick pale-coloured bark, of a warm, bitterish, aromatic taste, with a fragrant smell. It should be chosen fresh, compact, and well scented. It is used as a medicine in various chronic cases, and pays a duty of nearly 4*d.* per lb. on importation.

COTTA, a sort of measure used in the Maldives for measuring of cowries, a small shell that serves as money in some parts of Asia, and along the coast of Africa. It contains 12,000 of those shells.

COTTON, (Ger. *Baumwolle.* Du. *Katoen, Boomwol.* Da. *Bomuld.* Sw. *Bomull.* Fr. *Coton.* It. *Cotone, Bambagia.* Sp. *Algodon.* Port. *Algodão.* Rus. *Chlobtschataja bumaga.* Pol. *Bawelna.* Lat. *Gossypium, Bombax*), a soft downy substance found on the gossypium, or cotton-tree. Cotton is separated from the seeds of the plant by a mill, and then spun and prepared for all sorts of fine work, as stockings, waistcoats, quilts, &c. With it are also made callico and muslin; and sometimes it is mixed with wool, sometimes with silk, and even with gold itself. The finest sort comes from the Brazils, from Bengal, and the coast of Coromandel. Cotton makes a very considerable article in commerce, and is distinguished into cotton-wool, and cotton-thread. The first is mostly brought from the Brazils, the West Indies, and America, and also from Smyrna: the most esteemed is white, long, and soft. Those who buy it in bales should see that it has not been wet, moisture being very prejudicial to it. Cotton is packed in the West Indies in bags of from 300 to 320 lb. weight each, and the tare allowed there is 3 per cwt. The best time of packing the cotton-wool is in moist or damp weather, provided it be done under cover.

Cotton-spinning is done by a machine called a *jenny*, and is the best contrivance for spinning woof or shoot that has yet been discovered. It is now commonly constructed for 84 threads; and with it one person can spin 100 English hanks in a day, each hank containing 840 yards.

Carding of Cotton, is a preparation for spinning, formerly performed by the hand, with a single pair of cards upon the knee. By a combination of machinery, cotton is now carded, roved, and spun with the utmost exactness and equality; and such a degree of perfection attained in spinning warp, as is not to be equalled in any other part of the world. To these improvements this country is entirely indebted for the great extent of its cotton manufactures; large buildings having been erected for that branch both in England, Scotland, and Ireland, many of which contain several thousands of spindles, each driven by one or more large water-wheels; and some of such extent as to spin at the rate of a thousand yards of twist or warp-yarn in a minute. There is another machine called a *mule*, being a mixture of machinery between the warp-machine and the woof-machine, or hand-jenny. This machine is of great use in spinning cotton-yarn for muslins to a degree of fineness nearly equal in quality to those usually brought from the East Indies. The following account, inserted in most of the periodical publications of the day, by a manufacturer of Paisley, in Scotland, will supply a correct notion of the great progress which has recently been made in the manufacture of cotton fabrics, as well as of the importance to our commerce, of the article under consideration.

"*Progress of a Pound of Cotton.* — There was sent to London lately from Paisley a small piece of muslin about one pound weight, the history of which is as follows. The wool came from the East Indies to London, from London it went into Lancashire, where it was manufactured into yarn; from Manchester it was sent to Paisley, where it was woven; it was sent to Ayrshire next, where it was tamboured; it was then conveyed to Dumbarton, where it was hand-sewed; and again returned to Paisley, when it was sent into Renfrewshire to be bleached. It was then returned to Paisley, whence it was sent to Glasgow, and was finished, and then sent per coach to London. It may be reckoned about three years, that it took to bring this article to market, from the time it was packed in India, till it arrived complete in the merchant's warehouse in London; whither it must have been conveyed 5000 miles by sea, nearly 1000 by land, and have contributed to reward the labour of nearly 150 persons, whose services were necessary in the carriage and manufacture of this small quantity of cotton, and by which the value has been advanced more than 2000 per cent."

COTULA, or Cotyla, among the Greeks, a liquid measure containing ten ounces of wine, and nine of oil. It is observed that the cotula was used also as a dry measure, from the authority of Thucydides, who in one place mentions two cotulæ of wine, and in another two cotulæ of bread.

COUCH, in painting, a term used for each lay or impression of colour, either in oil, or water, with which the painter covers

his canvas, wall, wainscot, or other matter to be painted.

COUIT, called also *guz*, a sort of aune or ell, used at Mocha for measuring linens and silks, of about twenty-four inches long.

COULTER, in husbandry, an iron instrument, fixed in the beam of a plough, and serving to cut the edge of each furrow.

COUNT-WHEEL, in the striking part of a clock, a wheel which moves round once in twelve or twenty-four hours.

COUNTERS *in a ship*, are two. 1. The hollow arching from the gallery to the lower part of the straight piece of the stern, is called the upper counter. 2. The lower counter is between the transom and the lower part of the gallery.

COUPANT, an oval piece of gold or silver of Japan, of various sizes. The coupants are not properly coin, but pass according to their weight.

COURON, *coroure, courou,* or *crou,* is ten millions of rupees, or a hundred lacks, the lack making a hundred thousand rupees.

COURSE, in navigation, the point of the compass or horizon which a ship steers on, or the angle which the rhumb-line, on which it sails, makes with the meridian; being sometimes reckoned in degrees, and sometimes in points of the compass. When a ship sails either due north, or south, she sails on a meridian, makes no departure, and her distance, and difference of latitude, are the same.

When she sails due east, or west, her course makes right angles with the meridian, and she sails either upon the equator, or a parallel to it; in which case she makes no difference of latitude, but her distance, and departure, are the same.

But when the ship sails between the cardinal points, on a course making always the same oblique angle with the meridians, her path is then the loxodromic curve, being a spiral, cutting all the meridians in the same angle, and terminating in the pole.

COURSES, *in a ship*, the main-sail and fore-sail: when the ship sails under them only, without lacing on them any bonnets, she is then said to go under a pair of courses. To sail under a main course and bonnets, is to sail under a main-sail and bonnet.

COURT-PLASTER, (Ger. *Englisches pflaster.* Du. *Engelsch pleister.* Da. *Engelskt plaster.* Sw. *Engelskt pläster.* Fr. *Taffetas d'Angleterre.* It. *Taffeta d'Inghilterra.* Sp. *Tafetan embalsamado de Inglaterra.* Port. *Tafeta de Inglaterra.* Lat. *Emplastrum Anglicanum glutinans,*) a glutinous salve laid on fine black silk, and used as a healing plaster for slight sores.

COVERLETS, (Ger. *Bettdecken.* Du. *Beddedekkens.* Da. *Sengedekkener.* Sw. *Sängtäcke.* Fr. *Couvertures.* It. *Coperte da letto.* Sp. & Port. *Cobertores.* Rus. *Pokriwalu.* Pol. *Koldry,*) are counterpanes or bed-covers in general. They are chiefly made at Manchester, and in many parts of Lancashire, and are composed of cotton of various figures and patterns. They vary much in price according to their respective qualities and dimensions; but the average may be from 1 to 4 or 5*l.*

COWRIES, (Ger. *Kauris, Schnakenköpfe.* Du. Da. Rus. & Sw. *Kauris.* Fr. *Coris, Cauris, Bouges.* It. *Cori, Porcellane.* Sp. *Bucios, Sigueyes.* Port. *Bucios Zimbos,*) are small shells brought from the Maldives, which pass current as a coin on the coast of Africa, where the natives call them Bouges; their value is $\frac{1}{130}$ of a penny sterling.

CRADLE, among shipwrights, a timber frame made along the outside of a ship for the convenience of launching her with ease and safety.

CRAFT, in the sea language, signifies all manner of nets, lines, hooks, &c. used in fishing. Hence all such little vessels as ketches, hoys, and smacks, &c. used in the fishing trade, are called *small craft.*

CRAMP-IRON, or CRAMPS, a piece of iron bent at each end, which serves to fasten together pieces of wood, stones, &c.

CRANAGE, is a liberty to use a crane, for drawing up of wares and merchandise from vessels at any creek of the sea or wharf, unto the land, and making profit of it. It also signifies the money taken, and paid for the hire and use of a crane. Stat. 22 Car. 2. c. 11.

CRANE, a machine used in building, on wharfs, and in warehouses, for raising and lowering huge stones, ponderous weights, packages, &c.

CRANE-LINES, in a ship, are lines going from the upper end of the spritsail-topmast to the middle of the fore-stays. They serve to keep the spritsail-topmast upright and steady in its place, and to strengthen it.

CRANK, a contrivance in machines, in manner of an elbow, only of a square form, projecting from a spindle, and serving by its rotation to raise, and lower, the pistons of engines.

Crank likewise denotes the iron support of a lantern, and also the iron made fast to a stock of a bell for ringing it. In sea-language, a ship is said to be *crank-sided* when she can bear but small sail, for fear of oversetting; and when a ship cannot be brought on the ground without danger, she is said to be *crank by the ground.*

CRAPE, (Ger. *Flohr, Krausflohr.* Du. *Floers, Lamfer.* Da. *Flor, Floer.* Sw. *Flor.* Fr. *Crêpe.* It. *Espumilla, Soplillo.* Sp. *Crespon.* Port. *Sendal.* Rus. *Flior.* Pol. *Flora,*) a light transparent stuff, in manner of gauze, made of raw silk gummed and twisted on the mill, woven without crossing, and much used in mourning. Crapes are either craped (*i. e.* crisped), or smooth: the first double, expressing a closer mourning;

the latter single, used for that less deep. The silk destined for the first is more twisted than that for the second; it being the greater, or less, degree of twisting, especially of the warp, which produces the crisping given to it, when taken out of the loom, steeped in clear water, and rubbed with a piece of wax for the purpose. Crapes are all dyed raw. The invention of this stuff came originally from Bologna; but, till of late years, Lyons is said to have had the chief manufacture of it. It is now manufactured in various parts of Great Britain.

CRAYON, (*Crayons.* Ger. *Pastellfarben.* Du. *Pastelverwen.* Da. *Pastelfarver.* Sw. *Pastellfärgor.* Fr. *Crayons en bastel.* It. *Pastelli, Paste da dipingere.* Sp. *Pasteles, Pasta de colores.* Port. *Pasteis,*) a name for all coloured stones, earths, or other minerals, used in designing or painting in pastel. Crayons may be made of any colour, and adapted for the representation of any objects, in the following manner. Take plaister of Paris, or alabaster calcined, and of the colour of which you intend to make your crayons, a sufficient quantity: grind them first asunder, and then together, and with a little water make them into a paste: then roll them with your hand upon the grinding-stone into long pieces, and let them dry moderately in the air; when they are to be used, scrape them to a point like a common pencil.

CREAM OF TARTAR, (Ger. *Weinsteinrahm.* Du. *Wynsteenroom.* Da. *Vinsteenflöde.* Sw. *Vinstenflötor.* Fr. *Crême de tartre.* It. *Crema di tartaro.* Sp. *Cremor tartaro.* Port. *Cremor de tartaro.* Lat. *Cremor tartari,*) called also crystals of tartar, is a preparation of tartar, and comes to us from Leghorn, and other parts of Italy. It is a combination of tartaric acid with potash. It is used in medicine as an aperient.

CREDIT, in commerce, a trust or loan of merchandise or money; and

CREDITOR, a person to whom any sum of money is due, either by obligation, promise, or otherwise. Creditors shall recover their debts of executors, or administrators, who in their own wrong, waste or convert to their use the estate of the deceased. 30 Car. 2. c. 7.

CREEPER, at sea, a sort of grapnel, but without flooks, used for recovering things fallen over-board.

CRENCLOS, in a ship, small ropes spliced into the bolt-ropes of the sails of the main-mast and fore-mast. They are fastened to the bow-line bridles; and are also to hold by, when a bonnet is shaken off.

CREW, the company of sailors belonging to a ship, boat, or other vessel. The sailors that are to work and manage a ship, are regulated by the number of lasts it may carry, each last making two ton. There are on board ship several particular crews or gangs, as the gun-room crew, the carpenter's crew, &c.

CRIMSON, one of the seven red colours of the dyers. *See* DYEING.

CROCUS. *See* SAFFRON.

CROSS-BAR SHOT, a bullet with an iron bar passing through it, and standing six or eight inches out at both sides: it is used at sea for destroying the enemy's rigging.

CROSS-TREES, in a ship, four pieces of timber, bolted and let into one another across, to the head of the mast. Their use is to keep and bear the top-mast up; for the top-mast is always fastened into them.

CROTCHES, in ship-building, very crooked timbers in the hold or bread-room, from the mizen-step aft, laid across the keelson, to strengthen the ship in the wake of the half-timbers.

CROTCHES, *iron,* crooked pieces of iron, used on board sloops and long-boats, which go with a shoulder-of-mutton sails, for the boom to lodge on.

CROW, a kind of iron lever with a claw at one end, and a sharp point at the other; used for heaving or purchasing great weights.

CROW'S FEET, in a ship, small lines or ropes, sometimes eight or ten, reeved through the dead-men's-eyes, and scarcely of any other use than to make a show of small rigging. They are usually placed at the bottom of the back-stays of the fore-topmast, mizen-topmast, and topgallant-mast.

CROWN, a general name for coins, both foreign and domestic, which are of, or very near the value of five shillings sterling. *See* MONEY.

CROWN-WHEEL *of a watch,* the upper wheel next the balance, which by its motion drives the balance, and in royal pendulums is called the swing-wheel.

CRUCIBLE, (*Crucibles.* Ger. *Schmelztiegel.* Du. *Smeltkroesen.* Da. *Smeltedigler.* Sw. *Diglar, Smältdiglar.* Fr. *Creusets.* It. *Crociuoli.* Sp. *Crisoles.* Port. *Crisoes, Cadinhas.* Rus. *Gorschki plavilnüe.* Pol. *Tigliki.* Lat. *Crucibula,*) a chemical vessel made of earth, and so tempered and baked as to endure the greatest fire. It is used to melt metals, and to flux minerals, ores, &c.

CRUISER, a fast sailing vessel, appointed by the Admiralty to cruise in certain latitudes, in quest of the enemy. Cruisers are frequently appointed to convoy merchantmen.

CRYSTAL, or Rock Crystal, (Ger. *Krystall.* Du. *Crystall.* Da. *Crystal.* Sw. *Kristall.* Fr. *Cristal.* It. *Cristallo.* Sp. *Cristal.* Port. *Crystallo.* Rus. *Chrustal.* Pol. *Krysztal.* Lat. *Crystallus,*) the name of a very large class of fossils, hard, pellucid, and naturally colourless. Crystals are usually employed for seals, rings, and other trinkets.

CRYSTAL GLASS, or Factitious

CRYSTAL. (GER. *Krystallglas.* DU. *Crystallglas.* DA. & SW. *Crystalglas.* FR. *Crystal factice. Verre cristalin.* IT. *Cristallo fattizio.* SP. *Cristal facticio.* PORT. *Crystalto artificial.*) The very fine clear glasses, made in imitation of precious stones, are sometimes called factitious crystals, but much more commonly *pastes.* Our opticians, and other artists, distinguish the dense white glass by the name of crystal-glass, and frequently by that of white flint.

CUBEBS, *cubeba of the shops,* (GER. *Kubeben.* DU. *Koebeben.* DA. *Cubeber.* SW. *Kobeber, Cobeber.* FR. *Cubebes.* IT. *Cubebi.* SP. *Cubebas.* PORT. *Cobebas.* RUS. *Kubebii.* POL. *Kubeby.* LAT. *Cubebae,*) a small dried fruit resembling a grain of pepper, but somewhat longer; brought into Europe from the island of Java.

CUDBEAR, a dye made from an excrescence that grows upon rocks and stones, a species of the *lichen* or rock *moss,* which, with certain chemical preparations, makes a fine lilac dye. It is chiefly manufactured in Glasgow. *See* LICHEN.

CUDDY, in large ships, a place lying between the captain-lieutenant's cabin and the greater-deck, under the poop. It is divided into partitions for the master and other officers.

CULM, a term exclusively applied by dealers in pit-coal, to denote such coal as does not cake, or adhere together, when heated. Small pieces of coal of this kind are of much less value than larger pieces; and on this account, the duties on culm are less than upon coal.

CULVERTAIL, among shipwrights, signifies the fastening or letting of one timber into another, so that they cannot slip out, as the corlings into the beams of a ship.

CUMMIN-SEED, (GER. *Kumin, Langer Kümmel.* DU. *Komyn.* DA. *Kummen, Haugekummen.* SW. *Kummin, Cumin, Spiskumin.* FR. *Cumin.* IT. *Comino, Cumino.* SP. *Comino.* PORT. *Cuminho, Cominhos.* RUS. *Kmin, Timon.* POL. *Kmin, Kmin kramny.* LAT. *Cyminum, Cuminum semine longiore,*) a long slender seed, not so thick as the aniseed, but nearly twice its length. The plant is propagated for sale in the island of Malta. The seeds are used in medicine, and, made into a plaister, are the most efficacious application hitherto discovered for the cure of rheumatic lumbago. It is an annual plant, perishing soon after the seed is ripe.

CUNNER, a kind of shell-fish, less than an oyster, that sticks close to the rocks.

CURCUMA. (GER. *Kurkumey.* DU. *Kurkuma.* DA. *Gurgumeye.* SW. *Gurkmäja.* FR. *Curcuma, Terre-merite.* IT. & SP. *Curcuma.* PORT. *Curcuma, Açafrao da India.* RUS. *Kurkuma.* POL. *Szafranica, Ostrzyz Indyyski.* LAT. *Terra merita, Curcuma.*) This plant is a native of India. The roots are brought to Europe for use. It is very tender, and will not live in this country, except in a stove. It is propagated by parting the roots. The root communicates a beautiful, but perishable, yellow dye, with alum.

CURRANTS, (GER. *Korinthen.* DU. *Korenten, Krenten.* DA. *Korender, Korinther.* SW. *Corinter.* FR. *Raisins de Corinthe.* IT. *Uve passe di Corinto.* SP. *Pasas de Corinto.* PORT. *Passas de Corinto.* RUS. *Korinka, Opoek.* POL. *Roxynki male, drobne.* LAT. *Passulae corinthiacae,*) a smaller kind of grapes, brought to us principally from Zante and Cephalonia. They are gathered off the bunches, and laid to dry in the sun, and packed up in large butts. They are mostly used for culinary purposes.

CURRENCY. In America and the West Indies accounts are kept in pounds, shillings, and pence, as in Great Britain; the word *currency* being used instead of *sterling.* In most of the British settlements on the continent of America, &c. they have few coins of any sort circulating among them; what few they have are generally French and Spanish pieces; so that they are obliged to substitute a paper *currency,* for a medium of their commerce, for want of a competency of cash for circulation. In Jamaica, 140*l.* *currency* is equal to 100*l.* *sterling:* but the state of currency differs in almost all the West India Islands. *See* EXCHANGE.

CURRIERS. If any currier do not curry leather sent to him, within sixteen days between Michaelmas and Lady-day, and in eight days at other times, he shall on conviction thereof forfeit 5*l.* 12 Geo. 2. c. 25.

A great number of statutes have been passed for the regulation of curriers, as well to prevent their obtaining hides dishonestly, as their defrauding the revenue arising from the duties on leather.

The 9 Ann. c. 11., 41 Geo. 3. c. 53., 39 & 40 Geo. 3. c. 66., and 41 Geo. 3. c. 53., were successively passed with these views. By 48 Geo. 3. c. 60. no tanner shall by himself or any other use the trade of a shoemaker, *currier,* leather-cutter, or other artificer, working or cutting of leather, upon pain of forfeiting every hide and skin by him wrought or tanned, or the value thereof, to be recovered by action.

By 56 Geo. 3. c. 110. which is entitled an act for the further regulation of tanners and curriers, the former statutes are reviewed, and new penalties annexed to offences. By this, tanners are prohibited from concealing hides under a penalty of 200*l.*; and curriers are forbidden to use sumac in the preparation of leather under a penalty of 100*l.* 3 *Dick. Pract. Expos.* 487. *V.* 3 G. 4. c. 83. s. 7.

Every currier, or dresser of hides in oil, shall annually take out a licence from the commissioners or officers of excise.

CURRYING, is the last preparation of leather which it puts in a condition to be made up into boots, shoes, saddles, &c. and is performed in two ways, either upon the *flesh*, or the *grain:* in dressing leather for shoes *on the flesh*, the first operation is soaking the leather in water until it be thoroughly wet; then the flesh side is shaved on a beam, that is a sort of wooden block fixed on the ground, to which the currier stands to his work, with a knife of a peculiar construction. The knife used for this purpose is of a rectangular form, with two handles, one at each end, and a double edge. The best knives are manufactured at Cirencester, and are composed of iron and steel: the edge is made by rubbing them on a flat stone of a gritty substance, till it comes to a kind of wire; the wire is taken off by a finer stone, and the edge is then turned to a kind of groove wire, by a piece of steel in the form of a bodkin; this steel is used to renew the edge in the operation. After the skin is properly shaved, it is thrown into water again, and scoured upon a board, or stone, appropriated to the use. Scouring is performed by rubbing the grain or hair side with a piece of pumice-stone, or some other stone of a good grit, by which means a white sort of substance is produced out of the leather, called the *bloom*, generated in the operation of tanning. The hide is then conveyed to the shade or drying-place, when the oily substances are applied, which are put on both sides of the leather, but in a greater and thicker quantity on the flesh side, than on the hair side. When it is quite dry, it undergoes another operation, for the purpose of softening the leather. Whitening or paring succeeds, which is performed with a fine edge on the knife already described. It is then *boarded up*, or grained again, by applying the graining-board first to the grain side, and then to the flesh side. It is now fit for *waxing*, which is performed by rubbing it with a brush dipped in a composition of oil and lamp-black, on the flesh side, till it is thoroughly black; it is then *sized*, called black sizing, with a brush or sponge, dried, and tallowed. After undergoing some other operations, this sort of leather, called waxed leather, is curried. For leather curried on the hair side, termed *black on the grain*, the first operation is the same with that already described, till it is scoured. Then the black is applied to it while wet, which is a solution of copperas in water; this is first put upon the grain, after it has been rubbed over with a brush dipped in urine, and when it is dry it is *seasoned*, that is, rubbed over with a brush dipped in copperas water on the grain, till it is perfectly black; after this the grain is raised with a fine graining-board, and the leather is oiled with a mixture of oil and tallow; when it is finished, and fit for the shoemaker, &c.

CURRY-COMBS, (Ger. *Striegel*. Du. *Roskammen*. Da. *Strigler*, *Hesteskraber*. Sw. *Hästskrapor*. Fr. *Etrilles*. It. *Striglie*, *Strogghie*. Sp. *Almohazas*, *Bruzas*. Port. *Almofacas*. Rus. *Skreblizu*. Pol. *Grzebla*,) are iron combs, used for dressing the coats of horses, and principally manufactured at Birmingham, Wolverhampton and Walsal.

CUSHTREES, a species of Indian callico.

CUSTOM *of merchants*. If a merchant gives a character of a stranger to one who sells him goods, he may be obliged to satisfy the debt of the stranger for the goods sold, by the *custom of merchants*. And when two persons are found in arrears, upon an account grounded on the custom of merchants, either of them may be charged to pay the whole sum due. *See* BILLS OF EXCHANGE, BANKRUPT, INSURANCE.

CUSTOM-HOUSE. Custom-houses are established at all the sea-ports in Britain and Ireland, where entries are made of goods exported or imported, and the duties laid on by law paid; or where drawbacks are allowed on goods exported, the documents are received, by which the money allowed is to be obtained.

When goods are to be exported, a bill of entry must be made out, stating the articles and their value, and mentioning the name of the ship and captain. There must be seven copies made out, one of which must be in words at length, called the warrant; when the customs are discharged, a parchment certificate thereof, called a cocket, is received, on the back of which must be indorsed the mark, and number, of the goods, together with a copy of the bill of entry: after this has been given to the searcher, with his receipt, the goods are shipped, and a receipt given by the master of the ship, who then signs the bill of lading.

When goods paying duty, and others free, are exported at the same time, there must be two cockets.

Goods exported by certificate — that is, goods which have been imported and paid duties, and which are to receive a drawback; mention must be made of the marks, numbers, name of the ship, &c. in which they were imported, and affidavit made that the duties were paid, or security given: on which the collector, or his deputy, will grant an order, to be given to the surveyor, searcher, and land-waiter, that they may certify the quantity; after which the said certificate must be brought back to the collector and comptroller, and oath made that the goods are really shipped, and not to be landed again in Great Britain.

When this is done, the sum on each particular part of the duties is written in words at length, and in figures, on the back of the debenture, specifying particulars, which is

subscribed jointly; and in one month after the departure of the ship, the drawback may be demanded, and is payable.

Almost every species of goods pays a duty on importation, and they are delivered either by tale, weight, measure, or gauge. Those which pay by tale at the delivery, to be tallied 1, 2, 3, &c.

Goods paying duties by weight, are weighed at the king's beam. — A deduction is to be made called tare; the only deduction now allowed for the outside package.

The allowance for tare is in some cases fixed; and when it is not, then it is to be ascertained by two landing surveyors, if in London, and in other ports by the collector and surveyor.

Goods rated by measurement, are of three different sorts.

Linens and cloths of all sorts are reckoned by taking the length of the piece.

Paving stones, marble slabs, pictures, by superficial feet; blocks of stone and timber, by solid feet.

Wine, spirits, and all sorts of liquids, are estimated by gauging the casks.

In making entries, a merchant generally includes all goods he has on board of the same ship, although of different sorts.

Goods imported, unshipped and landed, are forfeited, unless the duties are paid, tendered, or agreed for, with the collector.

There is a book of tares alphabetically arranged, from which the allowances made on that account may be found.

The business of merchants applying at the Custom-house is to be dispatched in the order they have applied; and any officer either unduly detaining one, or expediting another, for a reward, is to be dismissed, and never again to get admittance to the Custom-house.

Any merchant may break bulk, that is, take out part of his cargo, paying for that only, provided the master of the ship make oath as to the contents, and farther, that when he lands the remainder at that, or another, port, he shall certify as to the quantity landed before, together with their quality, and the name of the person whose property they were.

The clerks at the long-room attend from nine in the morning till three in the afternoon, and the officers at the harbours from six to six in summer, and from sun-rising to sun-setting in winter.

CUSTOMS, taxes levied upon goods when exported from, or imported into, a state. This mode of raising a public revenue is of great antiquity, as it may be traced back to the time of Solomon; but in modern times it has been extended by different states to almost every article of commerce.

The customs of England were formerly divided into three branches; viz. 1st, the duties on wool and leather; 2d. a duty upon wine, which being imported at so much a ton, was called a tonnage; and 3d. a duty upon all other goods, which being imported at so much in the pound on their supposed value, was called a poundage. In the 47th Edward III. a duty of sixpence in the pound was imposed on all goods exported, or imported, except wool, wool-fells, leather, and wine, on which particular duties had been granted before.

In 14 Rich. II. it was raised to one shilling in the pound; but three years afterwards was again reduced to sixpence. It was raised to eight-pence in the 2d Hen. IV. and in the fourth year of the same prince to one shilling; from which time to the 9th of Will. III. it continued at one shilling in the pound. The duties of tonnage and poundage were generally granted by the same act, and were called the subsidy of tonnage and poundage. The subsidy of poundage having continued so long at one shilling in the pound, or at 5 per cent. a subsidy came in the language of finance to denote a general duty of this kind at 5 per cent.

These duties on the estimated value of goods imported, or exported, being liable to great inaccuracy and irregularity, the value of the different articles of commerce was ascertained by a book of rates, and computed on the qualities: there was a mode also by which duties were imposed on goods not rated; this was by a proportion on the real value, as sworn to by the merchant. These principles once adopted, were pursued in every new subsidy; till the various additional duties imposed on articles of foreign trade, in almost every year of war since the Revolution, with the occasional repeal of some of the old duties, and the different bounties and drawbacks allowed on exportation, caused an accumulation of perplexity, which in time had rendered the custom-duties a complete mass of confusion, attended with infinite inconvenience and delay in business. To remedy this evil, in 1787 all the old duties were abolished, and a single duty on each article substituted in their stead. This arrangement was, at the same time, extended to the excise and stamp duties. The progress of this branch of revenue shews the vast importance of foreign trade, if considered merely as furnishing a convenient mode of taxation. In the reign of king John, the whole of the duties payable by merchants in this country were farmed for 1000 marks.

From some acts of Henry III. it appears that considerable frauds were committed in the revenue of customs; it began, however, to increase, and in the reign of Edw. III. the customs of the port of London alone amounted to 12,000 marks per annum. In 1590, the produce of the customs was considerably improved; and in 1613 it amounted to 148,075*l.* 7*s.* 8*d.* of which 109,572*l.* 18*s.* 4*d.* was collected in the port of London, whilst only 38,502*l.* 9*s.* 4*d.* was received from all

the other ports of England. Of the total, 16,794*l.* 16*s.* 2*d.* arose from duties outward, and 61,280*l.* 11*s.* 6*d.* from duties inward. By the act of union in 1706, the customs of Scotland are stated at 30,000*l.* per annum, and those of England at 1,341,559*l.* per annum; since which period the great increase of foreign trade, and the many new duties which have been imposed, have swelled the revenue of the customs to its present magnitude. *See* DUTIES, EXCISE, and REVENUE.

Abstract of the net Produce of the Revenue of Great Britain, in the Years ended 5th January 1822, and 5th January 1823; distinguishing the Quarters: and also the total Produce of the Customs and Excise.

	Quarters ending				Year ending 5 Jan. 1821.
	5 April 1820	5 July 1820.	10 Oct. 1820	5 Jan. 1821.	
CUSTOMS:	£.	£.	£.	£.	£.
Customs, Consolidated	1,878,412	844,772	1,107,921	1,885,415	5,716,520
Do. Annual Duties	82,291	1,038,074	1,562,762	232,244	2,915,371
Do. War Taxes -	—	—	—	—	—
Total produce of Customs	1,960,703	1,882,846	2,670,683	2,117,659	8,631,891
EXCISE:					
Excise, Consolidated -	5,165,663	6,003,687	6,852,987	5,656,602	23,678,939
Do. Annual Duties	—	—	112,770	15,448	128,218
Do. War Taxes -	671,350	616,922	586,264	643,687	2,518,223
Total produce of Excise	5,837,013	6,620,609	7,552,021	6,315,737	26,325,380
Stamps - - -	1,453,224	1,581,445	1,581,204	1,538,574	6,154,447
Post-Office -	302,186	352,000	375,000	321,000	1,350,186
Assessed Taxes -	873,716	2,343,380	760,576	2,333,674	6,311,346
Land Taxes - -	149,409	440,744	174,522	427,582	1,192,257
Miscellaneous -	48,860	59,249	71,642	111,087	290,838
Unappropriated Duties	8,544	5,317	14,314	2,605	30,780
	2,835,939	4,782,135	2,977,258	4,734,522	15,329,854
Hereditary Revenue reserved out of Excise, - £39,322 Post-Office, 38,813	78,135	—	—	—	78,135
Total net Revenue - £	10,711,790	13,285,590	13,199,962	13,167,918	50,365,260

	Quarters ending				Year ending 5 Jan. 1823.
	5 April 1821	5 July 1821.	10 Oct. 1821	5 Jan. 1822.	
CUSTOMS:	£.	£.	£.	£.	£.
Customs, Consolidated	1,792,576	801,934	1,251,781	1,515,105	5,361,396
Do. Annual Duties	112,700	1,096,765	1,592,450	971,791	3,773,706
Do. War Taxes	—	—	—	—	—
Total produce of Customs	1,905,276	1,898,699	2,844,231	2,486,896	9,135,102
EXCISE:					
Excise, Consolidated -	5,090,931	5,694,226	7,039,890	5,368,664	23,193,711
Do. Annual Duties	—	—	293,082	298,119	591,201
Do. War Taxes -	616,659	604,584	816,254	724,006	2,761,503
Total produce of Excise	5,707,590	6,298,810	8,149,226	6,390,789	26,546,415
Carried forward -	7,612,866	8,197,509	10,993,457	8,877,685	35,681,517

	Quarters ending				Year ending 5 Jan. 1823.
	5 April 1821	5 July 1821.	10 Oct. 1821	5 Jan. 1822.	
	£.	£.	£.	£.	£.
Brought forward -	7,612,866	8,197,509	10,993,457	8,877,685	35,681,517
Stamps - -	1,467,799	1,518,493	1,625,220	1,501,259	6,112,771
Post-Office -	350,000	318,000	342,000	308,000	1,318,000
Assessed Taxes -	842,531	2,328,040	793,532	2,292,708	6,256,811
Land Taxes - -	137,427	445,366	207,481	473,000	1,263,274
Miscellaneous - -	57,573	64,972	61,222	115,565	299,332
Unappropriated Duties	981	8,172	17,881	7,200	34,234
	2,856,311	4,683,043	3,047,336	4,697,732	15,284,422
Total net Revenue - £	10,469,177	12,880,552	14,040,793	13,575,417	50,965,939

An Abstract of the net Produce of the Revenue of Ireland, as paid into the Exchequer, in the Years ended 5th January 1821, and 5th January 1822; distinguishing the Quarters.—(In British Currency.)

	Quarters ending				Year ending 5 Jan. 1821.
	5 April 1820	5 July 1820.	10 Oct. 1820	5 Jan. 1821.	
	£.	£.	£.	£.	£.
Customs - -	282,158	293,827	286,436	339,958	1,202,379
Excise - -	422,672	398,772	362,267	380,940	1,564,651
Assessed Taxes -	7,615	108,345	45,647	102,962	264,569
Stamps - -	115,210	106,111	79,867	106,215	407,403
Post-Office -	12,000	13,846	20,308	12,923	59,077
Miscellaneous -	31,946	29,726	15,009	30,684	107,365
Total - £	871,601	950,627	809,534	973,682	3,605,444

	Quarters ending				Year ending 5 Jan. 1822.
	5 April 1821	5 July 1821.	10 Oct. 1821	5 Jan. 1822.	
	£.	£.	£.	£.	£.
Customs - -	349,222	365,944	383,234	339,253	1,437,653
Excise - - -	440,761	346,021	414,022	431,844	1,632,648
Assessed Taxes -	27,517	147,775	25,640	107,291	308,223
Stamps - -	110,427	96,477	87,409	106,514	400,827
Post-Office	16,615	19,385	11,077	18,461	65,538
Miscellaneous - -	42,659	28,182	35,211	48,982	155,034
Total - £	987,201	1,003,784	956,593	1,052,345	3,999,923

CUSTOM-OFFICERS, or CUSTOM-HOUSE-OFFICERS shall not have any ships of their own, nor may they use merchandise factorage, nor keep a tavern, &c. They are prohibited from trading in brandy, coffee, &c. or any excisable liquor, on pain of 50*l.* For taking a bribe they shall forfeit 100*l.*; and 500*l.* for making collusive seizures, &c.

Every merchant making an entry of goods, either inwards, or outwards, shall be dispatched in such order as he comes in; and if any officer or his clerk shall, for favour or reward, put any merchant or his servant, duly attending to make entries, by his turn, to draw any reward or gratuity from him, besides what is limited in the act of tonnage and poundage, &c. he shall be

strictly admonished to his duty; or if found faulty, he shall be discharged, and not permitted to sit any more in the Custom-house. The officers who sit above in the Custom-house of London, shall attend their several places from nine in the morning to three in the afternoon; and one officer, or clerk, shall attend with the book, in the afternoon, during such time as the officers are appointed to wait at the water-side.

CUTLASS, a broad cutting sword chiefly used at sea, being of infinite service in enabling seamen to board an enemy.

CUTLER. The business of a cutler is forging, tempering, and mounting all sorts of knives, forks, razors, scissors, shears, &c. There are also *sword-cutlers*, who finish all kinds of swords, sabres, &c.

CUTLERY, includes all kinds of knives and forks, razors, scissors, shears, &c. which are manufactured in the greatest perfection at Sheffield, in Yorkshire. The Birmingham, Wolverhampton, &c. manufactures in this branch are by no means equal to those of the first-mentioned place.

CUTTANEES, a species of East India callico.

CUTTER, a fast sailing vessel. *See* SHIP.

CUT-WATER, or *knee of the head*, the sharpness of the head of the ship, below the beak; so called because it cuts or divides the water before it comes to the bow.

CYDER. *See* CIDER.

CYMOPHANE, the oriental chrysolite of jewellers. This stone has been found only in Brazil, the island of Ceylon, and at Northschink, in Siberia. It is usually met with in round masses about the size of a pea, but it is sometimes crystallized. The colour is yellowish-green, surface sparkling.

CYPRESS. The wood of this tree, which grows abundantly in North America, is said to resist worms, moths, and putrefaction.

D, The fourth letter of the alphabet, as a numeral denotes 500: and with a dash over it, thus, $\bar{D}$, 5000. In the Gothic characters it is half the M, which imports 1000.

DAALDER, a Dutch piece of thirty sols, or one florin of their money. This species of money is also coined at Hamburgh, and is called *daalders-lup*, or *lub*. The daalder is equivalent to 1*s*. 2*d*. British.

DAEZAJIE, a silver coin current in Persia, worth five mamoudis, and two of them make the hasaer denarie. It is equal to 3*s*. 4*d*. sterling.

DALLE, an imaginary money of account in Germany, worth thirty-two sols lubs, or forty French sols; the sol lub being somewhat more than the sol tournois. The value of the dalle is about 1*s*. 8*d*. of our money.

DAMAGE, on goods imported, except tobacco and wines, is to be adjusted by two disinterested merchants upon oath; to be chosen by the principal officers, &c. *See* DEBENTURE.

DAMAGES, in law, signifies what the jurors are to enquire of, and return by their verdict, when it passeth in favour of the plaintiff. In certain cases, double, and even treble, damages are allowed for recompence, but those are in cases specially provided for by particular statutes.

DAMASCUS *Steel*, a very fine kind of steel made at Damascus, and other parts of the Levant, remarkable for its excellent temper.

DAMASK, (Ger. Du. and Sw. *Damast*. Da. *Damask*. Fr. *Damas*. It. Sp. and Port. *Damasco*. Rus. *Kamka*. Pol. *Adamaszek*,) a silk stuff, with a raised pattern, so that the right side of the damask is that which has the flowers raised or saturated. Damasks should be of dressed silk, both in warp and woof; and in France, half an ell in breadth: they are made at Chalons, in Champagne, and some places in Flanders, as at Tournay, &c. entirely of wool, 3-8ths of an ell wide, and 20 ells long.

DAMASK, (Ger. *Damasten Tafelzeug*. Du. *Damaskwerk*. Da. *Damasklinnen*. Sw. *Damastlinne*. Fr. *Venise*. It. *Tela damaschima*. Sp. *Tela adamascada*. Port. *Guarnicao de mesa adamascada*. Rus. *Kamtschatniüü salfftki*,) is also a kind of wrought linen made in Flanders, and in the United Kingdom. It takes this name on account of its resemblance to silken damasks, and is chiefly used for table linen.

The damask table-cloths made in the north of Ireland are in high repute, both at home, and abroad; and they now make them of great beauty in Scotland of cotton-thread.

DAMASKEENING, or Damasking, the art or operation of beautifying iron, steel, &c. by making incisions in them, and filling them up with gold and silver wire; chiefly used for adorning sword-blades,

guards and gripes, locks of pistols, &c. Damaskeening partakes of the mosaic, of engraving, and of carving: like the mosaic, it has inlaid work; like engraving, it cuts the metal representing different figures; and as in chasing, gold and silver are brought in relievo. There are two ways of damasking: the one, which is the finest, is when the metal is cut deep with proper instruments, and inlaid with gold and silver wire; the other is superficial only.

DAMASSE, or *petite venise*, a kind of wrought linen manufactured in Flanders, so called from its being adorned with large flowers or figures, like silken damasks. It is used chiefly for table-cloths, napkins, &c. There is also a silk stuff so called, which looks like a damask on one side, and on the other is plain.

DANK, or DANEK, a small silver coin current in Persia, and some places of Arabia: it weighs 1-6th of a dram, and has its correspondent value. It is also a small weight used by the Arabians, for precious stones, &c. It is 1-16th part of an Arabian drachm, or 80 French grains.

DATES, (GER. *Datteln*. DU. *Dadels, Daayen*. DA. *Dadeler*. SW. *Dadlar*. FR. *Dattes*. IT. *Datteri*. SP. *Datiles*. PORT. *Tamaras*. RUS. *Finiki*. POL. *Daktyle*. LAT. *Dactyli*,) the fruit of the greater palm-tree; they are of the shape of an acorn, but bigger, and contain, under a thin yellow skin, a pulp of a sweetish slimy taste, and under this a long, hard kernel, with a furrow running its whole length. Dates are to be chosen large, yellow, with few wrinkles, plump, fleshy, of a whitish colour towards the kernel, and of a vinous taste.

DAY-BOOK, the book in which are entered the quantity and value of goods sold each day, and other diurnal transactions, such as contracts, &c.

DAYS *of grace*, are a customary number of days allowed for the payment of a bill of exchange, &c. after the same becomes due. *See* BILLS OF EXCHANGE.

DEAD-MEN'S EYES, in the sea language, a kind of blocks with many holes in them, but no sheevers, by which the shrouds are fastened to the chains: the crow-feet reeve also through these holes; and, in some ships, the main-stays are set tawt in them; but then they have only one hole, through which the lan-yards are passed several times.

DEAD-RECKONING, the estimation or conjecture which seamen make of the place where a ship is, by keeping an account of her way by the log.

DEALS, or DEAL-BOARDS, (GER. *Dielen*. DU. *Deelen*. DA. *Dæler*. SW. *Tiljor*. FR. *Planches minces*. IT. *Tavole, Piane*. SP. *Tablas poco gruesas*. PORT. *Taboinhas*. RUS. *Doski*. POL. *Tarcice*,) a thin kind of fir-planks, of great use in carpentry: they are formed by sawing the trunk of a tree into a great many longitudinal divisions, of more or less thickness, according to the purposes they are intended to serve. Deals are rendered much harder, by throwing them into salt water as soon as they are sawed, keeping them there three or four days, and afterwards drying them in the air or sun; but neither this, nor any other, method yet known will preserve them from shrinking. Deals are imported by us from Dantzic, Petersburgh, Narva, and many other ports in the Baltic, and from North America; but those from Christiania, the capital of Norway, are the best in the world, and bear much the highest price in the English markets. They are distinguishable from those that are even produced in the contiguous provinces of the Norwegian kingdom, and the whole of their superiority is said entirely to arise from the more perfect operation of sawing them.

DEBENTURE, is a certificate delivered at the Custom-house, when the exporter of any goods or merchandise has complied with the regulations prescribed by certain acts of parliament, in consequence of which he is entitled to a bounty or drawback on the exportation. This certificate is signed by the officer of the customs when the goods are regularly entered and shipped, and the ship cleared out and upon her intended voyage: debentures may be made out from the entries of the exporter, who then can claim drawbacks, &c.

Stealing debentures was made felony by 2 Geo. 2. c. 25. s. 3.

DEBIT, among book-keepers, is used to express the left-hand page of the ledger, to which are carried all articles supplied, or paid, on the subject of an account, or that are charged to that account.

DEBT, a sum due from one person to another, in consequence of work done, goods delivered, or money or other value, for which reimbursement has not been made.

The non-payment in these cases is an injury, for which the proper remedy is by action of debt, to compel the performance of the contract, and recover the special sum due. 4 *Co.* 90.

DEBTOR, a person owing money to his creditor. *See title* INSOLVENT.

DECANTER, a glass vessel used for pouring wine into. Decanters cut in the most ingenious and elegant style are made in many towns of Great Britain, and large quantities are annually exported to all parts of the world.

DECK, of a ship, is a planked floor from stem to stern, upon which the guns lie, and where the men walk to and fro. Great ships have three decks, first, second, and third, beginning to count from the lowermost. Half-deck reaches from the main-mast to the stern of the ship. Quarter-deck is that aloft the steerage, reaching to the round-house. Flush-deck is that which lies even in a right line fore and aft, from stem

to stern. A rope-deck is made of cordages, interwoven and stretched over a vessel, through which it is easy to annoy an enemy who comes to board her. They are little used but by small vessels, to defend them from privateers. *See* SHIP, SHIP-BUILDING.

DEED, *in law*, is an instrument in writing, on parchment, or paper, *and under seal*, containing some conveyance, contract, bargain, or agreement between the parties thereto; and it consists of three principal points, writing, sealing, and delivery; writing, to express the contents — sealing, to testify the consent of the parties — and delivery, to make it binding and perfect. 2 *Bl. Com.* 298.

And it seems that ten things are necessarily incident to a deed: 1. That it should be in writing. 2. That it be on parchment, vellum, or paper. 3. A person able to contract. 4. By a sufficient name. 5. A person able to be contracted with. 6. By a sufficient name. 7. A thing to be contracted for. 8. Apt words required by law. 9. Sealing: And, 10. Delivery.

Every instrument in writing is not a deed; for a contract may be in writing, and not by deed, (it being under seal,) and if so, it is but as a parol agreement.

It is essential that all the matter thereof be written before *the sealing and delivery of it:* for if a man seals and delivers a blank piece of parchment or paper, although he therewith gives commandment that an obligation, or other matter shall be written on it, which is done accordingly, yet this will not make it a good deed.

A deed may be written in any hand, as in text, court, or Roman hand; or in any language, as in Latin or French, and is as good, as a deed written in English, and in common hand.

If there be any alteration, erasure, or interlining made in any part of the deed before the delivery of it, this will not hurt the deed, but in all such cases it is proper to make a memorandum thereof, upon the back, or margin, of the deed, and to give the witnesses notice of it.

A deed sealed and delivered, it is said, may be good without signing; for the seal is the essential part of the deed; but it is usual to have deeds signed; and there must be witnesses to the sealing, and delivery, who are to indorse or under-write their names thereon.

A deed may be good without all the orderly and formal parts; but if it be without delivery by the party himself, or his attorney lawfully authorized, to the party to whom made, or some other to his use, it is no deed.

Of deeds there are two sorts, deeds indented, and deeds poll; which names principally arise from the form of them, the one being cut in, and out, at top, dentwise, and the other plain; that is, shaved close, from whence it takes the name of deed-poll.

A deed-poll is said to be a deed testifying that only one of the parties to the agreement hath put his seal to the same, where such party is the principal, or only person whose consent or act is necessary to the deed: and it is therefore a plain deed without indenting, and is used when the vendor, for example, only seals, and there is no need of the vendee's sealing a counterpart, because the nature of the contract is such as it requires no covenant from the vendee, &c.

Deeds by *indenture*, are, where there are several parts belonging to the feoffor, grantor, or lessor, who has one, and the feoffee, grantee, or lessee, who has another; and some other persons, as trustees, a third, &c. and the deed-poll, which is single, and of but one part, is delivered to the feoffee, or grantee, &c.

All the parts of a deed indented, in judgment of law, make but one entire deed; but every part is of as great force as all the parts together. But a deed-poll is the sole deed of him that makes it, and the words thereof shall bind him only.

Deeds have several formal parts, *viz.* the premises, *habendum*, *reddendum*, condition, covenants, warranty, date, sealing, &c.

The premises set forth the proper names of the parties, with their additions of place and quality: the lands and tenements intended to be conveyed, with the consideration of the deed, as money, natural love, &c.

The *habendum* fixes the certainty of the estate granted, for what time the grantee is to have it, and to what use.

The *reddendum* is that clause in the deed which reserves some new thing to the grantor, as rent, suit, service, &c. and is usually made by the words yielding, paying, doing, &c.

Conditions and covenants in deeds are for the holding, or not holding, of the estate granted, on performance of some act: and a condition relating to a real estate is a quality annexed by him that hath the estate, interest, or right, in the same, whereby the estate granted may be defeated, enlarged, or created, upon an uncertain event.

The warranty in deeds is to secure the estate to the grantee and his heirs, &c. and is a covenant real, annexed to the land granted, by which the grantor and his heirs are bound to warrant the same to the grantee and his heirs, and that they shall quietly hold and enjoy it; or upon voucher, &c. the grantor shall yield other lands, to the value of what shall be evicted.

In witness whereof, &c. ascertains the date of the deed; and is as well part of it as what is written before.

In deeds, the consideration is a principal thing to give them effect: and the foundation of deeds ought always to be honest.

False English will not make a deed void: but rasure or interlineation in a material part, will render the same void, unless some memorandum be made thereof on the back of the deed, testifying its being done before sealing. And if words are blotted out in a deed, by a grantee or lessee himself, after execution, although it be not in a place material, it will make the deed void.

In deeds indented all parties are estopped, or concluded, to say any thing against what is contained in the deed.

But if fraudulently made, when got by corrupt agreement, as on usurious contract, and when made by force or duress, &c. are void: or if by fraud, accident, or mistake, a deed is framed contrary to the intention of the parties in their contract on the subject, the parties claiming under it may take the advantage of proceeding in a court of common law, against the conscience of the case; a court of equity will on this ground interfere to restrain proceedings at law until the matter has been properly investigated; and if it finally appears that the deed has been improperly obtained, or that it is contrary to the intention of the parties in their contract, will in the first case compel the delivery and cancellation of the deed; and in the second case will either rectify the deed according to the intention of the parties, or will restrain the use of it in the points in which it has been framed contrary to, or gone beyond, their intention in the original contract.

On the ground of mistake, the courts of equity have frequently interfered in a variety of instances, and particularly in the cases of defective securities for money, and of marriage settlements founded on previous articles, where the settlement has been contrary to the evident intention of the parties in the articles. *Mitf.* 116, 117.

DEEDS, stealing of. At common law, bonds, bills, and notes, which concern mere choses in action, were held not to be such goods whereof larceny might be committed: but by stat. 2 Geo. 2. c. 25. the stealing thereof shall be felony of like degree as in stealing of other goods of like value.

DEEP SEA-LINE, or Dip Sea-Line, in the sea-language, a small line to sound with. Some of this description of line are 150 fathoms long, with a hollow plummet at the head, and tallow put into it, to bring up stones, gravel, sand, shells, and the like, from the bottom, in order to know the differences of the ground; which, being entered from time to time in the ship's books, by comparing of observations, the mariners guess, by their soundings, &c. what coasts they are on, though they cannot see land.

DEFAMATION, is when a person speaks scandalous words of another, whereby he is injured in reputation, for which the party offending shall be punished according to the nature and quality of his offence; sometimes by action on the case at common law, sometimes by statute, and sometimes by the ecclesiastical laws.

Defamation is also punishable by the spiritual courts. And by 27 Geo. 3. c. 44. suits in ecclesiastical courts for defamatory words shall be commenced within six months.

DEFENCE, in a legal signification, is applicable to a plea, and is that which the defendant ought to make immediately after the count or declaration, *viz.* that he defends all the wrong, force, and damages, where and when he ought, &c. *Terms de Ley.*

When the plaintiff hath stated his case in the declaration, it is incumbent on the defendant within a reasonable time to make his defence and to put in a plea, or else the plaintiff will at once recover judgment by default, or *nihil dicit* of the defendant. 3 *Black.* 296.

DEFENDANT, the person accused or sued.

DEGREE, a division of a circle, including a 360th part of its circumference. Every circle is supposed to be divided into 360 parts, called *degrees*, and each degree divided into 60 other parts, called minutes; each of these minutes being again divided into 60 seconds, each second into thirds, and each third into fourths, and so on.

DELFT, or Delf, (Ger. *Fayence, Unächtes Porzellän, Halbporzellan.* Du. *Delfs porcelyn.* Da. *Fajance, Uægte Porcelain.* Sw. *Faijance.* Fr. *Faience.* It. *Maiolica.* Sp. *Loza de Fayanza, China imitada.* Port. *Faiença, Louça vidrada.* Pol. *Farfurki,*) a kind of coarse porcelain, originally so called from Delft, the place of its manufacture. It is now little seen but in those tiles for dairies, called Dutch tiles.

DELIVERY. In every action brought for goods sold, it is incumbent upon the plaintiff to prove that such goods were also delivered, either to the party, his servant, or some person authorized to receive them.

In executing a deed also, a delivery becomes necessary, without which the deed is of no effect.

DEMAND, calling upon a man for any sum or sums of money, or any other thing due. By the several statutes of limitation, debts, claims, &c. are to be demanded and made in time, or they will be lost in law. There are two manners of demands, the one in deed, the other in law. Where there is a duty, which the law makes payable on demand, no demand need be made; but if there is no duty till demand, in such case there must be a demand to make the duty. 1 *Lit.* 432. Thus, upon a penalty the party need not make a demand; as if a man be bound to pay 20*l.* on such a day, and in default thereof to pay 40*l.*, the 40*l.* must be paid without demand. If a person release to another all demands, this is the best release the releasee can have,

as he is thereby excluded from all actions, duties, and seizures.

DEMURRAGE, is an allowance made to the master of a ship by the merchants, for being detained in port longer than the time appointed and agreed upon for his departure. The rate of this allowance is generally settled in the charter-party. It is now firmly established, that the claim of demurrage ceases so soon as the ship is cleared out and ready for sailing. *Jameson* v. *Lawrie, House of Lords*, 10 *Nov.* 1796.

A general ship took brandies on board under bills of lading, which allowed twenty days for delivery of the goods in London, and stipulated for 4*l.* per day *demurrage*. Afterwards, certain of the consignees choosing to have their goods bonded, the vessel could not make her delivery at the London docks until forty-six days after the twenty days. Some of the goods which were undermost, though demanded, could not be taken out till the upper tiers were cleared. It was held, that each of these consignees were liable for the 4*l.* per day for the forty-six days. *Leer* v. *Yates*, 4 *Taunt. R.* 387.

Consignee accepts goods under a bill of lading, on which is a memorandum that the ship is to be cleared in sixteen days, and 8*l.* per day demurrage to be paid after that time; the master upon delivery of the goods may recover damages against the consignee. *Jesson* v. *Jolly*, 4 *Taunt. R.* 52.

DEMURRER *at Law*, (in Latin *demorari in lege*, from the Fr. *demurer*,) is an issue upon matter of law.

A demurrer admits the matter of fact, since it refers the law arising on the fact to the judgment of the court; and therefore the fact is taken to be true on such demurrer, or otherwise the court has no foundation on which to make any judgment.

DEMY, or DEMI, a sort of white paper, so called by stationers, printers, &c.

DENARIUS, in Roman antiquity, the chief silver coin among the Romans, worth about $7\frac{3}{4}d.$ sterling. As a weight, it was the seventh part of a Roman ounce.

DENIER, a small French copper coin, of which twelve make a sol. There were two kinds of deniers, the one *tournois*, the other *parisis*, whereof the latter was worth a fourth part more than the former. The denier, now employed in French accounts, is equivalent to $\frac{1}{24}d.$ British. *See* MONIES, in the *Appendix*.

DENIZEN. A denizen is an alien-born, who has obtained letters patent, whereby he is constituted an English subject. A denizen is in a middle state, between an alien, and a natural-born or naturalized subject, partaking of the nature of both. He may take lands by purchase; or derive a title by descent through his parents or any ancestor, though they be aliens. By stat. 25 Geo. 2. c. 39. no natural-born subject shall derive a title through an alien parent or ancestor, unless he be born at the time of the death of the ancestor, who dies seised of the estate which he claims by descent; with this exception, that if a descent shall be cast upon a daughter of an alien, it shall be divested in favour of an after-born son; and in case of an after-born daughter or daughters only, all the sisters shall be coparceners. The children born previous to the denization of their parent cannot inherit by descent, whilst those of a foreigner naturalized are in every respect entitled to the same privileges as British subjects.

DENTALIUM, a kind of shell, used in medicine, when pulverized, as an alkali and absorbent. Its virtues have been long recorded, but the facility with which other articles possessing similar qualities are now obtained, have superseded it in pharmacy.

DENUNCIATION, a solemn publication or promulgation of any thing. All vessels of enemies are lawful prizes, after denunciation or proclamation of war.

DEPARTURE, in navigation, is the easting or westing of a ship in respect of the meridian it departed or sailed from; or it is the difference of longitude, either east or west, between the present meridian the ship is under, and that where the last reckoning or observation was made. This departure, any where but under the equator, must be counted according to the number of miles in a degree proper to the parallel the ship is under. The departure in plane and Mercator's sailing, is always represented by the base of a right-angled plane triangle, where the course is the angle opposite to it, and the distance sailed is the hypothenuse, the perpendicular or other leg being the difference of latitude. And then the theorem for finding it is always this: as radius is to the sine of the course, so is the distance sailed to the departure sought.

DEPOSIT, is a certain sum of money, advanced in part of payment, which is to be accounted for in the general balance; or where it is a security to perform a duty, to be re-delivered when such duty is performed.

When a person bids for the purchase of an article at any sale by auction, it is customary to make a per centage deposit upon the amount; in sales at the India House, also a deposit is required; subscribers to loans to the government also make a deposit; and in all cases where the purchase is not completed, or the condition performed, the deposit which is given as a pledge or security will be forfeited.

DERHEM, a small Persian weight, being one-fifth of a pound.

DESIGN, in manufactories, expresses

the figures with which the workman enriches his stuff, or silk, and which he copies after some painter, or draughtsman, as in diaper, damask, flowered silk, tapestry, carpets, &c. &c.

DETENTS, in clock-work, are those stops which, by being lifted up or let down, lock, or unlock, the clock in striking.

DETENT-WHEEL, or *hoop-wheel*, in a clock, that wheel which has a hoop almost round it, in which there is a vacancy at which the clock locks.

DIAL-PLATE, *for a watch*, is now generally made of small brass or copper plates, covered with white enamel when wet; the numerals are then marked, and enamel fixed by fire.

Dial-plates for clocks are also japanned in the manner of iron trays, and afterwards painted and marked with the numerals. At Birmingham, Wolverhampton, &c. this description of plates are made; many of them are exported.

DIAL, *Sun*, is a plane, upon which lines are described in such a manner, that the shadow of a wire, or of the upper edge of a plate stile, erected perpendicularly on the plane of the dial, and commonly called a *gnomon*, may show the true time of the day.

DIAMOND, (Ger. Du. Da. and Fr. *Diamant*. Sw. *Demant*, *Diamant*. It. Sp. and Port. *Diamante*. Rus. *Almas*. Pol. *Dyamant*. Lat. *Adamas*,) is a precious stone, which has been known from the remotest ages. When pure, it is perfectly transparent like crystal, but much more brilliant. Its figure varies considerably; but most commonly it is crystallized in the form of a six-sided prism, terminated by a six-sided pyramid. It is the hardest of all bodies; the best-tempered steel makes no impression on it. Diamond-powder can only be obtained by grinding one diamond against another. Its specific gravity is rather more than 3.5. It is a non-conductor of electricity.

Diamond-mines are found only in the East Indies; and in Brazil, in South America. In the kingdoms of Golconda, Visapour, Bengal, and the island of Borneo, there are four mines; or rather two mines and two rivers, whence diamonds are drawn. 1. The mine of Raolconda, in the province of Carnatic, five days' journey from Golconda, and eight from Visapour, which has been discovered about 200 years. 2. That of Gani, or Coolour, seven days' journey from Golconda eastwardly. It was discovered 140 years ago by a peasant, who, digging in the ground, found a natural fragment of twenty-five carats. 3. That of Soumelpour, a large town in the kingdom of Bengal, near the diamond-mine. This is the most ancient of all, and should rather be called that of Goual, which is the name of the river, in the sand whereof these stones are found. Lastly, the fourth mine, or rather the second river, is that of Succudan, in the island of Borneo.

Diamonds are cut and polished by means of a mill, which turns a wheel of soft iron, sprinkled over with diamond-dust mixed with oil of olives. The same dust, well ground and diluted with water and vinegar, is used in the sawing of diamonds; which is performed with an iron or brass wire, as fine as a hair.

The *first water* in diamonds, means the greatest purity and perfection of their complexion, which ought to be that of the purest water. When diamonds fall short of this perfection, they are said to be of the second or third water, &c. till the stone may be properly called a coloured one: for it would be an impropriety to speak of an imperfectly coloured diamond, or one that has other defects, as a stone of a bad water only.

The mean specific gravity of the Brazil diamonds is said to be 3513; of East India diamonds, 3519; the mean of both, 3517. Therefore, if any thing is to be concluded as to the specific gravity of the diamond, it is, that it is to water as 3517 to 1000.

Suppose the value of a rough diamond to be settled at 2*l.* per carat at a medium; then to find the value of diamonds of greater weights, multiply the square of their weight by 2, and the product is the value required: *e. g.* To find the value of a rough diamond of two carats: $2 \times 2 = 4$, the square of the weight; which multiplied by 2, gives 8*l.* the true value of a rough diamond of two carats. For finding the value of manufactured diamonds, suppose half their weight to be lost in manufacturing them; and therefore, to find their value, we must multiply the square of double their weight by 2, which will give their true value in pounds. Then, to find the value of a wrought diamond weighing two carats, we find the square of double their weight, viz. $4 \times 4 = 16$; then $16 \times 2 = 32$. So that the true value of a wrought diamond of two carats is 32*l.*

The largest diamond ever known, and belonging to the crown of Portugal, was found in Brazil, and uncut was said to weigh 1680 carats; and was valued at 24 millions sterling,

Diamond, brilliant, is that which is cut in faces both at top, and bottom; and whose table, or principal face, at top, is flat. To make a complete square brilliant, if the rough diamond is not found of a square figure, it must be made so; and if the work is perfectly executed, the length of the axis will be equal to the side of the square base of the pyramid. Jewellers then form the table, and collet, by dividing the block or length of the axis into 18 parts. To render a brilliant perfect, each corner of the table-diamond must be shortened by 1-20th of its original. The corner ribs of the upper sides

must be flattened, or run towards the centre of the table 1-6th less than the sides; the lower part, which terminates in the girdle, must be 1-8th of one side of the girdle; and each corner rib of the under side must be flattened at the top to answer the above flattening at the girdle, and at bottom must be 1-4th of each side of the collet. The parts of the small work which complete the brilliant, or the star and skill facets, are of a triangular figure. Both of these partake equally of the depth of the upper sides from the table to the girdle, and meet in the middle of each side of the table and girdle, as also at the corners. Thus they produce regular lozenges on the four upper sides and corners of the stone. The triangular facets, on the under sides, joining to the girdle, must be half as deep again as the above facets, to answer to the collet part. The stone here described is said to be a full-substanced brilliant. If the stone is thicker than in the proportion here mentioned, it is said to be an over-weighted brilliant. If the thickness is less than in this proportion, it is called a spread brilliant. The beauty of brilliants is diminished from their being either over-weighted, or spread. The true proportion of the axis or depth of the stone to its side is as 2 to 3. Brilliants are distinguished into square, round, oval, and drops, from the figure of their respective girdles.

Diamond, Cornish, a name given by many people to the crystals found in digging the mines of tin in Cornwall. These crystals are of the nature of the Kerry-stone of Ireland, but somewhat inferior to it. They are usually bright and clear, except towards the root, where they are coarse and foul, or whitish. They are usually found in the common form of an hexangular column, terminated at each end by an hexangular pyramid.

Diamond, rose, is one that is quite flat underneath, with its upper part cut in many little faces, usually triangles, the uppermost of which terminate in a point, In rose-diamonds, the depth of the stone from the base to the point must be half the breadth of the diameter of the base of the stone. The diameter of the crown must be two-thirds of the diameter of the base. The perpendicular, from the base to the crown, must be three-fifths of the diameter of the stone. The lozenges which appear in all circular rose-diamonds, will be equally divided by the ribs that form the crown; and the upper angles or facets will terminate in the extreme point of the stone, and the lower in the base or girdle.

Diamonds and precious stones may be imported duty-free, saving the duty granted to the East India Company on diamonds imported from any place within the limits of their charter. 6 Geo. 2. c. 7. s. 1, 2.

DIAMOND, *in the glass-trade,* an instrument used for squaring the large plates or pieces; and among glaziers for cutting their glass. These diamonds are differently managed. That used for large pieces, as looking-glasses, is set in an iron ferule, about two inches long, and a quarter of an inch in diameter: the cavity of the ferule being filled up with lead, to keep the diamond firm: there is also a handle of box or ebony fitted to the ferule, and by which it is held.

DIAPER, (Ger. *Drell.* Du. *Drel.* Da. *Drejel.* Sw. *Drell, Dräll.* Fr. *Linge ouvré.* It. *Tela tessuta a opere.* Sp. *Manteles alemaniscas.* Rus. *Salfetotsschnoe.* Pol. *Cynkowate plotno*) a sort of fine flowered linen commonly used in table-cloths, napkins, &c. brought to the finest perfection in the manufactories in the north of Ireland, in Germany, and now in Scotland.

DICE, (Ger. *Würfel.* Du. *Taarlingen.* Da. *Terninger.* Sw. *Tärningar.* Fr. *Dés (à jouer.)* It. *Dadi.* Sp. and Port. *Dados.* Rus. *Kosti.* Pol. *Kostki,*) amongst gamesters, cubical pieces of bone or ivory, marked with dots on each side of their faces, from one to six, according to the number of faces. Sharpers have several ways of falsifying dice: 1. By sticking a hog's bristle in them, so as to make them run high or low, as they please. 2. By drilling and loading them with quicksilver; which cheat is found out by holding them gently by two diagonal corners; for if false, the heavy sides will always turn down. 3. By filing and rounding them. There is a duty of 1*l.* on every pair of dice. *See* GAMING.

DICKER, is the quantity or number of ten hides.

DIE, the stamp used in coinage, and the mould by which the faces of buttons, &c. are formed.

DIGESTER, in chemistry, a strong vessel, made of copper or iron, and fitted with a close cover and screws, so as to remain perfectly tight in a considerable degree of heat, whilst water, common air, and the subject of the operation, are contained in it. The cover of the digester should always be provided with a valve to let out a part of the steam, otherwise the vessel will certainly burst, by which it may prove fatal to the by-standers. Of all chemical vessels hitherto invented, the digester seems best calculated for increasing the action of the menstruums. Water, confined in a digester, is susceptible of so much heat as to melt lead; and it is frequently found to melt the solder of lead and tin, with which the copper vessel was held together: hence appears the necessity of using hard solder, made of spelter, or silver and brass, for this purpose; otherwise, the digester cannot contain the water, when much heated, without melting in the joints. In this vessel, fresh ox-bone will be so digested, in the space of a quarter

of an hour, as to become soft and tender, and capable of being cut with a knife; and the water, in which it was boiled, turned into a hard jelly, and a large cake of fat on its surface, when all is properly cooled.

DIGIT, a measure taken from the breadth of the finger. It is properly 3-4ths of an inch, and contains the measure of four barley-corns laid breadthwise.

DIMITY, (Ger. *Bombasin*. Du. *Bomexyn*. Da. *Kipper*. Sw. *Kipper bomull*. Fr. *Basin*. It. *Dobletto*. Sp. *Dimite*. Port. *Fustaõ*. Lat. *Xylinum*,) a species of cross-barred stuff entirely composed of cotton, similar in fabric to fustian. Dimity has usually several longitudinal stripes or cords, which in the weaving are raised just above the surface of the piece. These cords are generally about the thickness of small twine, though they are occasionally thinner and sometimes thicker.

Single-corded dimities, are those whose stripes are narrow and round; in the *broad striped dimities* they are flatter and broader.

The manufacture of dimities was first established at Lyons, about 1580, and for several years the French supplied us with the article; but since the introduction of the manufacture into Manchester, we have had no occasion to seek abroad for what we have in such abundance and perfection at home.

Dimities of every description are imported from the East Indies, and immense quantities are frequently put up at the Company's sales.

DINAR, a Persian word, signifying sometimes all sorts of gold coins, and at other times a small imaginary specie, worth 8-24ths sterling.

DINAR CHERAY, a Persian weight of the value of a dollar, or golden ducat.

DING, a general name for all weights at Siam. There are scarcely any others here separate from the coins, though this is only to be understood of the silver ones, gold having no currency here as money, but is bought and sold as a merchandise, and is worth twelve times as much as silver. The weights of Siam, that have the same name as its money, are the cali or schang, the mayon, the foüan, sompaye, paye, and clam.

DIPPING, among miners, signifies the interruption, or breaking off, of the veins of ore; an accident that gives them a great deal of trouble before they can discover the ore again.

DISCOUNT, in commerce, a term used among traders, merchants, and bankers. It is used by the two former on occasion of their buying commodities on the usual time of credit, with a condition that the seller shall allow the buyer a certain discount at the rate of so much per cent. per annum, for the time for which the credit is generally given, upon condition that the buyer pays ready money for such commodities, instead of taking the credit. And with bankers, *discount* is the interest which they deduct from bills of exchange and promissory notes when they give cash for them, taking the *discount* for as many days as such bills and notes have to run, before they become due, at the rate of five per cent. per annum. In Ireland, the legal interest or discount is 6 per cent. per annum, yet the bank of Ireland discounts bills and notes at 5 per cent. per annum. In discount consists one of the principal profits of banking.

DISHONOUR, an expression made use of when bills of exchange, &c. are refused acceptance or payment. Such bills, &c. are frequently taken up under an *act of honour*, by any third person, to save the credit of some of the parties concerned, whereby he who takes up such bills, &c. under this *act of honour*, properly done by a notary public, and regular notice thereof served immediately upon all the parties as drawer, acceptor, and indorsors, holds all bound to him for reimbursement. *See* BILLS of EXCHANGE.

DISTAFF, an instrument about which flax is tied in order to be spun.

DISTILLATION. The objects of distillation, considered as a trade, are chiefly spirituous liquors, and those waters impregnated with the essential oils of plants, commonly called simple distilled waters. The distillery of compound spirits and waters is reckoned a different branch of business, and those who deal in that way are commonly called rectifiers. This difference, however, though it exists amongst commercial people, is not at all founded on the nature of the thing; compound spirits being made, and simple spirits being rectified, by the very same operations by which they are first distilled, or at least with very trifling alterations.

Distillation is therefore the process of evaporating the volatile parts of bodies by means of heat, performed in vessels adapted to condense or collect the substance evaporated.

Distillation is carried on in an apparatus composed of three parts: the alembic, or boiler in which the substance is heated; the head, or capital, a dome-shaped continuation of the former, in which the vapours are collected; and a tube or worm, spirally disposed, and passing through a tub of water, in which the distilled vapour is condensed into a liquid.

The chief objects to which this process is applied, are to obtain the spirit in a state of purity, which is formed during the fermentation, either of vinous liquors, or of malt; and the aromatic principles of plants diffused in water.

We shall give a general description of the processes required for each of the above purposes, as distillation forms no inconsiderable feature in commerce, and there are some peculiarities to be attended to, distinctively.

In the distillation of vinous liquors, the product of which is termed brandy, the alembic is first filled to about five-sixths of its capacity with wine, and the fire kindled beneath it. When the wine nearly boils, the capital is put on, and all the joinings luted, or stopped up with a mixture of clay and ashes. A stream of brandy soon pours out from the lower end of the worm-pipe, into a cask set to receive it. The fire at first must be slow, otherwise the wine boils up into the capital, and part passes the worm and fouls the spirit. What first comes over is the richest in flavour, and the strongest spirit; but the liquor gradually decreases in strength as the process continues, and at last contains so little spirit, as to be almost devoid of taste. When this happens, the fire is put out, and the contents left in the alembic are thrown away as useless: these may be known to be exhausted of spirit, by taking a little of the distilled liquor then running over, putting it on the hot part of the capital, and applying a lighted stick; if the vapour does not catch fire, the liquor is little else than water.

The *empyreuma*, or burnt taste, is a frequent defect in all distilled liquors, and very notably so in the common brandies. This has been attributed, in general, to the burning of some of the vegetable particles contained in the liquid; but others have supposed it to be owing to the decomposition of the *malic acid* existing in it. The addition of chalk, alkali, or lime-water to the wine, remedies this very effectually, and renders the spirit much purer; but from some cause, not easy to understand, it remarkably diminishes the total quantity of product.

Another substance which gives a strong, and generally a very unpleasant, flavour to brandy, is an essential oil, of a peculiar nature, found most abundantly in the richest and fullest-bodied wines; which is altered by the process, so as to become highly nauseous. When the brandy is much loaded with this oil, it is usual to add a sufficient quantity of water, and re-distil it.

The greater part of the common spirituous liquors consumed in this, and other, countries of Europe, where the vine is not grown for the purpose, is prepared from fermented corn, of one kind or other, mixed occasionally with molasses, and sometimes with carrots, and other saccharine vegetables. The spirit thus procured is rectified for sale, and termed *whisky;* or is re-distilled with juniper-berries, turpentine, and many other substances, to give it the desired flavour, and appearance.

It is not necessary to malt grain in order to make it ferment sufficiently to yield a good spirit; and not only barley, but any other grain will answer the same purpose. In this country, a mixture of barley and malt is generally preferred; in Holland, the finest *geneva* is made from wheat and malt, but more commonly from malt and rye, which latter yields more spirit than wheat. Buck-wheat has lately been much cultivated in England for the purpose of distillation, being found to yield a very large quantity of spirit.

The following is the process usually adopted by distillers. A quantity of rye-flour, coarsely ground, is mixed with a third or fourth part of malt, and put into the fermenting tub with cold water, stirring it well with the hands, to prevent the meal from clotting. Sufficient water is then added of a blood warmth; after which the ferment is mixed with the whole, which is composed of the yeast of former operations, dried and kept for a certain length of time. If the weather be favourable, and the heat well regulated, the fermentation begins in six hours, and terminates on the third day, when the liquor becomes transparent, and assumes a hot pungent taste. The distillation is then proceeded upon immediately, before the liquor turns sour, which is avoided as much as possible. The distillation is conducted very slowly, that the spirit may be as little as possible impregnated with the oil of the grain. The first spirit is then rectified by a second distillation, and is termed, when pure, *spirit of wine;* or it is distilled the second time from juniper-berries, when it is called *geneva*. In some instances, the juniper-berries are mixed with the fermenting materials, and one distillation suffices. In the common gin of this country, the flavour of the juniper is imitated by turpentine.

The distillers in Scotland generally proceed in the following manner:—The grain, if barley be used, is generally first malted in the usual manner, and dried with peat, the smoke of which gives that peculiar flavour found in *whisky*, the spirit distilled from it. It is then ground to coarse powder, mashed, and the infusion fermented with yeast, in large tuns. The fermented liquor, termed *wash*, is then fit for the first distillation.

Rum is prepared by distilling a fermented liquor made from molasses, and other refuse saccharine matter, which is procured during the manufacture of sugar in the West Indies. The following is the process employed in Jamaica:—the materials for fermentation are, molasses, scummings of the hot cane-juice, or sometimes raw cane liquor, lees, or *dunder* as it is called, and water. The dunder answers the purpose of yeast, and is usually prepared by a separate fermentation of cane, sweets, and water. The materials being mixed in due proportions, (which are about equal parts of scummings, dunder, and water,) the fermentation soon begins, and in twenty-four hours the liquor is fit for the first charge of molasses, which

is added in the proportion of three gallons for every hundred gallons of the liquor. Another charge is added in a day or two, or afterwards. The heat in fermentation should not exceed ninety, or ninety-four degrees. The fermentation falls in six or eight days, and the liquor grows fine and fit for distillation. In about two hours after lighting the fire the spirit begins to run (in a still of 1200 gallons), and it is collected as long as it is inflammable. The first spirit is called, in the country, *low wines*, and it is rectified in a smaller still to the Jamaica proof, which is that in which olive oil will sink.

In the distillation of *aromatic waters*, no further process is required than to put the vegetable substance in the alembic, with sufficient water to prevent its burning throughout the operation. The fire is then applied, which should be only just sufficiently powerful to keep the liquor at the boiling point. The distilled water is collected as long as it retains any flavour. Where a water-bath is used for the reception of the alembic, (which, however, is tedious, and seldom if ever necessary,) all danger of excess of heat is avoided, but it is often requisite to increase the heat of the bath, by adding salt to the water.

A considerable quantity of essential oil passes over from many vegetables, which may be separated by letting the water stand for a few hours, and then passing it gently through a tunnel.

Distilled spirituous waters are obtained in the same way, only a proportionate quantity of spirit must be put into the alembic previously to the application of the fire.

DISTILLER, he who makes distillations, and commonly a tradesman who makes spirits from malt, &c.

Distillers may be divided into three classes; viz. 1st, Malt. 2d, Compound-distillers, who add juniper-berries, aniseeds, or other ingredients to the malt-spirits. 3d, The distillers of molasses or treacle.

Every distiller must take out a licence at the Excise-office, and renew the same annually.

Distillers or their servants are prohibited selling any spirituous liquors to be drunk in their shops, houses, or other places belonging thereto. They are to make entries at the Excise-office, to permit gaugers, on request, to enter and take accounts of commodities made or making; are not to have any stills in their custody containing less than 100 gallons; nor wash-stills, containing less than 400 gallons; nor low wine-stills, containing less than 100 gallons; nor private pipes, &c. under penalties by the laws of Excise. The provisions on this subject are much too numerous to be inserted here, being only for the purpose of preventing frauds on the revenue. Suffice it, therefore, to notice, that the last statute on the subject is 57 Geo. 3. c. 128., by which the whole process, so far as respects the revenue, is regulated.

DISTRESS is of two kinds, viz. Distress for trespass, as cattle doing damage upon the premises of another, or distress for rent, which is a remedy given by law to a landlord, to seize the goods of his tenant upon the premises, to sell the same within a certain period, and to re-imburse himself for the rent in arrear, and the charges consequent upon the distress.

Rent in arrear may be distrained for, though the lease whereon it is reserved be determined, so as that such distress be made within six months after such lease has expired, and during the continuance of the landlord's title and the tenant's possession.

A distress may be taken of all goods and chattels personal found on the demised premises, whether they be the property of a tenant, or of a stranger; but money cannot be distrained unless in a bag; nor dogs, deer, conies, &c.; nor things fixed to the freehold; as, chimney-pieces, anvils, millstones, &c.

Neither can any thing be distrained that is in the actual use of another; as, a horse which a man is riding, the tools he is working with; the goods of a carrier are also privileged; and the tools and implements of a man's trade, as, the books of a scholar, the axe of a carpenter, the loom of a weaver, &c.: but it has been recently held, that the implements of a man's trade are no longer privileged than whilst he is actually using them, and so long as there is any other distress upon the premises.

Wearing apparel cannot be distrained upon the person of the owner.

When distress is made, notice of the place where the goods are lodged shall, within one week after the lodging thereof, be given to the tenant, or left at the place of his abode.

Although it is a general rule of law, that the landlord may distrain every thing he finds on the premises; there are nevertheless several exceptions for the benefit of trade; as, cloth in a taylor's shop, yarn in a weaver's, or a horse in a smith's.

Every distress for rent must be made in the day-time, and on the day after the rent becomes due, and no distress can be made after the arrears are tendered.

Where there is not a sufficient distress on the premises, or the landlord mistakes in the value of the things distrained, and takes too little, he or his executors or administrators may take a second distress.

No outer door can be broken open to make a distress: landlords may follow the goods of a tenant fraudulently removing to prevent distress, within 30 days next after

such goods shall be so removed away; and the tenant so removing these shall forfeit double the value.

Upon oath, of a reasonable suspicion that any goods are concealed in any house or place fastened, to prevent a distress, the landlord, with the assistance of a peace-officer, or other officer of the parish, may break open, in the day-time, the place where such goods are suspected to be concealed, and seize such goods for rent in arrear, in the same manner as if they had been in any open field or place.

How to make a distress for Rent in Arrear, and of the Sale of the same.

The landlord himself, or any other person, as his bailiff, by an authority from him in writing, may make the distress. The warrant or authority may be in the following form:

To Mr. A. B. my bailiff, greeting. Distrain the goods and chattels of C. D. (the tenant), in the house he now dwells in, or on the premises in his possession, situated in ———, in the county of ———, for ——— pounds, being ——— rent due to me for the same, at ——— day last: and for your so doing, this shall be your sufficient warrant and authority. Dated the ——— day of ———.

J. C.

Being legally authorized to distrain, you enter on the premises, and make a seizure of the distress; if it be made in a house, seize a chair or other piece of furniture, and say, "I seize this chair in the name of "all the goods in this house, for the sum of "—— pounds, being —— rent due to me, "or to J. C. the landlord, at ——— last "past, by virtue of an authority from the "said J. C. for that purpose (provided you "distrain as bailiff)."

Then take an inventory of so many goods as you judge will be sufficient to cover the rent distrained for, as also the charges of the distress, and make a copy thereof as follows:

An Inventory of the several goods and chattels distrained by me, A. B. this —— day of ———, in the year of our Lord ———, in the houses, outhouses, and lands (as the case is) of C. D. situate in ———, in the county of ———, by the authority and on the behalf of J. C. (provided you distrain as bailiff), the sum of ——— pounds, being ——— rent due to me, or to the said J. C. (as the case is) at ——— last.

In the dwelling-house, two tables, two chairs, &c.

In the barn, six hurdles, and so on.

At the bottom of the inventory subscribe the following notice to the tenant:

Mr. C. B.

Take Notice, That I have this day distrained (or that as bailiff to J. C. your landlord, I have this day distrained), on the premises above-mentioned, the several goods and chattels specified in the above inventory, for the sum of ——— pounds, being ——— rent due to me, or to the said J. C., at ——— last, for the said premises; and that unless you pay the said rent, with the charges of distraining for the same, within five days from the date hereof, the said goods and chattels will be appraised and sold according to law. Given under my hand this —— day of ——, in the year of our Lord ——.

W. T.

A true copy of the above inventory and notice must either be given to the tenant himself, or left at his house; or, if there be no house, on the most conspicuous place on the premises; and it is proper to have a person with you when you make the distress, and also when you serve the inventory and notice, to examine the same, and to attest the regularity of the proceedings.

The goods may be removed immediately, and in the notice the tenant may be acquainted whither they are removed; but it is now most usual to put a man into possession, and let him remain on the premises till you are entitled by law to sell them, which is on the sixth day, inclusive, after the distress made, (that is,) goods distrained on the Saturday may be removed and sold on the Thursday afternoon following.

If the tenant require further time for the payment of the rent, and the landlord choose to allow it, it is best to take a memorandum, in writing, from the tenant, "That he does consent that he should con-"tinue in possession of his goods and chat-"tels in his house, or upon the premises, "for such a time longer, you having agreed "not to sell them for that time, and that he "will pay the expenses of keeping posses-"sion." This memorandum prevents the landlord from being deemed a trespasser, which, after the expiration of five days, he otherwise would be, and might have an action of trespass brought against him for staying longer upon the premises.

If there is no allowance of, or agreement for, further time, search at the expiration of the five days at the sheriff's office, to see if the goods have been replevied; if not, and the rent and charges still remain unpaid, send for a constable and two sworn appraisers, who, having viewed the goods, the former must administer to the latter the following oath:

You, and each of you, shall and will well and truly appraise the goods and chattels mentioned in this inventory (holding it in his hand), according to the best of your judgment—So help you God.

Then indorse on the inventory the following:

MEMORANDUM, that on the —— day of ——, in the year of our Lord ——, A. B. of, &c. and C. D. of, &c. two sworn appraisers, were sworn upon the Holy Evangelists, by me, J. K. of, &c. constable, well and truly to appraise the goods and chattels mentioned in this inventory, according to the best of their judgment. As witness my hand,

J. K. Constable.

Present at the time of swearing the said A. B. and C. D. as above, and witnesses thereto, L. M.
O. P.

After the appraisers have valued the goods, continue the indorsement on the inventory as follows:

WE, the above-named A. B. and C. D. being sworn upon the Holy Evangelists, by J. K., the constable above-named, well and truly to appraise the goods and chattels mentioned in this inventory, according to the best of our judgment, and having viewed the said goods and chattels, do appraise the same at the sum of —— pounds. As witness our hands this —— day of ——, in the year of our Lord ——

A. B. }
C. D. } Sworn Appraisers.

By 11 Geo. 2. c. 19. a remedy was given to landlords to recover possession of deserted premises after twelve months, before justices of the peace, where nothing was left on which to take distress.

By 57 Geo. 3. c. 52. further relief was given on this subject; and by the latter statute, the broker who appraises the goods and distrains for the landlord, where the sum does not exceed 20*l.*, is laid under specific restrictions as to his charges, to be cognizable before justices of the peace. *See ante, title* BROKER; and 3 *Dick. Pract. Expos.* 226.

DISTRIBUTION, in legal language, is generally applicable to the disposition which the law makes of the estates of intestates. This differs in the two provinces, into which the ecclesiastical polity of the realm is divided, viz. Canterbury, and York.—For the particulars of these customs, *see* 2 *Burn's Ecc. Law*, 746. *and* 2 *Black. Com.* 515.

DISTRIBUTION, in printing, the taking of a form asunder, separating the letters, and dispersing them in the cases again, each in its proper box.

DIVIDEND *of Stock*, is a share or proportion of the interest of stocks erected in public funds, as the South Sea, &c. divided among, and paid to, the proprietors half yearly. *See* STOCKS.

DIVISION, in arithmetic, the separation or parting of any number or quantity given, into any parts assigned.

DIVISION, in the sea language, the third part of a fleet of men of war, and sometimes the ninth part: which last happens when the fleet is divided into three squadrons; for then each squadron is distributed into three divisions.

DOCK, in maritime affairs, is an artificial bason, by the side of a harbour, made convenient either for the building or repairing of ships. It is of two sorts: 1. *Dry dock*, where the water is kept out by great floodgates, till the ship is built or repaired, when the gates are opened, and the water let in to float and launch her. 2. *Wet docks*, a place into which the ship may be hauled, out of the tide's way, and so dock herself, or sink for herself a place to lie in.

The *West India Docks*, in the Isle of Dogs. These immense works are intended to receive the whole of the ships in the West India trade; and may be accounted among the prominent curiosities of British commerce. They were undertaken according to an act of parliament, passed 1799, entitled "The West India Dock Act." The entrances to them are at Blackwall and Limehouse-hole; their scite is wholly on the Isle of Dogs; and upon the wharfs and quays adjoining them, all the West India ships are to unload and load their cargoes. The northern dock for unloading inwards covers a space of thirty acres, and is capable of containing from 2 to 300 sail of ships.

The smaller dock, situated to the south of the other, covers an area of 24 acres, and is devoted solely to the business of loading outwards. Both docks are surrounded by a chain of immense warehouses. The proprietors of this capital improvement are styled "*The West India Dock Company.*" They commenced their undertaking with a subscription of 500,000*l.* and are empowered to increase it to 600,000*l.* if needful. They are reimbursed by a tonnage of 6*s.* upon the burthen of every ship which enters the docks; for wharfage, landing, heaving, weighing, cooperage, and warehouse-room, they are entitled to certain rates upon all goods that are discharged, such as 8*d.* per cwt. upon sugar; 1*d.* per gallon upon rum; 1*s.* 6*d.* per cwt. upon coffee; 2*s.* 6*d.* per cwt. upon cotton-wool, &c.

The Docks at Wapping, called also the *London Docks*. This important improvement is made in the angle formed by the Thames between Hermitage dock and Shadwell dock. One immense dock, called St. George's dock, covers the space extending from Virginia-street, almost to Old Gravel-lane, in one direction, and in the other from Artichoke-lane to the south side of Pennington-street. This dock alone is capable of holding 200 ships, with room for shifting.

Another dock, called Shadwell Dock, adjoining to the other, will hold about fifty ships. The entrance to the docks is from

the Thames by three basons, capable of containing an immense quantity of small craft: and the inlets from the Thames into the basons are at the Old Hermitage dock, at the Old Wapping dock, and Old Shadwell dock.

The capital of the company is 1,200,000*l.* sterling. The warehouses for the reception of tobacco are situated at the eastern extremity: they are two in number. The largest is 762 feet long, and 160 feet wide, equally divided by a strong partition-wall with double iron doors: the smallest is 250 feet by 200. Both of them consist of a ground-floor and vaults; the first is to be wholly applied to the reception of tobacco; the cellars in the smaller warehouses are appropriated to the housing of wine. They are solely under the care and controul of the officers of the customs: the proprietors of the docks having nothing more to do with them than to receive the rent.

Besides these docks, those of *Liverpool, Hull, Dublin,* &c. are of very great consequence.

DOCK-YARDS, are magazines of all sorts of naval stores. The principal in England are those of Chatham, Portsmouth, Plymouth, Woolwich, Deptford, and Sheerness. In time of peace, ships of war are laid in these docks: those of the first rate mostly at Chatham, where, and at other yards, they receive, from time to time, such repairs as are necessary. These yards are generally supplied from the northern parts of Europe with hemp, pitch, tar, resin, &c. but the best masts, particularly those of the larger size, are brought from America.

DOGGER, a small ship built after the Dutch fashion, with a narrow stern, and commonly with but one mast.

DOILEY, a kind of woollen stuff, so called, as it is supposed, from the name of the first maker. Doiley is also applied to small, square, folded cloths, placed on dinner-tables with the wine glasses, after the removal of the dinner cloth; and which, probably, received that appellation from a similar fortuitous source.

DOLLAR, a foreign coin, worth about 4*s.* 6*d.* sterling. *See* MONIES, in the *Appendix.*

DONATIO MORTIS CAUSA, a death-bed disposition of property, so called, *viz.* when a person in his last sickness, apprehending his dissolution near, delivers or causes to be delivered to another the possession of any personal goods, (under which have been included bonds, and bills drawn by the deceased upon his banker,) to keep in case of his decease. This gift, if the donor dies, needs not the assent of his executor; yet it shall not prevail against creditors; and is accompanied with this implied trust, that if the donor lives, the property thereof shall revert to himself, being only given in contemplation of death, or *mortis causa. 2 Black. Com.* 514.

DOOSOOTIES, a species of East India calico.

DOREAS, a sort of fine India muslin.

DOTTES, an Indian calico or muslin.

DOUBLOON, a Spanish and Portuguese coin, being the double of a pistole, worth about 1*l.* 8*s.* 8*d.* sterling. *See* MONIES, *Appendix.*

DOUDOU, a copper money, current in some parts of the East Indies, particularly at Surate and Pondicherry: fourteen of them make a gold fanon of those places, equal to about six sols tournois, or 3*d.* sterling. *Id.*

DOVE-TAILING, in carpentry, is the manner of fastening boards together by letting one piece into another, in the form of the tail of a dove. The dove-tail is the strongest of the assemblages or jointings, because the tenon, or piece of wood which is put into the other, goes widening to the extreme, so that it cannot be drawn out again, because the extreme or tip is larger than the hole.

DOWLAS, a sort of coarse linen cloth, manufactured principally in the north of Ireland, Lancashire, &c.

DOWN, (Ger. *Dunen, Flaumfedern.* Du. *Dons.* Da. *Duun.* Sw. *Dun, Tjun.* Fr. *Duvet.* It. *Penna matta, Piumini.* Sp. *Flojel, Plumazo.* Port. *Frouxel.* Rus. *Puch.* Pol. *Puchy.* Lat. *Plumae,*) the fine feathers from the breasts of several birds, particularly that of the duck kind. That of the eider duck is the most valuable. These birds pluck it from their breasts and line their nests with it. Three pounds of this down may be compressed into a space scarcely larger than one's fist, yet is afterwards so dilatable as to fill a quilt five feet square. That found in the nest is most valued, and termed *live down;* it is infinitely more elastic than that plucked from the dead bird, which is little esteemed in Iceland. The best sort is sold at 45 fish per pound when cleansed, and at 16 when not cleansed. There are generally exported every year, on the Iceland company's account, 1500 to 2000lb. weight of both sorts, exclusive of what is privately exported by foreigners.

DOZEN, the number of twelve. Bottled wine, porter, cider, &c. are usually sold by the dozen; it is customary to give thirteen bottles to the dozen of Portuguese and Spanish wines; but of Burgundy and fine French wines only twelve.

DRAB, is a sort of thick woollen cloth, woven purposely for great coats, and it is sometimes double-milled. This kind of cloth is manufactured in Yorkshire, and also in many parts of the west of England in the greatest perfection. *See* CLOTH.

DRABLER, in the sea language, a small sail in a ship, which is the same to a bonnet, as a bonnet is to a course, and is only used

when the course and bonnet are too shoal to clothe the mast.

DRABS, in the salt-works, a kind of wooden boxes for holding the salt when taken out of the boiling-pan. The bottoms of them are made shelving or inclining forwards, that the briny moisture of the salt may drain off.

DRACHM, a Grecian coin of the value of seven-pence three farthings. *Drachm* is also a weight used by apothecaries, &c. containing just sixty grains three scruples, the eighth part of an ounce.

DRAFT or DRAUGHT, in commerce, called also *cloff* or *clough*, is a small allowance on goods sold by weight, made by the king to the importer, or by the seller to the buyer, that the weight may hold out when the goods are weighed again. The king allows one pound draft for goods weighing less than one hundred weight; two pounds for goods weighing between one and two hundred weight; three pounds for goods weighing between two and three hundred weight; four pounds, from three to ten hundred weight; seven pounds, from ten to eighteen hundred weight; nine pounds, from eighteen to thirty hundred weight or upwards.

Draft or *Draught* is also a common colloquial term for a bill of exchange.

DRAG, in sea language, is a machine consisting of a sharp square iron ring, encircled with a net, and commonly used to take the wheel off from the platform or bottom of the decks.

DRAGOMAN, or DROGMAN, a term of general use through the East for an interpreter, whose office is to facilitate commerce between the orientals and occidentals. These are kept by the ambassadors of Christian nations residing at the Porte for this purpose.

DRAGON'S BLOOD, (GER. *Draehenblut*. DU. *Draakenbloed*. DA. *Drageblod*. SW. *Drakblod*. FR. *Sang-dragon*. IT. *Sangue di drago*. SP. *Sangre de drago*. PORT. *Sangue de drago*. RUS. *Drakonowa Krow*. POL. *Smocza Krew*. LAT. *Sanguis draconis*,) a gummy resinous substance so called, which is brought from the East Indies, either in oval drops wrapped up in flag leaves, or in large masses composed of smaller tears. It is obtained from the *palmijuncus draco*, the *calamus rotang*, the *dracena draco*, the *pterocarpus draco*, and several other vegetables. It is at present very little used in medicine. A solution of dragon's blood in spirit of wine is used for staining marble, to which it gives a red tinge, which penetrates more or less deeply, according to the heat of the marble during the time of application. But as it spreads at the same time that it sinks deep, for fine designs the marble should be cold. M. du Fay says, that by adding pitch to this solution the colour may be rendered deeper.

DRAM, *See* DRACHM.

DRAPER, a name given to a person who sells either linen or woollen cloth, as *Linen-draper*, *Woollen-draper*, &c.

DRAPERY, in commerce, signifies linen or woollen cloth, &c. and in sculpture or painting, the representation of the clothing of human figures, and also hangings, tapestry, curtains, and most other things that are not figures or landscapes.

DRAW, in the sea language. A ship is said to draw so much water, according to the number of feet she sinks into it; so that if a ship sinks into the water 18 feet perpendicularly, she is said to draw 18 feet water; and according as she draws more or less, she is said to be of greater or less draught.

DRAWBACK, in commerce, certain duties, either of the customs or of the excise, allowed upon the exportation of some of our manufactures, or upon certain merchandise that has paid duty upon importation. The oaths of the merchants importing, and exporting, are required to obtain the drawback on foreign goods, affirming the truth of the officer's certificate of the entry, and the due payment of the duties; and these may be made by the agent of any corporation or company, or by the known servant of any merchant, usually employed in making his entries and paying his customs.

In regard to foreign goods entered outwards, if less quantity or value is fraudulently shipped out than is expressed in the exporter's certificate, the goods mentioned in it, or their value, are forfeited, and no drawback allowed. Foreign goods exported by certificate, in order to obtain the drawback, if they are not shipped or exported, or if they are relanded, in Great Britain, unless in case of distress, to save them from perishing, are to lose the benefit of the drawback, and are forfeited, all their value, with the vessels, horses, carriages, &c. employed in relanding them; and the persons employed in the relanding, or by whose privity they are relanded, or into whose hands they shall knowingly come, are to forfeit double the amount of the drawback.

Officers of the customs conniving at, or assisting in any fraud relating to certificated goods, besides other penalties, are to forfeit their office, and to suffer six months' imprisonment, without bail or mainprize; as are also masters, or persons belonging to the ships employed therein. Bonds given for the exportation of certificate goods to Ireland, must not be delivered up, nor drawback allowed for any goods, till a certificate under the hands and seals of the collector or comptroller, &c. of the customs is produced, testifying the landing. *See* DUTIES and DRAWBACKS, *App.*

DRAWEE, the person on whom Bills of Exchange are drawn. *See* BILLS OF EXCHANGE.

DRAWER, the person who draws a Bill of Exchange. *See* BILLS OF EXCHANGE.

DRIFT, in mining, a passage cut out under the earth, betwixt shaft and shaft, or turn and turn; or a passage or way wrought under the earth, to the end of a meer of ground, or part of the meer.

DRIFT, in navigation, the angle which the line of a ship's motion makes with the nearest meridian, when she drives with her side to the wind and waves, and is not governed by the power of the helm; it also implies the distance which the ship drives on that line. A ship's way is only called drift, in a storm: and then it blows so vehemently as to prevent her from carrying any sail, or at least restrains her to such a portion of sail, as may be necessary to keep her sufficiently inclined to one side, that she may not be dismasted by the violent labouring produced by the turbulence of the sea.

DRIFT-SAIL, a sail used under water, veering out right a-head by sheets, as other sails are. It serves to keep the ship's head right upon the sea in a storm, and to hinder her diving too fast in a current.

DRINKING-GLASSES. (Ger. *Gläser.* Du. *Drinkglazen, Glazen.* Da. *Glase.* Sw. *Dricksglas.* Fr. *Verres.* It. *Bicchieri.* Sp. *Vasos y copas.* Port. *Copos, Vidros.* Rus. *Stakani.* Pol. *Sklanki.*) *See* GLASS.

DRIVING, in the sea language, is said of a ship when an anchor being let fall will not hold her fast, nor prevent her sailing away with the tide or wind. The best help in this case is to let fall more anchors, or to veer out more cable; for the more cable she has out the safer she rides. When a ship is a-hull or a-try, they say she drives to leeward.

DROMO, a name given to a swift-sailing vessel.

DROVERS, are those who buy cattle in one place to sell in another, and are licensed by stat. 5 Eliz. c. 12. *Drovers* not to be subject to the operation of the bankrupt laws. 5 Geo. 2. c. 30. s. 40.

DRUG, (*Drugs.* Ger. *Droguerien.* Du. *Drogeryen, Drogen.* Da. *Specerie.* Sw. *Speceri.* Fr. *Drogues, Droguerie.* It. *Droghe, Drogherie.* Sp. and Port. *Drogas.* Rus. *Pränüe Korenja,*) in a commercial sense, is applied to every article of a medicinal nature, such as gums, jalap, senna, &c. It is also used, being probably by corruption for *drag*, an inconvenient weight, to signify any thing without worth or value, or for which no purchaser can be found: thus we say, "such an article is a mere drug in the market."—*Drug* among fan-makers, is a composition of gum-arabic, and some other ingredients, used in the manufacture of fans. *Drug* signifies also a salt or cinder of glass used in bleaching cloth, but which is prohibited in France.

DRUGGET, a thin and narrow kind of stuff, sometimes all wool, and sometimes half wool, half thread; sometimes corded, but usually plain. The English, Irish, and Dutch, are those most esteemed, being cheap, common, woollen cloths.

DRUGGIST, a dealer in all kinds of uncompounded drugs, both foreign and domestic: most druggists compound drugs for sale in their own shops, the same as apothecaries do. The *druggists* as well as *apothecaries* are under the inspection of the college of physicians, but the former are specially excepted out of the provisions for the regulation of apothecaries by statute 55 Geo. 3. c. 194.

DRUMS, (Ger. *Trommeln.* Du. *Trommels.* Da. *Trommer.* Sw. *Trommor.* Fr. *Tambours, Caisses.* It. *Tamburi, Casse.* Sp. *Tambores.* Port. *Caxas, Tambores.* Rus. *Barabanü.* Pol. *Bebny,*) a martial, musical instrument in form of a cylinder, hollow within, and covered at both ends with vellum, which is stretched or slackened at pleasure by means of small cords and sliding knots. The bodies of some drums are made of brass, but they are usually of wood.

DRY-SALTER, is a wholesale dealer in all sorts of colours for dyers' use, as indigoes, cochineal, alum, galls, &c.

DUCAT, a coin current in Germany and other countries abroad, for the different values of which, *see* MONIES, *App.*

DUCATOON, a silver coin, struck chiefly in Italy; though there are *ducatoons* in Holland and Flanders, value about 4*s.* 8*d.* sterling. *Idem.*

DUCKS, a sort of strong brown cloth, used chiefly by sail-makers; the best is manufactured in Russia.

DUCK-UP, at sea, is a term used by the steersman when the mainsail, foresail, or spritsail hinders his seeing to steer by a land mark; upon which he calls out, "Duck the clew-lines of these sails," that is, hale the sails out of the way. Also when a shot is made by a chace-piece, if the clew of the spritsail hinder the sight, they call out, "Duck up, &c."

DUNG, a small Persian weight, 1-6th of a mescal, and of which about 3600 go to the small batman of Persia, called the batman of Tauris, and near 7200 to the great, or king's batman.

DUNG is also a silver coin, made and current in Persia, weighing twelve grains.

DUNGARES, a species of calico, manufactured at Surate, in pieces of fourteen ells in length, and in breadth 3-4ths of an ell.

DUODECIMO, among booksellers, &c. is a sheet of paper folded so as to form 12 leaves.

DURESSE, in law, a plea used by way of exception, by him who being cast into prison at a man's suit, or otherwise by threats, &c. hardly used, seals any bond to him during his restraint.

DUTY, in policy and commerce, signifies the impost laid on merchandises, at importation or exportation, commonly called the duties of customs; also the taxes of excise, stamp duties, &c. *See* CUSTOMS, and EXCISE. For DUTIES and DRAWBACKS, *see App.*

DYEING or DYING. *Principles of dying.*—The substances commonly employed for clothing may be reduced to four; namely, wool, silk, cotton, and linen. Permanent alterations in the colour of cloth can only be induced two ways; either by producing a chemical change in the cloth, or by covering its fibres with some substance which possesses the wished-for colour. Recourse can seldom be had to the first method, because it is hardly possible to produce a chemical change in the fibres of cloth, without spoiling its texture. The dyer, therefore, when he wishes to give a new colour to cloth, has recourse to the second method. The substances employed for this purpose are called colouring-matters, or dye-stuffs. They are for the most part extracted from animal, and vegetable, substances, and have usually the colour which they are to give to the cloth. Since the particles of colouring matters with which the cloth, when dyed, is covered, are transparent, it follows, that all the light reflected from dyed cloth must be reflected, not by the dye-stuff itself, but by the fibres of the cloth below the dye-stuff. The colour therefore does not depend upon the dye alone, but also upon the previous colour of the cloth. If the cloth is black, it is clear that we cannot dye it any other colour whatever; because as no light in that case is reflected, none can be transmitted. Hence the importance of a fine white colour, when cloth is to receive bright dyes. It then reflects all the rays in abundance, and therefore any colour may be given, by covering it with a dye-stuff which transmits only some particular rays. If the colouring matters were merely spread over the surface of the fibres of cloth by the dyer, the colours produced might be very bright, but they could not be permanent; because the colouring matter would be very soon rubbed off, and would totally disappear whenever the cloth was washed, or even barely exposed to the weather. The colouring matter then, however perfect a colour it possesses, is of no value, unless it also adheres so firmly to the cloth, that none of the substances usually applied to cloth, in order to clean it, &c. can displace it. Now this can only happen, when there is a strong affinity between the colouring matter and the cloth, and when they are actually combined together, in consequence of that affinity. Dyeing then is merely a chemical process, and consists in combining a certain colouring matter with the fibres of cloth. This process can in no instance be performed, unless the dye-stuff is first reduced to its integrant particles; for the attraction of aggregation between the particles of dye-stuffs, is too great to be overcome by the affinity between them and the cloth, unless they could be brought within much smaller distances than is possible while they both remain in a solid form. It is necessary, therefore, previously to dissolve the colouring matter in some liquid or other, which has a weaker affinity for it than the cloth has. When the cloth is dipped into this solution, the colouring matter, reduced by this contrivance to a liquid state, is brought within the attracting distance; the cloth therefore acts upon it, and from its stronger affinity takes it from the solvent, and fixes it upon itself. By this contrivance too, the equality of the colour is in some measure secured, as every part of the cloth has an opportunity of attracting to itself the proper proportion of colouring particles. The facility with which cloth imbibes a dye, depends upon two circumstances; namely, the affinity between the cloth and the dye-stuff, and the affinity between the dye-stuff and its solvent. It is directly as the former, and inversely as the latter. It is of importance to preserve a due proportion between those two affinities, as upon that proportion much of the accuracy of dyeing depends. If the affinity between the colouring matter and the cloth is too great, compared with the affinity between the colouring matter and the solvent, the cloth will take the dye too rapidly, and it will be scarcely possible to prevent its colour from being unequal. On the other hand, if the affinity between the colouring matter and the solvent is too great, compared with that between the colouring matter and the cloth, the cloth will either not take the colour at all, or it will take it very slowly and faintly. Wool has the strongest affinity for almost all colouring matters, silk the next strongest, cotton a considerably weaker affinity, and linen the weakest affinity of all. In order, therefore, to dye cotton or linen, the dye-stuff should in many cases be dissolved in a substance for which it has a weaker affinity than for the solvent employed in dyeing wool, or silk. Thus we may use oxyd of iron dissolved in sulphuric acid, in order to dye wool; but for cotton and linen, it is better to dissolve it in acetous acid. Were it possible to procure a sufficient number of colouring matters having a strong affinity for cloth, to answer all the purposes of dyeing, that art would be exceedingly simple and easy. But this is by no means the case; if we except indigo, the dyer is scarcely possessed of a

dye-stuff which yields of itself a good colour, sufficiently permanent to deserve the name of a dye. This difficulty, which at first sight appears insurmountable, has been obviated by a very ingenious contrivance. Some substance is employed which has a stronger affinity both for the cloth and the colouring matter. This substance is previously combined with the cloth, which is then dipped into the solution containing the dye-stuff. The dye-stuff combines with the intermediate substance, which, being firmly combined with the cloth, secures the permanence of the dye. Substances employed for this purpose are denominated mordants. The most important part of dyeing, is undoubtedly the proper choice, and the proper application of mordants, as upon them the permanency of almost every dye depends. Every thing which has been said respecting the application of colouring matters, applies equally to the application of mordants. They must be previously dissolved in some liquid, which has a weaker affinity for them, than the cloth has to which they are to be applied; and the cloth must be dipped, or even steeped in this solution, in order to saturate itself with the mordant. Almost the only substances used as mordants, are earths, metallic oxides, tan, and oil. — Of earthy mordants, the most important, and most generally used, is alumina. It is used either in the state of common alum, in which it is combined with sulphuric acid, or in that of acetite of alumina. Alum, when used as a mordant, is dissolved in water, and very frequently a quantity of tartar is dissolved along with it. Into this solution the cloth is put, and kept in it, till it has absorbed as much alumina as is necessary. It is then taken out, and for the most part washed and dried. It is now a good deal heavier than it was before, owing to the alumina which has combined with it. The tartar serves two purposes; the potass which it contains, combines with the sulphuric acid of the alum, and thus prevents that very corrosive substance from injuring the texture of the cloth, which otherwise might happen: the tartareous acid, on the other hand, combines with part of the alumina, and forms a tartrite of alumina, which is more easily decomposed by the cloth, than alum. Acetite of alumina has been introduced into dyeing. This mordant is prepared by pouring acetite of lead into a solution of alum; a double decomposition takes place, the sulphureous acid combines with the lead, and the compound precipitates in the form of an insoluble powder, while the alumina combines with the acetous acid, and remains dissolved in the liquid. This mordant is employed for cotton and linen, which have a weaker affinity than wool for alumina. It answers much better than alum; the cloth is more easily saturated with alumina, and takes, in consequence, both a richer, and a more permanent, colour.

Besides alumina, lime is sometimes used as a mordant. Cloth has a strong affinity enough for it; but in general it does not answer so well, as it does not give so good a colour. When used, it is either in the state of lime-water, or of sulphate of lime dissolved in water. Almost all the metallic oxides have an affinity for cloth, but only two of them are extensively used as mordants, namely, the oxides of tin, and of iron. The oxide of tin was first introduced into dyeing by Kuster, a German chemist, who brought the secret to London in 1533. This period forms an era in the history of dyeing. The oxide of tin has enabled the moderns greatly to surpass the ancients in the fineness of their colours; by means of it alone, scarlet, the brightest of all colours, is produced.

Tin, as Proust has proved, is capable of two degrees of oxydation. The first oxide is composed of 0.70 parts of tin, and 0.30 of oxygen; the second or white oxide, of 0.60 parts of tin, and 0.40 of oxygen. The first oxide absorbs oxygen with very great facility, even from the air, and is rapidly converted into white oxide. This fact makes it certain, that it is the white oxide of tin alone which is the real mordant; even if the other oxide was applied to cloth, as it probably often is, it must soon be converted into white oxide, by absorbing oxygen from the atmosphere. Tin is used as a mordant in three states: dissolved into nitro-muriatic acid, in acetous acid, and in a mixture of sulphuric and muriatic acids. Nitro-muriate of tin is the common mordant employed by dyers. They prepare it by dissolving tin in diluted nitric acid, to which a certain proportion of muriate of soda (common salt), or of ammonia (sal ammoniac) is added. Part of the nitric acid decomposes these salts, combines with their base, and sets the muriatic acid at liberty. It was prepared at first with nitric acid alone, but that was very defective, because the nitric acid very commonly converts tin to white oxide, and then is incapable of dissolving it; the consequence of which is, the precipitation of the whole of the tin. To remedy this defect, common salt, or sal ammoniac, was very soon added: muriatic acid having the property of dissolving white oxide of tin very readily. A considerable saving of nitric, might be obtained by employing as much sulphuric, acid, as is just sufficient to saturate the base of the common salt, or sal ammoniac employed. When the nitro-muriate of tin is to be used as a mordant, it is dissolved in a large quantity of water, and the cloth is dipped in the solution, and allowed to remain till sufficiently saturated. It is then taken out, and washed, and dried.

Tartar is usually dissolved in the water along with the nitro-muriate. The consequence of this is a double decomposition: the nitro-muriatic acid combines with the potass of the tartar, while the tartareous acid dissolves the oxide of the tin. When tartar is used, therefore, in any considerable quantity, the mordant is not a nitro-muriate, but a tartarite of tin. Iron, like tin, is capable of two degrees of oxydation; but the green oxide absorbs oxygen so readily from the atmosphere, that it is very soon converted into the red oxide: it is only this last oxide which is really used as a mordant in dyeing. The green oxide is indeed sometimes applied to cloth, but it very soon absorbs oxygen, and is converted into the red oxide. This oxide has a very strong affinity for all kinds of cloth. The permanency of iron spots on linen and cotton is a sufficient proof of this. As a mordant it is used in two states, in that of sulphate of iron (copperas), and acetite of iron. The first is commonly used for wool. The salt is dissolved in water, and the cloth dipped in it. It may be used also for cotton, but in most cases acetite of iron is preferred. It is prepared by dissolving iron or its oxide in vinegar, sour beer, &c. and the longer it is kept, the more it is preferred. The reason is, that this mordant succeeds best when the iron is in the state of red oxide. It would be better then to oxidate the iron, or convert it into rust before using it; which might be easily done by keeping it for some time in a moist place, and sprinkling it occasionally with water. Tan has a very strong affinity for cloth, and for several colouring matters; it is therefore very frequently employed as a mordant. An infusion of nut-galls, or of sumach, or any other substance containing tan, is made in water, and the cloth is dipped in this infusion, and allowed to remain till it has absorbed a sufficient quantity of tan. Silk is capable of absorbing a very great proportion of tan, and by that means acquires a great increase of weight. Manufacturers sometimes employ this method of increasing the weight of silk.

Tan is often employed also along with other mordants, in order to produce a compound mordant.

Oil is also used for the same purpose in the dyeing of cotton and linen. The mordants with which tan most frequently is combined, are alumina, and oxide of iron. Besides these mordants, there are several other substances frequently used as auxiliaries, either to facilitate the combination of the mordant with the cloth, or to alter the shade of colour; the chief of those are tartar, acetite of lead, common salt, sal ammoniac, sulphate, or acetite of copper, &c.

Mordants not only render the dye permanent, but have also considerable influence on the colour produced. The same colouring matter produces very different dyes according as the mordant is changed. Suppose, for instance, that the colouring matter is cochineal; if we use the aluminous mordant, the cloth will acquire a crimson colour, but the oxide of iron produces with it a black.

In dyeing, then, it is not only necessary to procure a mordant which has a sufficiently strong affinity for the colouring matter and the cloth, and a colouring matter which possesses the wished-for colour in perfection, but we must procure a mordant, and colouring, of such natures, that, when combined together, they shall possess the wished-for colour in perfection. It is evident, too, that a great variety of colours may be produced with a single dye-stuff, provided we can change the mordant sufficiently.

The colouring matter, with which the cloth is dyed, does not cover every portion of its surface; its particles attach themselves to the cloth at certain distances from each other; for cloth may be dyed different shades of the same colour, lighter or darker, merely by varying the quantity of colouring matter. With a small quantity, the shade is light, and it becomes deeper as the quantity increases. Now, this would be impossible if the dye-stuff covered the whole of the cloth. That the particles of colouring matter, even when the shade is deep, are at some distance, is evident, from this well-known fact, that cloth may be dyed two colours at the same time. Thus cloth gets green colour by being first dyed blue, and then yellow.

The colours denominated by dyers *simple*, because they are the foundation of all their other processes, are four, namely, first, blue; second, yellow; third, red; fourth, black. To these they usually add a fifth, under the name of soot or brown colour.

Of dyeing Blue.—The only colouring matters employed in dyeing blue, are woad and indigo.

Woad is an indigenous plant in this country, but, since its qualities have been duly appreciated, has been *cultivated* with much care and expense. Indigo is a blue powder extracted from a species of plant which is cultivated, for that purpose, in the East and West Indies. These plants contain a peculiar green pollen, which in that state is soluble in water. This pollen has a strong affinity for oxygen, which it attracts greedily from the atmosphere; in consequence of which it assumes a blue colour, and becomes insoluble in water. Indigo has a very strong affinity for wool, silk, cotton, and linen. Every kind of cloth, therefore, may be dyed with it, without the assistance of any mordant whatever.

The colour thus induced is very permanent, because the indigo is already saturated with oxygen, and because it is not liable to be decomposed by those substances, to

the action of which the cloth is exposed. But it can only be applied to cloth in a state of solution, and the only solvent known being sulphuric acid, it would seem at first sight that the sulphuric acid solution is the only state in which indigo can be employed as a dye.

The sulphate of indigo is indeed often used to dye wool and silk, blue; but it can scarcely be applied to cotton and linen, because the affinity of these substances for indigo is not great enough to enable them readily to decompose the sulphate.

The colour given by sulphate of indigo is exceedingly beautiful; it is known by the name of Saxon blue. One part of indigo is to be dissolved in four parts of concentrated sulphuric acid; to the solution, one part of dry carbonate of potass is to be added, and then it is to be diluted with eight times its weight of water. The cloth must be boiled for an hour in a solution containing five parts of alum, and three of tartar, for every thirty-two parts of cloth. It is then to be thrown into a water-bath, containing a greater or smaller proportion of the diluted sulphate of indigo, according to the shade which the cloth is intended to receive.

In this bath it must be boiled till it has acquired the wished-for colour. The alum and tartar are not intended to act as mordants, but to facilitate the decomposition of the sulphate of indigo. The alkali added to the sulphate answers the same purpose. These substances, also, by saturating part of the sulphuric acid, serve in some measure to prevent the texture of the cloth from being injured by the action of the acid, which is very apt to happen in this process. But sulphate of indigo is by no means the only solution of that pigment employed in dyeing. By far the most common method is, to deprive indigo of the oxygen to which it owes its blue colour, and thus reduce it to the state of green pollen; and then to dissolve it in water, by means of alkalies, or alkaline earths, which in that state act upon it very readily.

Two different methods are employed for this purpose. The first of these methods is to mix with indigo a solution of some substance which has a stronger affinity for oxygen than the green basis of indigo; green oxide, for instance, and different metallic sulphurets. If therefore indigo, lime, and green sulphate of iron, are mixed together in water, the indigo gradually loses its blue colour, becomes green, and is dissolved; while the green oxide of iron is converted into the red oxide.

The manner in which these changes take place is obvious: part of the lime decomposes the sulphate of iron; the green oxide, the instant that it is set at liberty, attracts oxygen from the indigo, decomposes it, and reduces it to the state of green pollen. This green pollen is immediately dissolved by the action of the rest of the lime.

The second method is, to mix the indigo in water with certain vegetable substances, which readily undergo fermentation. During this fermentation, the indigo is deprived of its oxygen, and is dissolved by means of quick-lime or alkali, which is added to the solution. The first of these methods is usually followed in dyeing cotton and linen; the second in dyeing wool and silk. In the dyeing of wool, woad and bran are commonly employed as vegetable ferments, and lime as the solvent of the green base of the indigo.

Woad itself contains a colouring matter precisely similar to indigo; and by following the common process, indigo may be extracted from it. In the usual state of woad, when purchased by the dyer, the indigo, which it contains, is probably not far from the state of the green pollen.

Its quantity in woad is but small, and it is mixed with a great proportion of other vegetable matter. When the cloth is first taken out of the vat, it is of a green colour, but it soon becomes blue, by attracting oxygen from the air. It ought to be carefully washed, to carry off the uncombined particles.

This solution of indigo is liable to two inconveniences: first, it is apt sometimes to run too fast into the putrid fermentation; this may be known by the putrid vapours which it exhales, and by the disappearing of the green colour. In this state it would soon destroy the indigo altogether. The inconvenience is remedied by adding more lime, which has the property of moderating the putrescent tendency.

Secondly, sometimes the fermentation goes on too languidly. This defect is remedied by adding more bran or woad, in order to diminish the proportion of quick-lime.

Silk is dyed light blue, by a ferment of six parts of bran, six of indigo, six of potass, and one of madder. To dye it of a dark blue, it must previously receive what is called a ground colour; a red dye-stuff, called archil, is used for this purpose. Cotton and linen are dyed blue by a solution of one part of indigo, one part of green sulphate of iron, and two parts of quick-lime.

Of dyeing Yellow.—The principal colouring materials for dyeing yellow are, weld, fustic, and quercitron-bark. Weld is a plant which grows commonly in this country. Fustic is the wood of a large tree, which grows in the West Indies. Quercitron is a tree growing in North America, the bark of which contains colouring matter. Yellow colouring matters have too weak an affinity for cloth to produce permanent colours without the use of mordants. Cloth, therefore, before it is dyed yellow, is always prepared by combining some mordant or other with it. The mordant most common-

ly employed for this purpose is alumina. Oxide of tin is sometimes used when very fine yellows are wanting. Tan is often employed as a subsidiary to alumina, and in order to fix it more copiously on cotton and linen.

Tartar is also used as an auxiliary to brighten the colour; and muriate of soda, sulphate of lime, and even sulphate of iron, in order to render the shade deeper. The yellow dyed by means of fustic is more permanent, but not so beautiful as that given by weld, or quercitron. As it is permanent and not much injured by acids, it is often used in dyeing compound colours, where a yellow is required. The mordant is alumina. When the mordant is oxide of iron, fustic dyes a good permanent drab colour.

Weld, and quercitron-bark, yield nearly the same kind of colour; but as the bark yields colouring matter in much greater abundance, it is much more convenient, and upon the whole cheaper than weld. It is probable, therefore, that it will gradually supersede the use of that plant. The method of using each of these is nearly the same.

Wool may be dyed yellow by the following process. Let it be boiled for an hour or more with about 1-6th of its weight of alum dissolved in a sufficient quantity of water. It is then to be plunged without being rinsed into a bath of warm water, containing in it as much quercitron-bark as equals the weight of the alum employed as a mordant. The cloth is to be turned through the boiling liquid till it has acquired the intended colour. Then a quantity of clean powdered chalk, equal to the hundredth part of the weight of the cloth, is to be stirred in, the operation of dyeing being continued for eight or ten minutes longer. By this method a pretty deep and lively yellow may be given, fully as permanent as weld yellow. For very bright orange or golden yellow, it is necessary to have recourse to the oxide of tin as a mordant.

For producing bright golden yellows, some alum must be added along with the tin.

In order to give the yellow that delicate green shade so much admired for certain purposes, tartar must be added in different proportions, according to the shade. By adding a small proportion of cochineal the colour may be raised to a fine orange, or even an aurora.

Silk may be dyed different shades of yellow, either by weld, or quercitron-bark, but the last is the cheapest of the two. The proportion should be from one to two parts of bark to twelve parts of silk, according to the shade. The bark tied up in a bag should be put into the dyeing vessel while the water which it contains is cold; and when it has acquired the heat of about 100°, the silk, having been previously alumed, should be dipped in, and continued, till it assumes the desired colour.

When the shade is required to be deep, a little chalk, or pearl-ash, should be added towards the end of the operation.

The best method of dyeing cotton and linen yellow, is as follows:

The mordant should be acetite of alumina, prepared by dissolving one part of acetite of lead, and three parts of alum, in a sufficient quantity of water. This solution should be heated to the temperature of 100°, the cloth should be soaked in it for two hours, then wrung out, and dried. The soaking may be repeated and the cloth again dried as before. It is then to be barely wetted with lime-water, and afterwards dried. The soaking in the acetite of alumina may again be repeated; and if the shade of yellow is required to be very bright and durable, the alternate wetting with lime-water, and soaking in the mordant, may be repeated three or four times. By this contrivance a sufficient quantity of alumina is combined with the cloth, and the combination is rendered more permanent by the addition of some lime. The dyeing bath is prepared by putting 12 or 18 parts of quercitron-bark (according to the depth of the shade required), tied up in a bag, into a sufficient quantity of cold water. Into this bath the cloth is to be put, and turned round in it for an hour, while its temperature is gradually raised to about 120°. It is then to be brought to a boiling heat, and the cloth allowed to remain in it after that only a few minutes. If it is kept long at a boiling heat, the yellow acquires a shade of brown.

Of dyeing Red.—The colouring matters employed for dyeing red, are kermes, cochineal, archil, madder, carthamus, and Brazil-wood.

Kermes is a species of insect, affording a red colour by solution in water; but it is not so beautiful as cochineal. The decoction of cochineal is a very beautiful crimson colour. Alum brightens the colour of the decoction, and occasions a crimson precipitate. Muriate of tin gives a copious fine red precipitate. Archil is a paste formed of a species of lichen pounded and kept moist for some time with stale urine. Madder is the root of a well-known plant. Carthamus is the flower of a plant (*Carthamus tinctorius*) cultivated in Spain and the Levant. It contains two colouring matters: a yellow which is soluble in water, and a red which is insoluble in water, but soluble in alkaline carbonates. The red colouring matter of carthamus, extracted by carbonate of soda, and precipitated by lemon juice, constitutes the rouge employed by ladies as a paint. It is afterwards ground with a certain quantity of talc. The fineness of the talc, and the proportion of it mixed with the carthamus, occasion the difference between the cheaper, and dearer, kinds of rouge.

Brazil-wood is the wood of a tree growing on the Continent of America, and in the West Indies; its decoction is a fine red colour. None of the red colouring matters has so strong an affinity for cloth as to produce a permanent red, without the assistance of mordants. The mordants employed are alumina, and oxide of tin; oil, and tan in certain processes, are also used; and tartar, and muriate of soda, are frequently called in as auxiliaries. Coarse woollen stuffs are dyed red with madder, or archil; but fine cloth is almost exclusively dyed with cochineal, though the colour which it receives from kermes is much more durable. Brazil-wood is scarcely used, except as an auxiliary, because the colour which it imparts to wool is not permanent. Wool is dyed crimson by first impregnating it with alumina, by means of an alum bath, and then boiling it in a decoction of cochineal, till it has acquired the wished-for colour. The crimson will be finer if the tin mordant be substituted for alum; indeed it is usual with dyers to add a little nitro-muriate of tin, when they want fine crimsons. The addition of archil, and potass, to the cochineal, both renders the crimson darker, and gives it more bloom; but the bloom very soon vanishes. For paler crimsons, one half of the cochineal is withdrawn, and madder substituted in its place.

Wool may be dyed scarlet, the most splendid of all colours, by first boiling it in a solution of murio-sulphate of tin, then dyeing it pale yellow with quercitron-bark, and afterwards crimson with cochineal; for scarlet is a compound colour, consisting of crimson mixed with a little yellow.

Silk is usually dyed red with cochineal, or carthamus, and sometimes Brazil-wood. Kermes does not answer for silk; madder is scarcely ever used for that purpose, because it does not yield a colour bright enough. Archil is employed to give silk a bloom; but it is scarcely used by itself, unless when the colour wanted is lilac. Silk may be dyed crimson by steeping it in a solution of alum, and then dyeing it in the usual way in a cochineal bath. The colours known by the names of poppy, cherry, rose, and flesh-colour, are given to silks by means of carthamus. The process consists merely in keeping the silk, as long as it extracts any colour, in an alkaline solution of carthamus, into which as much lemon-juice, as gives it a fine cherry colour, has been poured.

Silk cannot be dyed a full scarlet; but a colour approaching to scarlet may be given it, by first impregnating the stuff with murio-sulphate of tin, and afterwards dyeing it in a bath, composed of four parts of cochineal, and four parts of quercitron-bark. To give the colour more body, both the mordant and the dye may be repeated. A colour approaching scarlet may be also given to silk, by first dyeing it in crimson, then dyeing it with carthamus, and lastly yellow without heat. Cotton and linen are dyed red with madder. The process was borrowed from the East; hence the colour is often called Adrianople or Turkey red. The cloth is first impregnated with oil, then with galls, and lastly with alum. It is then boiled for an hour in a decoction of madder, which is commonly mixed with a quantity of blood. After the cloth is dyed, it is plunged into a soda ley, in order to brighten the colour. The red given by this process is very permanent, and when properly conducted, it is exceedingly beautiful. The whole difficulty consists in the application of the mordant, which is by far the most complicated in the whole art of dyeing.

Cotton may be dyed scarlet, by means of murio-sulphate of tin, cochineal, and quercitron-bark, used as for silk, but the colour is too fading to be of any value.

Of dyeing Black. — The substances employed to give a black colour to cloth, are red oxide of iron, and tan. These two substances have a strong affinity for each other, and when combined, assume a deep black colour, not liable to be destroyed by the action of air or light.

Logwood is usually employed as an auxiliary, because it communicates lustre, and adds considerably to the fullness of the black. It is the wood of a tree, which is a native of several of the West India islands, and of that part of Mexico which surrounds the Bay of Honduras. It yields its colouring matter to water. The decoction is at first a fine red, bordering on violet, but if left to itself, it gradually assumes a black colour. Acids give it a deep red colour; alkalies a deep violet, inclining to brown; sulphate of iron renders it as black as ink, and occasions a precipitate of the same colour.

Cloth, before it receives a black colour, is usually dyed blue; this renders the colour much fuller, and finer, than it would otherwise be. If the cloth be coarse, the blue dye may be too expensive; in that case a brown colour is given by means of walnut-peels.

Wool is dyed black by the following process. It is boiled for two hours in a decoction of nut-galls; afterwards immersed for two hours more in a bath composed of logwood, and sulphate of iron, kept during the whole time at a scalding heat, but not boiled. During the whole operation, it must be frequently exposed to the air; because the green oxide of iron, of which the sulphate is composed, must be converted into red oxide by absorbing oxygen, before the cloth can acquire a proper colour. The common proportions are five parts of galls, five of sulphate of iron, and thirty of log-

wood, for every hundred of cloth. A little acetite of copper is commonly added to the sulphate of iron, because it is thought to improve the colour.

Silk is dyed nearly in the same manner. It is capable of combining with a great deal of tan; the quantity given is varied at the pleasure of the artist, by allowing the silk to remain a longer, or shorter, time in the decoction. It is by no means so easy to give a full black to linen or cotton. The cloth, previously dyed blue, is steeped for 24 hours in a decoction of nut-galls. A bath is prepared containing an acetite of iron, formed by saturating acetous acid with brown oxyd of iron; into this bath the cloth is put in small quantities at a time, wrought with the hand for a quarter of an hour, then wrung out, and aired again; wrought in a fresh quantity of the bath, and afterwards aired. These alternate processes are repeated, till the colour wanted is given: a decoction of alder-bark is usually mixed with the liquor containing the nut-galls.

Of dyeing Brown.—Brown, or fawn colour, though in fact a compound, is usually ranked among the simple colours, because it is applied to cloth by a single process. Various substances are used for brown dyes.

Walnut-peels, or the green covering of the walnuts, when first separated, are white internally, but soon assume a brown, or even a black, colour, on exposure to the air. They readily yield their colouring matter to water. They are usually kept in large casks, covered with water for above a year before they are used. To dye wool brown with them, nothing more is necessary than to steep the cloth in a decoction of them, till it has acquired the wished-for colour. The depth of the shade is proportional to the strength of the decoction. The root of the walnut-tree contains the same colouring matter, but in a smaller quantity. The bark of the birch also, and many other trees, may be used for the same purpose. It is very probable that the brown colouring matter is in these vegetable substances combined with tan. This is certainly the case in sumach, which is often employed to produce a brown. This combination explains the reason why no mordant is necessary: the tan has a strong affinity for cloth, and the colouring matter for the tan. The dye-stuff, and the mordant, are already, in fact, combined together.

Of dyeing compound colours.—Compound colours are produced by mixing together two simple ones; or, which is the same thing, by dyeing cloth first one simple colour, and then another. These colours vary to infinity, according to the proportion of the ingredients employed. They may be arranged under the following classes. Mixtures of, 1. blue and yellow; 2. blue and red; 3. yellow and red; 4. black and other colours.

Mixture of blue and yellow.—This forms green, which is distinguished by dyers into a variety of shades, according to the prevalence of either of the component colours. Thus we have sea-green, grass-green, pea-green, &c. Wool, silk, and linen, are usually dyed green by giving them first a blue colour, and afterwards dyeing them yellow; because when the yellow is first given, several inconveniencies follow: the yellow partly separates again in the blue vat, and communicates a green colour to it, and thus renders it useless for every other purpose except dyeing green. Any of the usual processes for dyeing blue and yellow may be followed, taking care to proportion the depth of the shades to that of the green required. When sulphate of indigo is employed, it is usual to mix all the ingredients together, and to dye the cloth at once; this produces what is known by the name of Saxon or English green.

Mixtures of blue and red.—These form different shades of violet, purple, and lilac. Wool is generally first dyed blue, and afterwards scarlet, in the usual manner. By means of cochineal mixed with sulphate of indigo, the process may be performed at once. Silk is first dyed crimson, by means of cochineal, and then dipped into the indigo vat. Cotton and linen are first dyed blue, then galled, and soaked in a decoction of logwood; but a more permanent colour is given by means of oxide of iron.

Mixtures of yellow and red.—These produce orange. When blue is combined with red and yellow on cloth, the resulting colour is olive. Wool may be dyed orange, by first dyeing it scarlet and then yellow. When it is dyed first with madder, the result is cinnamon-colour. Silk is dyed orange by means of carthamus; a cinnamon colour by logwood, Brazil-wood, and fustic mixed together. Cotton and linen receive a cinnamon colour by means of weld and madder: and an olive colour by being passed through a blue, yellow, and then a madder-bath.

Mixtures of black with other colours.—These constitute greys, drabs, and browns. If cloth is previously combined with brown oxide of iron, and afterwards dyed yellow with quercitron-bark, the result will be a drab of different shades, according to the proportion of the mordant employed. When the proportion is small, the colour inclines to olive, or yellow; on the contrary, the drab may be deepened, or saddened, as the dyers term it, by mixing a little sumach with the bark.

DYERS. By stat. 3 & 4 Edw. VI. c. 2. no dyer may dye any cloth with orchal, or with Brazil-wood, to make a false colour in cloth wool, &c. on penalty of 20*s*.

By stat. Eliz. c. 9. dyers are to fix a

seal of lead to cloths, with the letter M, to show that they are well maddered, &c. or forfeit 3*s.* 4*d.* per yard.

By stat. 23 Geo. 3. c. 15. several penalties are inflicted on dyers who dye any cloth deceitfully, and not woaded throughout with indigo, and madder. Dyeing blue with logwood, to forfeit 20*l.* Dyers in London are subject to the inspection of the Dyers' Company, who appoint searchers. In other places, these are appointed by the justices, and opposing the searchers incurs a penalty of 10*l.*

DYER'S GREEN WEED, or WOOD-WAXEN, is an indigenous plant growing in pastures, the flowers of which afford a yellow colour, which is much esteemed for dyeing wool green. This plant also yields the fine yellow lacker of painters, by boiling the stalks and leaves in lime-water, and again placing the clarified decoction over the fire with chalk of alum.

DYER'S WEED, or YELLOW WEED. This also gives a most beautiful yellow colour to wool, cotton, mohair, silk, and linen, and is principally used for this purpose, as it affords an uncommonly bright dye. A decoction of this plant also communicates a green colour to blue cloths, and forms the basis of what is termed *Dutch Pink.* The tinging properties are in the stems and roots.

E, the second vowel, and fifth letter of the alphabet, as a numeral stands for 250. In the calendar, it is the fifth of the dominical letters. And in sea charts, it distinguishes all the easterly points: thus E. alone denotes east, E. by S. and E. by N. east by south, and east by north.

EAGLE WOOD, (GER. *Alderholz.* DU. *Agelhout.* DA. *Ornetræe.* SW. *Ornträ.* FR. *Bois d'Aigle.* IT. *Legno d'Aquila.* SP. *Madera del Aguila.* PORT. *Pâo de Aguia.* LAT. *Lignum Aquilæ,*) a species of beautiful wood, employed chiefly by turners in the formation of the finer articles: it comes to us from many parts of Asia.

EARING, in the sea language, is that part of the bolt-rope, which, at the four corners of the sail, is left open, in the shape of a ring. The two uppermost parts are put over the ends of the yard-arms, and so the sail is made fast to the yard; and into the lowermost earings, the sheets and tacks are seized or bent at the clew.

EARNEST, is the money advanced to bind the parties to the performance of a verbal agreement. The person who gives it, is in strictness obliged to abide by his bargain; and, if he declines, is not discharged on forfeiting his earnest, but may be sued for the money stipulated, and damages; and by statute of frauds, 29 C. 2. cap. 3. no contract for sale of goods to the value of 10*l.* or more, is valid, unless such earnest is given, or unless the contract be in writing.

EAR-RING, (*Ear-rings.* GER. *Ohrringe.* DU. *Oor-ringen.* DA. *Oxeringe.* SW. *Orringar.* FR. *Boucles d'oreille, Pendans.* IT. *Orrechini, Pendenti.* SP. *Arracadas.* PORT. *Arrecadas,* RUS. *Ssergü.* POL. *Kolczyki,*) an ornament worn by women, usually composed of gold, and frequently adorned with precious stones, pearls, &c. Those of superior value are chiefly manufactured in London; those of an inferior description, almost exclusively at Birmingham.

EARTHEN-WARE. (GER. *Irdene Waaren.* DU. *Aardegoed.* DA. *Leerkar.* SW. *Lerkäril.* FR. *Vaisselle de terre, Poterie.* IT. *Stoviglie, Terraglia.* SP. *Loza de barro.* PORT. *Louca de barro.* RUS. *Gorschetschnüe possudü.* POL. *Gliniane naczynia.*) This is a general term made use of to express all kinds of articles made of earth for culinary and such like purposes; the principal English potteries are in Staffordshire. *See* POTTERIES.

EASING, in the sea language, signifies the slackening of a rope, or the like: thus, "to ease the bow-line or sheet," is to let them go slacker; "to ease the helm," is to let the ship go more large, more before the wind, or more larboard.

EAST INDIA COMPANY. *See* COMPANY.

EBONY-WOOD, (GER. *Ebenholz.* DU. *Ebbenhout.* DA. *Ebentræe.* SW. *Ebenträd.* FR. *Ebéne.* IT. and SP. *Ebano.* PORT. *Ebano, Evano.* RUS. *Ebenowoederewo.* POL. *Heban.* LAT. *Ebenus,*) is brought from the Indies, exceedingly hard, and heavy, susceptible of a very fine polish, and on that account used in mosaic and inlaid works, toys, &c. There are many kinds of ebony: the most usual among us are black, red, and green, all of them the product of the island of Madagascar, where the natives call them indifferently *hazon mainthi,* black wood. The island of St. Maurice, belonging to the Dutch, likewise furnishes part of the ebonies used in Europe. Authors and travellers give very different accounts of the tree that yields the black ebony. By some of their descriptions, it should be a sort of palm-tree; by others, a cytisus, &c. Black

ebony is much preferred to that of other colours. The best is a jet black, free of veins and rind, very massive, astringent, and of an acrid pungent taste. Its rind, infused in water, is said to be antiscorbutic. It yields an agreeable perfume when laid on burning coals: when green, it readily takes fire, from the abundance of its fat. If rubbed against a stone, it becomes brown. The Indians make statues of their gods, and sceptres for their princes, of this wood. It is now much less used amongst us than formerly; since the discovery of so many ways of giving other hard woods a black colour. As to the green ebony, besides Madagascar, and St. Maurice, it likewise grows in the Antilles, and especially in the island of Tobago. Under its bark is a white substance about two inches thick; all beneath which, to the very heart, is a deep green, approaching towards a black, though sometimes streaked with yellow veins. Its use is not confined to mosaic work: it is likewise useful in dyeing, as yielding a fine green tincture. As to red ebony, called also *grenadilla*, we know little of it more than the name. The cabinet-makers, inlayers, &c. make pear-tree and other woods pass for ebony, by giving them the same black colour. This some do by a strong decoction of galls, to which is added a small quantity of vitriolated iron.

EDDY-TIDE, or EDDY-WATER, among seamen, is where the water runs back contrary to the tide; or that which hinders the free passage of the stream, and so causes it to return again.

ELDER, or DWARF ELDER, an indigenous plant growing wild in hedges. Its berries communicate a violet colour, and their juice mixed with vinegar, dyes raw linen, as well as morocco leather, of an azure blue. Another species, or the common elder, as its wood is remarkably hard and tough, is made into meat-skewers, tops for fishing-rods, and needles for weaving nets; it is also used for turning.

ELDER WINE. To make this wine, the following are the directions. To one quart of berries put two quarts of water, boil half an hour, run the liquor, and break the fruit through a hair sieve: then, to every quart of juice put three-quarters of a pound of Lisbon sugar. Boil the whole a quarter of an hour, with ginger, and cloves. Pour it into a tub, and when of a proper warmth, into the barrel, with toast and yeast to work. When it ceases to hiss, put one quart of brandy to eight gallons, and stop up. Bottle in the spring, or at Christmas. The liquor must be in a warm place to make it work.

ELEMI. *See* GUM, GUM-RESIN.

ELEPHANTS' TEETH, (GER. *Elephantenzähne.* DU. *Olyfantianden.* DA. *Elefanttænder.* SW. *Elefantständer.* FR. *Dents d'éléphant.* IT. *Denti di liofante.* SP. *Dientes de elefante.* PORT. *Dentes de elephante.*) *See* IVORY.

ELK. The hair of this animal, which is very common in North America, is used for stuffing saddles; its hoofs are employed in pharmacy, and its hide is turned to various uses.

ELL, a measure of length, different in different countries; but the English ell used in this country, is equal to five quarters, or to a yard and a quarter. In Scotland, the ell contains $37\frac{2}{10}$ English inches. *See* WEIGHTS and MEASURES.

EMBARGO, an arrest on ships or merchandise, by public authority; or a prohibition of the state, commonly on foreign ships, in time of war, to prevent their going out of port, sometimes to prevent their coming in, and sometimes both, for a limited time. The king may lay embargoes on ships, or employ those of his subjects, in time of danger, for service and defence of the nation; but they must not be for the private advantage of a particular trader, or company, and therefore a warrant to stay a single ship is no legal embargo. No inference can be made from embargoes which are only in war-time, and are a prohibition by advice of council, and not a prosecution of parties. If goods are laden on board, and after embargo or restraint from the prince or state, comes forth, and then the master of the ship breaks ground or endeavours to sail, if any damage accrues, he must be responsible for the same; the reason is, because his freight is due, and must be paid, even though the goods be seized as contraband. Embargo differs from *quarantine*, as this last is usually for the term of forty days, in which persons from foreign ports are not permitted to come on shore, to prevent the introduction of the plague into these countries. *See* QUARANTINE SHIPPING.

EMBASSADOR. *See* AMBASSADOR.

EMBEZZLEMENT means, technically, larceny by servants of their masters' goods. The first statute on this subject was 21 Hen. 8. c. 7. The provisions of this early statute were extended, and made more precise, by 39 Geo. 3. c. 85. which recites, that it is for protecting masters against embezzlements by their clerks and servants, or persons employed for the purpose, or in the capacity of servants or clerks, who shall, by virtue of such employment, receive or take into their possession any money, goods, bond, bill, note, banker's draft, or other valuable security or effects, for, or in the name, or on account of, their master or employer; and who shall fraudulently embezzle, secrete, or make away with the same, or any part thereof; and enacts that every such offender shall be deemed to have feloniously stolen the same from his master or employer, for whose use, or on whose

account, the same was delivered to, or taken into the possession of such servant, clerk, or other person so employed, although such money, goods, bond, bill, note, banker's draft, or other valuable security, was or were no otherwise received into the possession of his or their servants, clerk, or other person so employed; and every such offender, his adviser, procurer, aider, or abettor, being thereof lawfully convicted or attainted, shall be liable to be transported to such part beyond the seas as his Majesty, by and with the advice of his Privy Council, shall appoint, for any term not exceeding 14 years, in the discretion of the court before whom such offender shall be convicted or adjudged.

This statute, however, extended only to the embezzlement of the matters described in it; and doubts also frequently were suggested respecting its application to cases where property was deposited in the hands of agents of different descriptions, from those to whom the statute was supposed especially to refer; wherefore at length the 52 Geo. 3. c. 63. was passed in terms so comprehensive, as to be supposed to comprise every possible case of personal effects, or securities, of all description, being deposited in the hands of agents of all denominations, for any purpose whatever. *See* 2 *Dick. Pract. Expos.* 17.

EMBROIDERY, (Ger. *Stickerey.* Du. *Borduurwerk.* Da. *Brodering.* Sw. *Borderverk.* Fr. *Broderie.* It. *Ricamo.* Sp. *Bordado.* Port. *Bordadura.* Rus. *Schitje.* Pol. *Wysziwanie,*) a work of gold or silver, or silk thread, wrought by the needle upon cloth, stuffs, or muslin, into various figures. In embroidering stuffs, the work is performed in a kind of a loom, because the more the piece is stretched, the easier it is worked. As to muslin, they spread it upon a pattern ready designed; and sometimes, before it is stretched upon the pattern, it is starched, to make it more easy to handle. Embroidery on the loom is less tedious than the other, in which, while the flowers are worked, all the threads of the muslin, both lengthwise, and breadthwise, must be continually counted; but on the other hand this last is much richer in points, and susceptible of greater variety. Cloths too much milled are scarcely susceptible of this ornament, and in effect we seldom see them embroidered. The thinnest muslins are the best for this purpose, and they are embroidered to the greatest perfection in Saxony.

In other parts of Europe, however, they embroider very prettily, and especially in France. There are several kinds of embroidery, viz. 1. Embroidery on the stamp, where the figures are raised and rounded, having cotton or parchment put under them to support them. 2. Low embroidery, where the gold and silver lie low upon the sketch, and are stitched with silk of the same colour. 3. Guimped embroidery: this is performed either in gold or silver; first a sketch is made upon the cloth, then put on cut vellum, and afterwards sewed on the gold and silver with silk thread. On this kind of embroidery are often put gold and silver cord, tinsel, and spangles. 4. Embroidery on both sides; that which appears on both sides of the stuff. 5. Plain embroidery; where the figures are flat and even, without cords, spangles, or other ornaments. No foreign embroidery, or gold or silver brocade, is permitted to be imported into this kingdom, on pain of being seized and burnt, and a penalty of 100*l.* for each piece. By stat. 22 Geo. 2. c. 36. no person is allowed to sell any foreign embroidery, gold or silver thread-lace, fringe, or brocade, or make up the same into any garment, upon pain of having it burnt, and incurring a penalty of 100*l.*

EMERALD, (Ger. Du. Da. and Sw. *Smaragd.* Fr. *Emeraude.* It. *Smeraldo.* Sp. and Port. *Esmeralda.* Rus. *Isumrud.* Pol. *Szmaragd.* Lat. *Smaragdus,*) is one of the most beautiful of all the class of coloured gems, when perfect; its colour a pure green. Our jewellers distinguish emeralds into two kinds, the oriental, and occidental: the emeralds of the East Indies are evidently finer than those of any other part of the world; but our jewellers, seldom meeting with these, call the American emeralds the oriental, and usually sell crystals accidentally tinged with green, under the name of occidental emeralds: these being also the most common, there has grown an opinion among the lapidaries, that the emerald is no harder than the crystal; because what they take to be emeralds, are in general only crystals. The genuine emerald is found of various sizes, but usually small; great numbers of them are met with of about the 16th part of an inch in diameter, and they are found from this size to that of a walnut. Emeralds are found in the East Indies, and in many parts of America, particularly about the gold mines of Peru; they are also met with in Silesia, Bohemia, and in other parts of Europe. The emerald is next in hardness to the ruby, and varies in colour from the pale to the perfect green. When heated to 120° Wedgewood, it becomes blue, but recovers its colour when cold.

EMERY, (Ger. and Sw. *Smirgel.* Du. *Ameril, Smergel.* Da. *Smergel.* Fr. *Emeril, Emeri.* It. *Smeriglio, Smeregio.* Sp. and Port. *Esmeril.* Rus. *Nashdak.* Pol. *Szmergiel.* Lat. *Smiris,*) in natural history, a rich iron-ore found in large masses, of no determinate shape, or size, extremely hard, and very heavy. It is usually of a dusky brownish-red on the surface, but when broken is of a fine, bright, iron-grey, but

not without some tinge of redness, and is spangled all over with shining specks, which are small flakes of foliaceous talc, highly impregnated with iron. It is also sometimes very red, and then usually contains veins of gold. It is imported from the island of Naxos, where it exists in great abundance, and is also found in Sweden, Germany, Italy, England, and many other places. The island of Guernsey furnishes a great deal of it. It is opaque and brittle; its specific gravity is about four.

Emery is prepared for the manufacturers by grinding in mills, and the powder is separated into parcels of different degrees of fineness by washing; these are called the first, second, and third sort; the first being that which remains longest suspended in water, the others, such as sink sooner from the same liquor, and from which it is poured, while yet turbid, to settle for the finer kind. These several sorts are of great use to various artificers in polishing and burnishing iron and steel works, marble, cutting, and scalloping glass, &c. The lapidaries cut the ordinary gems in their wheels, by sprinkling the wetted powder of emery over them, the wheels they use being usually of lead, with a small admixture of pewter, that their softness may admit the emery the better. It will not cut diamonds.

EMMERITES, a species of Indian calico.

ENAMEL, (Ger. *Schmelz*, *Email*. Du. *Emaus*. Da. *Smelt*. Sw. *Smalta*, *Smaltglas*. Fr. *Email*. It. *Smalto*. Sp. and Port. *Esmalte*. Rus. *Finift*, *Steklarüss*. Pol. *Smelc*,) a kind of coloured glass, used in enamelling and painting in enamel. Enamels have for their basis a pure crystal-glass or frit, ground up with a fine calx of lead and tin prepared for the purpose, with the addition, usually, of white salt of tartar. These ingredients baked together are the matter of all enamels, which are made by adding colours of different kinds, in powder, to this matter, and melting or incorporating them together in a furnace.

For white enamel, Meri De Arte Vitriar directs only manganese to be added to the matter, which constitutes the basis; for azure, zaffer mixed with calx of brass; for green, calx of brass with scales of iron, or with crocus martis; for black, zaffer with manganese, or with crocus martis; or manganese with tartar; for red, manganese or calx of copper and red tartar; for purple, manganese with calx of brass; for yellow, tartar and manganese; and for violet-coloured enamel, manganese with thrice-calcined brass. In making these enamels, the following general cautions are necessary to be observed. 1. That the pots be glazed with white glass, and be such as will bear the fire. 2. That the matter of enamels be very nicely mixed with the colours. 3. When the enamel is good, and the colour well incorporated, it must be taken from the fire with a pair of tongs. 4. The general way of making the coloured enamels is this; powder, sift, and grind all the colours very nicely, and first mix them with one another, and then with the common matter of enamels; then set them in pots in a furnace, and when they are well mixed and incorporated, cast them into water, and when dry, set them in a furnace again to melt, and when melted take a proof of it. If too deep-coloured, add more of the common matter of enamels; and if too pale, add more of the colours.

Enamels are used either in counterfeiting or imitating precious stones, in painting in enamel, or by enamellers, jewellers, and goldsmiths, in gold, silver and other metals. The first two kinds are usually prepared by the workmen themselves, who are employed in these arts. That used by jewellers, &c. is brought to us chiefly from Venice or Holland, in little cakes of different sizes, of about four inches in diameter, having the mark of the maker struck upon them with a puncheon.

ENAMELLER. The enameller differs from other painters, inasmuch as he uses metallic colours, which, to acquire their proper hues, must be submitted to the action of fire; and this requires considerable art, and great vigilance.

Copper, and gold, are the most usual metals which are used as a substratum; but copper is the best, because it will bear the greatest heat before it is brought into fusion.

The enamel-painter has more occasion for chemical knowledge than the painter in oil, because he must carry his ideas of colours in his head; thus, he lays on black when he wishes to produce red; and colours which are unburned have not the least resemblance to those produced by the heat of fire; consequently, he has no opportunity of judging by the eye, as painters in oil, or water-colours have.

The art of painting in enamel is performed by laying white enamel on plates of metal, and then painting it with colours, melted in the fire, where they receive a lustre like that of glass. This painting is the most prized of all, for its peculiar brightness and vivacity, which is very permanent; the force of its colours not being effaced or sullied by time, as in other painting, and continuing always as fresh as when it came out of the workman's hands. It is usual in miniature, it being the more difficult the larger it is, by reason of certain accidents it is liable to in the operation. Fine enamelling should only be practised on plates of gold, the other metals being less pure: copper, for instance, scales with the application, and yields fumes; and silver

turns the yellow white. Nor must the plate be made entirely flat; for in such case the enamel cracks; to avoid which, they usually forge them a little convex, and not too thick. The plate being well, and evenly, forged, they begin the operation by laying on a couch of white enamel, on both sides, which prevents the metal from swelling and blistering; and this coat serves for the ground of all the other colours. The plate being thus prepared, they begin at first by drawing out exactly the subject to be painted, with red vitriol, mixed with oil of spike, marking all parts of the design very lightly with a small pencil. After this, the colours (which are to be previously ground with water in a mortar of agate extremely fine, and mixed with oil of spike somewhat thick) are to be laid on, observing the mixtures and colours that agree to the different parts of the subject; for which it is necessary to understand painting in miniature. Great caution is necessary as to the qualities of the oil employed in preparing the colours, for it is very subject to adulterations. Great care must likewise be taken that the least dust imaginable come not to the colours while grinding or using them; for the least speck, when it is worked up with it, and when the work comes to be put into the reverberatory to be red-hot, will leave a hole, and so deface the work. When the colours are all laid, the painting must be gently dried over a slow fire to evaporate the oil, and the colours afterwards melted to incorporate them with the enamel, making the plate red-hot in a fire such as enamellers use. Afterwards, that part of the painting must be passed over again, which the fire has any way effaced, strengthening the shades and colours, and committing it again to the fire, observing the same method as before, which is to be repeated till the work is finished.

The white enamel, of which the glazing of fine earthen-ware vessels consists, is made of 100 parts of lead melted with from 15 to 40 parts of tin, and the mixture is oxydized completely, by exposing it to the heat in an open vessel. 100 parts of this oxide are mixed with an equal quantity of white sand, three parts of silica, one of talc, and 25 of common salt. This mixture is melted, then reduced to powder, and formed into a kind of paste, which is spread over the porcelain vessel before it is baked. The excellence of good enamel is, that it easily fuses into a kind of paste at the heat which is necessary for baking porcelain, and spreads equally on the vessel, forming a smooth glassy surface, without losing its opacity, or flowing completely into a glass. Its whiteness depends on the proportion of tin, and fusibility on the lead.

To prepare the flux or principal matter for enamelling on glass vessels.—Take one pound of *saturnus glorificatus* (and prepare glorificatus, thus: take litharge of white lead, put it in a pan, pour on distilled vinegar, stirring it well over a gentle fire till the vinegar becomes impregnated with the salt of lead; evaporate half the vinegar, put it in a cool place to crystallize, and keep the crystals dry for use); half a pound of natural crystal calcined to a whiteness; one pound of salt of polverine, or other fit alkali; mix them together, and bake in a slow heat for about twelve hours, then melt the mass, and pulverize the same in an agate mortar, or any other proper vessel which is not capable of communicating any metallic or other impurity.

To make green.—Take one ounce of copper-dust, two ounces of sand, one ounce of litharge, half an ounce of nitre; or two of copper, one of sand, two of litharge, one and a half of nitre; mix them with equal parts of flux, or vary the proportions of them, as may be found necessary, according to the tint of the colour required.

To make black. — Take calcined iron one ounce; cobalt, crude or prepared, one ounce; or zaffer, two ounces; and manganese one ounce; mix these well together with equal parts of flux, by melting or grinding together.

To make yellow. — Take of lead and tin ashes one ounce, litharge one ounce, antimony one ounce, sand one ounce, nitre four ounces; calcine or melt them together; pulverize and mix them with a due proportion of flux, as the nature of the glass may require; or take more, or less, of any or all the above, according to the depth of colour desired.

To make blue.—Take prepared cobalt one ounce, sand one ounce, red lead one ounce, nitre one ounce, flint-glass two ounces; melted together by fire, pulverized and fluxed according to the degree of softness or strength of colour required.

To make olive. — Take one ounce of the blue, as prepared above, half an ounce of black, half an ounce of yellow; grind them for use: if necessary, add flux to make it softer.

To make white. — Take tin, prepared by aqua-fortis, one ounce; red lead, one ounce; of white pebble-stone or natural crystal, two ounces; nitre, one ounce; arsenic, one drachm; with equal parts of flux, or more or less, as the softness or opacity may require; melted, calcined, or used raw.

To make purple. — Take the finest gold, dissolve it in aqua-regia, regulated with sal ammoniac; put it in a sand-heat for about forty-eight hours to digest the gold, collect the powder, grind it with six times its weight of sulphur, put it into a crucible on the fire till the sulphur is evaporated, then amalgamate the powder with twice its weight of mercury, put it into a mortar or other vessel, and rub it together for about six hours, with

a small quantity of water in the mortar, which change frequently; evaporate the remaining mercury in a crucible, and add to the powder ten times its weight of flux, or more, or less, as the hardness or softness of the colour may require.

To make rose-colour. — Take purple as prepared above, mix it with thirty times its weight of flux, and 100th part of its weight of silver leaf, or any preparation of silver, or vary the proportion of the flux and silver as the quality of the colour may require: or any of the other preparations for purple will do, varying the proportion of the flux and silver as above; or any materials from which purple can be produced, will, with the addition of silver and flux, answer.

To make brown. — Take red lead one ounce, calcined iron one ounce, antimony two ounces, litharge two ounces, zaffer one ounce, sand two ounces, calcined or melted together, or used raw, as may be most expedient; or vary the proportions of any or all the above, as tint or quality may require.

Method of application.—The aforesaid colours may be applied to vessels of glass in the following manner, viz. by painting, printing, or transferring, dipping, floating, and grounding.

To paint. — Mix the colours (when reduced by grinding to a fine powder) with spirit of turpentine, temper them with thick oil of turpentine, and apply them with a camel's-hair pencil, or any other proper instrument; or mix them with nut or spike oil, or any other essential or volatile oil, or with water, in which case use gum-arabic, or any other gum that will dissolve in water, or with spirits, varnishes, gums of any kind, waxes, or resins; but the first is conceived to be the best.

To print. — Take a glue bat, full size, for the subject, charge the copper-plate with the oil or colour, and take the impression with the bat from the plate, which impression transfer to the glass: if the impression is not strong enough, shake some dry colour on it, which will adhere to the moist colour; or take any engraving or etching, or stamp, or cast, and having charged it with the oil or colour, transfer it to the glass by means of prepared paper, vellum, leather, or any other substance that will answer; but the first is the best. Any of the aforesaid engravings, etchings, stamps, casts, or devices may be charged with waters, oils, varnishes, or glutinous matters of any kind, reduced to a proper state, as is necessary in printing in general; any or all of these may be used alone, or mixed with the colours. When used alone, the colour is to be applied in powder, as before mentioned.

To dip. — Mix the colour to about the consistency of a cream with any of the ingredients used for printing, in which dip the glass vessel, and keep it in motion till smooth.

To ground.—First, charge the glass vessel with oil of turpentine, with a camel's-hair pencil, and while moist apply the colour in a dry powder, which will adhere to the oil; or, instead of oil of turpentine, use any of the materials used for printing; but the first is the best.

To float. — Mix the colour, with any of the ingredients used for printing, to a consistency according to the strength of ground required, float it through a tube, or any other vessel, moving or shaking the piece of glass till the colour is spread over the part required.

ENCHASING, Inchasing, or Chasing, the art of enriching and beautifying gold, silver, and other metal work, by some design or figures represented thereon in low relievo.

Enchasing is practised only on hollow thin works, as watch-cases, cane-heads, tweezer-cases, &c. It is performed by punching, or driving out, the metal to form the figure from withinside, so as to stand out prominent from the plane or surface of the metal. In order to this, they provide a number of fine steel blocks or puncheons of different sizes, and the design being drawn on the surface of the metal, they apply the inside upon the heads or tops of these blocks, directly under the lines or parts of the figures; then with a fine hammer, striking on the metal, sustained by the block, the metal yields, and the block makes an indenture or cavity on the inside, corresponding to which there is a prominence on the outside, which is to stand for that part of the figure. Thus the workman proceeds to chase and finish all the parts by successive application of the block, and hammer, to the several parts of the design. And it is wonderful to observe with what beauty and justness, by this simple piece of mechanism, the artists in this line will represent foliages, grotesques, animals, histories, &c.

ENDORSE, ENDORSEE, ENDORSER, &c. *See* BILLS OF EXCHANGE.

ENGINE, is a generic term in mechanics, comprehending all descriptions of large compound machines for raising, projecting, and sustaining, weights; or producing other compound effects by artificial means. Thus we have *Fire Engines, Steam Engines, Mine* and *Mill Engines*, &c. &c.

The fire-engine is properly a forcing-pump; and the motion of the water effected by the pressure of the atmosphere, the force of men acting upon the extremities of a lever, and thence giving motion to two pistons, and by the elasticity of condensed air in the following manner: there are two barrels, and two pistons, situated at each extremity of the engine; when one piston is raised, a vacuum would be made in the bar-

rel in which it operates, if the water did not follow it from a canal which is the undermost part of the engine (through a valve), which rises through a tube, immersed in the water of a vessel by the pressure of the atmosphere on its surface. The water of the barrel, by the succeeding depression of the piston, shuts the valve, and is forced, through a superior canal, to enter by another valve into the air-vessel, which is situated exactly in the middle of the engine; and the like being done alternately with respect to the other barrel and piston, the air-vessel is, by these means, continually filling with water, which greatly compresses the air above the surface of the water in that vessel, and thereby proportionally augments its spring; which, at length, is so far increased, as to re-act with great force on the surface of the subjacent water, and compel it to ascend through a small tube to a stop-cock, where upon turning the cock the water is suffered to pass through a pipe fixed at the top of the engine to a ball and socket; from the orifice of which it issues in a continued stream with a great velocity to a considerable height or distance; and it is usually kept from diverging too soon in its progress, by means of a long series of flexible leather pipes, properly joined together, and known among firemen by the name of the hose.

The greatest artifice in the engine, according to the construction just described, is the contrivance to produce a continual stream, which is done by the compression, and proportional elasticity, of air in the barrel, called the air-vessel. For the air, being an elastic fluid, will be susceptible of compression in any degree by the water forced in through those valves, by which the water is made to pass immediately from the barrels, at the extremities, into the air-vessel; and since the force of the air's spring will always be inversely as the space it possesses, it follows, that when the air-vessel is half full of water, the air will be compressed into half the space it possessed at first, and therefore its spring will be twice as great as at first.

But this spring at first was equal to the pressure of the atmosphere on the same surface; for if it was not, it could not have sustained or resisted the pressure of the atmosphere which stood over it, and consequently could not have filled the vessel before the water was driven in; which yet we find it did, and maintained an equilibrium with the common air. The vessel then being half-filled with water, or the air compressed into half the first space, its spring will in this case be equal to twice the pressure of the atmosphere; and therefore when the stop-cock is turned, the air within, pressing on the subjacent water with twice the force it meets with from the external air in the small tube mentioned above, will cause the water to spout out of the engine to the height of 32 or 33 feet, if the friction is not too great.

When the air-vessel is two-thirds full of water, the air takes up one-third part; whence its spring will be three times as great at that of the common air, and it will project the water with twice the common atmospheric pressure; consequently it will rise to the height of 62 or 64 feet. When the air-vessel is three-fourths full of water, the air will be compressed into its one-fourth part, and so will protrude the water with three times the atmospheric pressure, and carry it to the height of 96 or 99 feet. Hence it will be easy to state the law by which the spring of the air will act on the surface of the water below it, as in the following table:

Height of water in air-bar.	*Of the air compressed.*	*Proportion of air's elasticity.*	*Height of the spout.*
1-half.	1-half.	2	33
2-3ds.	1-3d.	3	66
3-4th.	1-4th.	4	99
4-5th.	1-5th.	5	132
5-6th.	1-6th.	6	165
6-7th.	1-7th.	7	198
7.8th.	1-8th.	8	231
8-9th.	1-9th.	9	264
9-10th.	1-10th.	10	297
$\frac{n-1}{n}$	$\frac{1}{n}$	n	$(n-1)$ 33

Various alterations and improvements have been made, from time to time, in the construction of fire-engines. The contrivers of some of them secured their inventions from infringement by patents, the specifications of most of which may be seen in the Repertory of Arts and Manufactures.

A very cheap and simple fire-engine was invented in America by Mr. Benjamin Dearborn, who communicated it to the American academy of arts and sciences, in whose Memoirs for 1794, an account of it is to be found.

This machine is confined within a box set on wheels, as in the common fire-engines. The whole is made of wood, excepting the spears of the pumps. and a few bolts, &c. The advantages of this machine are, that it can be made in any place where common pumps are manufactured; the interior work will not exceed one-fourth of the price of those which are constructed on the usual plan; and they are incomparably more easy to work than the common ones: circumstances which strongly recommend the American fire-engine to the attention of the public.

Engine, pile, a machine by which piles are driven into the earth for the foundations of piers, and other structures, with extraordinary celerity.

The contrivance consists in drawing up a

great weight, called a ram or hammer, to a certain height, and then letting it fall freely with a considerable momentum upon the head of the pile. The simple mode is to draw up the ram, by pulling at a cord running over a fixed pulley, and suffering the cord to slip when the weight is sufficiently elevated. The complex engine does the same sort of service in a better, and more expeditious, manner.

The weight, called the ram or hammer, may be raised with the least force; and when it is raised to a proper height, it readily disengages itself and falls with the utmost freedom: then the forceps or tongs are lowered down speedily, which instantly of themselves again lay hold of the ram and lift it up.

Engine, steam. The steam-engine is one of the noblest monuments of human ingenuity. It was originally invented by the marquis of Worcester, in the reign of Charles II.

Towards the end of that century, a Captain Savary, having probably seen the account of the marquis of Worcester's invention, was convinced of its practicability, and succeeded in constructing a machine of this kind. He obtained a patent for the invention, and erected several steam-engines, which he described in a book entitled "The Miner's Friend," published in 1696.

Savary succeeded in raising water to small heights, and erected several engines in different parts of England; but he could make nothing of deep mines.

In the beginning of the eighteenth century, Newcomen, an ironmonger or smith, and Crauly, a glazier at Dartmouth, in Devonshire, first conceived the project of applying other machinery. They were contented to share the profits of the invention with Savary, who procured a patent for it in 1705, in which they were all three joined.

Newcomen's engine was first offered to the public in 1705. But many difficulties occurred in the execution of it, which were removed one by one; and it was not till 1712, that the engine seemed to give confidence in its efficacy.

About 1762, Mr. Watt began to turn his attention to this machine, which has since then been brought to a great degree of perfection.

But before we explain Mr. Watt's engines, it is necessary to premise a short account of the imperfections of the old steam-engines, and their causes.

The steam or vapour, which arises from water confined in a close vessel, and heated a few degrees above the point at which it boils in the open air, becomes an elastic fluid, uniform, and transparent, about half the gravity of atmospheric air, very much greater in bulk than the water of which it is composed, and capable of being again reduced to water, when brought into contact with matter of a less degree of heat than itself.

The pressure of the atmosphere, or any equivalent resistance, prevents the production of steam, until the water is heated to 212 degrees of Fahrenheit's thermometer; but when that pressure is removed, or the water is placed in a vessel exhausted of air, steam is produced from it when it is colder than the human blood. On the contrary, if water is pressed upon by air or steam, which are more compressed than the atmosphere, a degree of heat above 212 degrees is necessary for the production of steam; and the difference of heats, at which water boils under different pressures, increases in a less proportion than the pressures themselves; so that a double pressure requires less than a double increase of sensible heat.

The experiments which have been published concerning the bulk of water when converted into steam are erroneous; and the conclusions drawn from them make that bulk greater than it really is. It has been known for some time, that water would boil in an exhausted receiver at a low degree of heat.

If we consider the common steam-engine, we shall find it defective; first, because the vacuum is produced by throwing cold water into the cylinder to condense the steam: that water becomes hot, and, being in a vessel partially exhausted, produces a steam, which in part resists the pressure of the atmosphere upon the piston, and lessens the power of the engine. The second defect is the destruction of steam, which unavoidably happens upon attempting to fill a cold cylinder with that fluid; for the injection-water, at the same time that it condenses the steam, not only cools the cylinder, but remains there until it is extruded, at the eduction-pipe, by the steam which is let in to fill the cylinder for the next stroke; and that steam will be condensed into water as fast as it enters, until all the matter it comes in contact with is nearly as hot as itself.

Every attempt to make the vacuum more perfect by the addition of injection-water, will cool the cylinder more effectually, and cause a greater destruction of steam in the next filling; and, if the engine has already a proper load, the destruction of steam will proceed in a greater ratio than the increase of power by the amendment of the vacuum.

Though it appears that the constructors of steam-engines have never investigated these causes, yet they have been so sensible of the effects, that a judicious engineer does not attempt to load his engine with a column of water heavier than seven pounds for each square inch of the area of the piston.

Mr. Watt's improvements are founded upon these, and some other collateral, observations. He preserves an uniform heat in the cylinder of his engines, by suffering no cold water to touch it; and by protecting it from the air, or other cold bodies, by a surrounding case filled with the steam, or with

hot air or water, and by coating it over with substances that transmit heat slowly. He makes his vacuum to approach nearly that of the barometer, by condensing the steam in a separate vessel, called the condenser; which may be cooled at pleasure, without cooling the cylinder, either by injection of cold water, or by surrounding the condenser with it, and generally by both. He extracts the injection-water and detached air from the cylinder or condenser by pumps, which are wrought by the engine itself; or he blows it out by the steam.

As the inside of the cylinder was, in the old engine, exposed to the air at every stroke when the piston descended, and was considerably cooled thereby, he encloses the top of the cylinder by a metal plate, having a hole in it, through which the piston-rod works in a collar of leathers; and instead of employing the pressure of the atmosphere to force down the piston, he introduces the steam above the piston when the vacuum is formed underneath, and employs it to produce this effect: thus making the direct pressure of the steam the moving power, as in the original construction of the engine.

The last great improvement made by Mr. Watt, was his giving an impulse to the piston by the steam, both in descending, and ascending, instead of being impelled, as in the old engine, during the descent of the piston only.

Having thus briefly mentioned the principal improvements made in the steam-engine by Mr. Watt, we shall proceed to describe one of his engines on the latest construction.

To the boiler Mr. Watt has paid very great attention. It is generally of an oblong form; and the flame, after striking on its concave bottom, circulates round the sides, and sometimes returns in a pipe through the body of the water before it is suffered to go up into the chimney. In his engines there are commonly two of these boilers, so that one of them may work while the other is repairing. A steam-pipe conveys the steam from the boiler to a cylinder which is cased, and closed at top by a plate, having a collar of leather through which a piston-rod works. There are two steam-valves, through which the steam enters into the cylinder: it is admitted through an upper valve, when it is to press the piston downwards; and through a lower one, when it presses it upwards. There are two eduction-valves, through which the steam passes from the cylinder into the condenser, which is a separate vessel placed in a cistern of cold water, and which has a jet of cold water continually playing up in the inside of it. There is one air-pump, to extract the fire and water from the condenser: it is worked by a great beam or lever; and the water brought by it from the condenser, after being brought into a hot-well, is pumped up again by the pump communicating with the well, and is brought back again into the boiler by a pipe passing from the top of the aforesaid pump to the boiler. Another pump is also worked by the engine itself, which supplies the cistern in which the condenser is placed with cold water.

In the old engines, where the working-stroke was always downwards, the piston-rod was attached to the beam by chains, which bent round an arch on the end of the beam, in order to make the piston-rod move always in a perpendicular direction. But in Mr. Watt's engines, where the working-stroke is doubled, that is, both upwards and downwards, chains could not answer this purpose, as, when the piston was forced upwards they would slacken, and would not communicate the motion to the beam. It was necessary, therefore, that the piston-rod should be fastened to the beam by inflexible bars; but that the stroke might be perpendicular, a particular contrivance was invented by Mr. Watt, which answers the intended purpose admirably. It is usually called the parallel joint. In order to make the engine itself open, and shut, the steam and eduction valves, long levers are attached to them, which are moved by the piston-rod of the air-pump. This part of the apparatus is called the working-geer, and is so contrived, that the valves may be worked either by hand, or by the perpendicular rod. By shutting these valves, the engine may be stopped in an instant.

In order to communicate a rotatory motion to any machinery by the motion of the beam of the steam-engine, Mr. Watt made use of a very large fly-wheel; on the axis of which is a small concentric toothed wheel. A similar toothed wheel is fastened by straps to a rod coming from the end of the beam, so that it cannot turn round on its axis, but must rise, and fall, with the motion of the great beam.

A bar of iron connects the centres of these two small toothed wheels, so that they cannot quit each other. When, therefore, the beam raises the second small concentric toothed wheel, it must move round the circumference of the first wheel, and turn it together with the fly; and it will be evident upon consideration, that the fly, driven in this manner, will make two revolutions, for every one of the second wheel. This mode of moving the fly is preferable to a crank; as it goes with twice the velocity. This contrivance is called the sun and planet wheel, from the resemblance of the motion to that of those luminaries.

It would far exceed the limits of this work to enter into an examination of all the steam-engines invented by different persons. It is sufficient to mention, that no engine of this kind has been found, upon careful trial, to be superior to those of Mr. Watt.

From this brief description of the steam-

engine, the reader will be enabled to perceive the nature, and appreciate the value, of Mr. Watt's improvements. It had hitherto been the practice to condense the steam in the cylinder itself, by the injection of cold water; but the water which is injected acquires a considerable degree of heat from the cylinder, and being placed in air highly rarified, part of it is converted into steam, which resists the piston, and diminishes the power of the engine. When the steam is next admitted, part of it is converted into water by coming in contact with the cylinder, which is of a lower temperature than the steam, in consequence of the destruction of its heat by the injection-water. By condensing the steam, therefore, in the cylinder itself, the resistance to the piston is increased by a partial reproduction of this elastic vapour, and the impelling power is diminished by a partial destruction of the steam which is next admitted. Both these inconveniences Mr. Watt has in a great measure avoided, by using a condenser separate from the cylinder, and encircled with cold water; and by surrounding the cylinder with a wooden case, and interposing light wood-ashes, in order to prevent its heat from being abstracted by the ambient air.

The greatest of Mr. Watt's improvements consists in his employing the steam both to elevate, and depress, the piston. In the engines of Newcomen, and others, the steam was not the impelling power: it was used merely for producing a vacuum below the piston, which was forced down by the pressure of the atmosphere, and elevated by the counterweight at the farther extremity of the great beam. The cylinder, therefore, was exposed to the external air at every descent of the piston, and a considerable portion of its heat being thus abstracted, a corresponding quantity of steam was of consequence destroyed. In Mr. Watt's engines, however, the external air is excluded by a metal plate at the top of the cylinder, which has a hole in it for admitting the piston-rod; and the piston itself is raised and depressed merely by the force of steam.

When these improvements are adopted, and the engine is constructed in the most perfect manner, there is not above $\frac{1}{4}$th part of the steam consumed in heating the apparatus; and, therefore, it is possible that the engine can be rendered $\frac{3}{4}$th more powerful. It would be very desirable, however, that the force of the piston could be properly communicated to the machinery without the intervention of the great beam. This, indeed, has been attempted by Mr. Watt, who has employed the piston-rod itself to drive the machinery; and a Mr. Cartwright has, in his engine, converted the perpendicular motion of the piston into a rotatory motion, by means of two cranks fixed to the axis of two equal wheels which work in each other. Notwithstanding the simplicity of these methods, none of them have come into general use; and Mr. Watt still prefers the intervention of the great beam, which is generally made of hard oak, with its heart taken out, in order to prevent it from warping. A considerable quantity of power, however, is wasted by dragging, at every stroke of the piston, such a mass of matter from a state of rest to a state of motion, and then from a state of motion to a state of rest. To prevent this loss of power, a light frame of carpentry has been employed by several engineers, instead of the solid beam: but after being used for some time, the wood was generally cut by the iron bolts, and the frame itself was often instantaneously destroyed. In some of the engines constructed by Mr. Watt, he formed the great beam of cast iron; and while he thus added to its durability, he at the same time diminished its weight, and increased the power of his engine.

Encouraged by Mr. Watt's success, several improvements upon the steam-engine have been attempted by Hornblower, Trevethick, and many other engineers of this country. But it does not appear that they have either increased the power of the engine, or diminished its expense. It appears, on the contrary, that many of these pretended improvements, excepting those of Hornblower, consist merely in having adopted Mr. Watt's discoveries, in such a manner as not to infringe upon his patent.

Some years since, a Mr. Arthur Woolf announced to the public a discovery respecting the expansibility of steam. Mr. Watt had formerly ascertained, that steam which acts with the expansive force of four pounds per square inch, against a safety-valve exposed to the weight of the atmosphere, after expanding itself to four times the volume it thus occupies, is still equal to the pressure of the atmosphere. But Mr. Woolf has gone much farther, and has proved that quantities of steam, having the force of 5, 6, 7, 8, 9, 10, &c. pounds on every square inch, may be allowed to expand 5, 6, 7, 8, 9, 10, &c. times its volume, and will still be equal to the atmosphere's weight, provided that the cylinder in which the expansion takes place, has the same temperature as the steam before it began to expand. It is evident, however, that an increase of temperature is necessary both to produce, and maintain, this augmentation of the steam's expansive force above the pressure of the atmosphere. At the temperature of 212° of Fahrenheit, the force of steam is equal only to the pressure of the atmosphere; and in order to give it an additional elastic force of five pounds per square inch, the temperature must be increased to about $227\frac{1}{2}$°; when it will have acquired a power to expand itself to five

times its volume, and still be equal in pressure to the atmosphere, and capable of being applied as such in the working of steam-engines, according to his invention. The ratio of other pressures, temperatures, and expansive forces of steam, is shown in the following table; which gives the relative pressure per square inch, temperatures, and expansibility of steam, at degrees of heat above the boiling point of water; beginning with a temperature of steam of an elastic force equal to five pounds per square inch, and extending to steam able to sustain forty pounds on the square inch.

Table of the Pressures, Temperatures, and Expansibility of Steam, equal to the Force of the Atmosphere.

Elastic force of steam predominating over the pressure of the atmosphere, and acting upon a safety-valve.	Degrees of temperature requisite for bringing the steam to the different expansive forces in the preceding column.	No. of times its volume that steam of the preceding force and temperature will expand, and still continue equal to the pressure of the atmosphere.
Pounds per square inch.	Degrees of heat.	Expansibility.
5	227½	5
6	230¼	6
7	232¾	7
8	235¼	8
9	237½	9
10	239½	10
15	250½	15
20	259½	20
25	267	25
30	273	30
35	271	35
40	282	40

In this manner, by small additions of temperature, an expansive power may be given to steam, which will enable it to expand 50, 100, 200, 300, &c. times its volume, and still have the same force as the atmosphere.

Upon this principle Mr. Woolf took out a patent for various improvements on the steam-engine; the words of the specification are as follow:

"If the engine be constructed originally with the intention of adopting the preceding improvement, it ought to have two steam-vessels of different dimensions, according to the expansive force to be communicated to the beam, for the smaller steam-cylinder must be a measure for the larger. For example, if steam of forty pounds the square inch is fixed on, then the smaller steam-vessel should be at least one-fortieth part the contents of the larger one. Each steam-vessel should be furnished with a piston, and the smaller cylinder should have a communication both at its top and bottom, with the boiler which supplies the steam; which communications, by means of cocks or valves, are to be alternately opened and shut during the working of the engine. The top of the small cylinder should have a communication with the bottom of the larger cylinder, and the bottom of the smaller one with the top of the larger, with proper means to open and shut these alternately by cocks, valves, or any other contrivance. And both the top and bottom of the larger cylinder should, while the engine is at work, communicate alternately with a condensing vessel, into which a jet of water is admitted to hasten the condensation. Things being thus arranged, when the engine is at work, steam of a high temperature is admitted from the boiler to act by its elastic force on one side of the smaller piston, while the steam which had last moved it has a communication with the larger cylinder, where it follows the larger piston now moving towards that end of its cylinder which is open to the condensing vessel. Let both pistons end their stroke at one time, and let us now suppose them both at the top of their respective cylinders ready to descend; then the steam of 40 pounds the square inch, entering above the smaller piston, will carry it downwards, while the steam below it, instead of being allowed to escape into the atmosphere, or applied to any other purpose, will pass into the larger cylinder above its piston, which will take its downward stroke at the same time that the piston of the smaller cylinder is doing the same thing; and, while this goes on, the steam which last filled the larger cylinder, in the upward stroke of the engine, will be passing into the condenser, to be condensed

in the downward stroke. When the pistons in the smaller and larger cylinders have thus been made to descend to the bottom of their cylinders, then the steam from the boiler is to be shut off from the top, and admitted to the bottom of the smaller cylinder, and the communication between the bottom of the smaller, and the top of the larger cylinder, is also to be cut off, and the communication to be opened between the top of the smaller and the bottom of the larger cylinder; the steam which, in the downward stroke of the engine, filled the larger cylinder, being now opened to the condenser, and the communication between the bottom of the larger cylinder and the condenser cut off; and so on alternately, admitting the steam to the different sides of the smaller piston, while the steam last admitted into the smaller cylinder passes alternately to the different sides of the larger piston in the larger cylinder, the top and bottom of which are made to communicate alternately with the condenser.

"In an engine where these improvements are adopted, that waste of steam which arises in other engines from steam passing the piston, is totally prevented; for the steam which passes the piston in the smaller cylinder, is received into the larger."

Mr. Woolf has also shown how the preceding arrangement may be altered, and has pointed out various other modifications of his invention, and the method of applying his improvements to steam-engines which are already constructed.

On the power of steam-engines, and the method of computing it.

From the account which has been given of the steam-engine, and the mode of its operation, it must be evident that its power depends upon the breadth and height of the cylinder, or, in other words, on the area of the piston, and the length of its stroke. If we suppose that no force is lost in overcoming the inertia of the great beam, and that the lever by which the power acts, is equal to the lever of resistance; then, if steam of a certain elastic force is admitted above the piston, so as to press it downwards with a force of little more than 100 pounds, it will be able to raise a weight of 100 pounds hanging at the end of the great beam. When the piston has descended to the bottom of the cylinder, through the space of four feet, the weight will have risen through the same space; and 100 pounds raised through the height of four feet, during one descent of the piston, will express the mechanical power of the engine. But if the area of the piston, and the length of the cylinder, are doubled, while the expansive force of the steam, and the time of the piston's descent, remain the same, the mechanical energy of the engine will be quadruple, and will be represented by 200 pounds raised through the space of eight feet during the time of the piston's descent. The power of steam-engines therefore is, *cæteris paribus*, in the compound ratio of the area of the piston, and the length of the stroke. These observations being premised, it will be easy to compute the power of steam-engines of any size.

Thus, let it be required to determine the power of steam-engines, whose cylinder is twenty-four inches diameter, and which make twenty-two double strokes in a minute, each stroke being five feet long, and the force of the steam being equal to a pressure of twelve pounds avoirdupois upon every square inch. The diameter of the piston being multiplied by its circumference, and divided by 4, will give its area in square inches; thus $\frac{24 \times \overline{3.1416 \times 24}}{4} = 452.4$ the number of square inches exposed to the pressure of the steam. Now if we multiply this area by twelve pounds, the pressure upon every square inch, we shall have $452.4 \times 12 = 5428.8$ pounds, the whole pressure upon the piston, or the weight which the engine is capable of raising. But since the engine performs 22 double strokes, five feet long, in a minute, the piston must move through $22 \times 5 \times 2 = 220$ feet in the same time; and therefore the power of the engine will be represented by 5428.8 pounds avoirdupois, raised through 220 feet in a minute; or by 10.4 hogsheads of water, ale measure, raised through the same height in the same time. Now this is equivalent to $5428.8 \times 220 = 1194336$ pounds, or $10.4 \times 220 = 2288$ hogsheads, raised through the height of one foot in a minute. This is the most unequivocal expression of the mechanical power of any machine whatever, that can possibly be obtained. But as steam-engines were substituted in the room of horses, it has been customary to calculate their mechanical energy in horse-powers, or to find the number of horses which could perform the same work. This indeed is a very vague expression of power, on account of the different degrees of strength which different horses possess. But still, when we are told that a steam-engine is equal to sixteen horses, we have a more distinct conception of its power, than when we are informed that it is capable of raising a number of pounds through a certain space in a certain time.

Messrs. Watt and Boulton suppose a horse capable of raising 32,000 pounds, avoirdupois, one foot high in a minute; while Dr. Desaguliers makes it 27,500 pounds, and Mr. Smeaton only 22,916. If we divide, therefore, the number of pounds which any steam-engine can raise one foot high in a minute, by these three numbers, each quotient will represent the number of horses to

which the engine is equivalent. Thus in the present example, $\frac{1194336}{32000} = 37\frac{1}{3}$ horses, according to Watt & Boulton; $\frac{1194336}{27500} = 43\frac{1}{3}$ horses, according to Desaguliers; & $\frac{1194336}{22916} = 52\frac{1}{7}$ horses, according to Smeaton. In this calculation it is supposed that the engine works only eight hours a day; so that if it wrought during the whole twenty-four hours, it would be equivalent to thrice the number of horses found by the preceding rule.

Except for the propulsion of boats, for culinary concerns, and for the heating of conservatories, we are not aware of any extraordinary improvements on the subject of steam, sufficiently important to call upon us for notice, more recent than those we have been considering, in addition to *that*, with which we mean to conclude this article. In 1812, a patent was obtained by a Mr. Witty, of Kingston-upon-Hull, for improvements upon the steam-engine.

The improvements described in the specification, are, in fact, additions to, or alterations in, another specification, which the patentee presented something more than two years before; to which we must refer the reader for further information.

These recent improvements consist in making the piston draw, or force, the machinery to be worked by it, whilst itself moves both in a rectilinear, and rotary direction, in a cylinder or steam-vessel, which also revolves upon an axis placed either in a horizontal, vertical, or oblique position. The mechanical contrivances, by which this is effected, are of various kinds, but not within the compass of description here.

Mr. Witty observes, in addition to the remarks made in his other specification, "I retain the principle formerly described, *viz.* a revolving cylinder and piston, with the mode of communicating steam to them. But I dispense with heavy pistons, and now apply the force of the steam directly, with, or without, condensation. I have pointed out how this power may be applied, and how to regulate and connect the piston-rod with the machinery. The advantages which this engine possesses are obvious. The combination of rectilinear, with rotary, motion is simple. The beam, its parallel apparatus, the hand-gear, valves, and plug-frame, are entirely done away; and the consequent loss of power, arising from their alternate motion, avoided. The ponderous fly-wheel, used to regulate the motion, is in a great measure dispensed with."

For the scientific and inquisitive, this is sufficient notice to take of the subject; and to those of any other description it will perhaps be considered as even too much.

ENGINE *to lower heavy weights*, known by the name of a *crane*, is too well known, to render any explanation necessary.

Engines in mines, mills, and manufactories, are protected by divers statutes.

By 9 Geo. 3. c. 29. pulling down and destroying them is made felony *sans* clergy.

By 41 Geo. 3. c. 24. damages done to them may be recovered from the hundred.

By 52 Geo. 3. both these former statutes are confirmed, and their provisions extended.

By 56 Geo. 3. c. 73. all these statutes are recited, their provisions extended, and the proceedings more distinctly specified. 3 *Dict. Pract. Expos.* 536.

By 3 Geo. 4. no action shall be brought against the hundred, &c. where the damages are less than 30*l.*; in which case, summary redress before magistrates is given.

ENGRAVER. The business of an engraver is generally divided into several branches: thus those who engrave maps, generally engrave nothing but the maps and words, and send the ornament, which surrounds the title, to be done by another hand; those who engrave ornaments, and other devices, seldom engrave portraits; and there are some who engrave landscapes only.

Engravers who shall invent, design, and engrave prints, are to have the sole right of printing them for fourteen years, and they shall be engraved with the names of the proprietors; and others copying and selling such prints, though by varying, &c. without their consent, shall forfeit 5*l.* for every print, and also the plates and sheets, &c. Stat. 8 Geo. 2. c. 13., extended by 17 Geo. 3. c. 57.

ENGRAVING, the art of cutting wood, metals, and precious stones, and representing thereon figures, letters, or whatever device or design the artist fancies. Engraving, properly a branch of sculpture, is divided into several other branches, according to the matter whereon it is employed, and the manner of performing it. Engraving, or *graving*, as it is generally called, is the cutting lines upon a copper-plate, by means of a steel instrument, called a graver, without the use of aqua-fortis. This was the first mode of producing copper-plate prints, that was practised; and it is still much used in historical subjects, portraits, and in finishing landscapes. The tools necessary for this art are gravers, a scraper, a burnisher, an oil-stone, a sand-bag or cushion, an oil-rubber, and some good charcoal. The *gravers* are instruments of tempered steel, fitted into a short wooden handle. They are of two sorts, square, and lozenge: the first is used in cutting very broad strokes, and the other for fainter and more delicate lines. The *scraper* is a three-edged tool, for scraping off

the burr raised by the graver. *Burnishers* are for rubbing down any lines that are too deep, or burnishing out any scratches or holes in the copper: they are of very hard steel, well rounded and polished. The *oil-stone* is for whetting the gravers, etching-points, &c. The *sand-bag*, or cushion, is for laying the plate upon, for the convenience of turning it round in any direction. The *oil-rubber* and *charcoal*, are for polishing the plate when necessary.

As great care is required to whet the graver nicely, particularly the belly of it, care must be taken to lay the two angles of the graver, which are to be held next the plate, flat upon the stone, and rub them steadily, till the belly rises gradually above the plate; so that, when you lay the graver flat upon it, you may just perceive the light under the point; otherwise it will dig into the copper, and then it will be impossible to keep a point, or execute the work with freedom. In order to this, keep your right arm close to your side, and place the fore-finger of your left hand upon that part of the graver which lies uppermost on the stone. When this is done, in order to whet the face, place the flat part of the handle in the hollow of your hand, with the belly of the graver upwards, upon a moderate slope, and rub the extremity, or face, upon the stone, till it has an exceedingly sharp point, which you may try upon your thumb-nail. When the graver is too hard, as is usually the case when first bought, and may be known by the frequent breaking of the point, the method of *tempering* it is as follows:—Heat a poker red-hot, and hold the graver upon it, within half an inch of the point, till the steel changes to a light straw-colour; then put the point into oil, to cool; or hold the graver close to the flame of a candle, till it be of the same colour, and cool it in the tallow; but be careful either way not to hold it too long, for then it will be too soft; and in this case the point, which will then turn blue, must be tempered again. Be not too hasty in tempering; for sometimes a little whetting will bring it to a good condition, when it is but a little too hard. To hold the graver, cut off that part of the handle which is upon the same line with the belly, or sharp edge of the graver; making that side flat, that it may be no obstruction. Hold the handle in the hollow of your hand, and, extending your fore-finger towards the point, let it rest on the back of the graver, that you may guide it flat and parallel with the plate. Take care that your fingers do not interpose between the plate and the graver; for they will hinder you from carrying the graver level with the plate, and from cutting your strokes so clean as they ought to be. To lay the design upon the plate, after you have polished it fine and smooth, heat it so that it will melt virgin-wax, with which rub it thinly and equally over, and let it cool. Then the design which you lay on, must be drawn on paper with a black-lead pencil, and laid upon the plate with its pencilled side upon the wax: then press it to, and with a burnisher go over every part of the design; and when you take off the paper, you will find every line which you drew with the black-lead pencil upon the waxed plate, as if it had been drawn: then, with a sharp-pointed tool, trace all your design through the wax upon the plate, and you may then take off the wax, and proceed to work. Let the table or board you work at be firm and steady; upon which place your sand-bag with the plate upon it; and holding the graver as above directed, proceed in the following manner:—

For straight strokes, hold your plate firm upon the sand-bag with your left hand, moving your right hand forwards; leaning lighter where the stroke should be fine, and harder where you would have it broader. For circular or crooked strokes, hold the graver stedfast, moving your hand, or the plate, as you see convenient. Learn to carry your hand with such dexterity, that you may end your stroke as finely as you began it; and if you have occasion to make one part deeper or blacker than another, do it by degrees; and that you may do it with greater exactness, take care that your strokes be not too close nor too wide. In the course of your work, scrape off the roughness which arises with your scraper; but be careful, in doing this, not to scratch the plate; and that you may see your work properly as you go on, rub it with the oil-rubber, and wipe the plates clean; which will take off the glare of the copper, and show what you have done to the best advantage. Any mistakes or scratches in the plate may be rubbed out with the burnisher, and the part levelled with the scraper, polishing it again afterwards lightly with the burnisher, or charcoal. Having thus attained the use of the graver, according to the foregoing rules, you will be able to finish any piece previously etched by graving up the several parts to the colour required; beginning, as in the etching, with the fainter parts, and advancing gradually with the stronger, till the whole is complete. *See* ETCHING.

The *dry point*, or needle, (so called, because not used till the ground is taken off the plate,) is principally employed in the extremely light parts of water, sky, drapery, architecture, &c. To prevent any obstruction from too great a degree of light, the use of a sash, made of transparent or fan paper, pasted in a frame, and placed sloping at a convenient distance between your work and the light, will preserve the sight; and when the sun shines, it cannot possibly be dispensed with.

Of mezzotinto engraving or scraping. —

This art, which is of late date, is recommended by the amazing ease with which it is executed, especially by those who understand drawing. Mezzotinto prints are those which have no patching, or strokes of the graver, but whose lights and shades are blended together, and appear like a drawing in Indian ink. They are different from aqua tinta; but as both resemble Indian ink, the difference is not easily described. Mezzotinto is applied to portraits and historical subjects, and aqua tinta is used only for landscape and architecture.

The tools necessary for mezzotinto scraping are the grounding-tool, burnishers, and scrapers.

To lay the mezzotinto ground, lay your plate, with a piece of flannel under it, upon your table: hold the grounding-tool in your hand perpendicularly; lean upon it moderately hard, continually rocking your hand in a right line, from end to end, till you have wholly covered the plate in one direction: next cross the strokes, from side to side, afterwards, from corner to corner, working the tool each time all over the plate, in every direction, almost like the points of a compass; taking all possible care not to let the tool cut (in one direction) twice in a place. This done, the plate will be full, or, in other words, all over rough alike; and would, if it was printed, appear completely black. Having laid the ground, take the scrapings of black chalk, and with a piece of rag rub it over the plate; or you may smoke it with candles, as before directed for etching. Now take your drawing, and having rubbed the back with red chalk-dust, mixed with flake-white, proceed to trace it on the plate. To form the lights and shadows, take a blunt needle, and mark out the outlines only: then with a scraper scrape off the lights in every part of the plate, as clean and smooth as possible, in proportion to the strength of the lights in your drawing, taking care not to hurt your outlines. The use of the burnisher is to soften or rub down the extreme light parts, after the scraper is done with; such as the tip of the nose, forehead, linen, &c. which might otherwise, when proved, appear rather misty, than clear. Another method used by mezzotinto-scrapers is, to etch the outlines of the original, as also the folds in drapery, making the breadth of the shadows by dots; which having bit to a proper depth with aqua fortis, they take off the ground used in etching, and having laid the mezzotinto-ground, proceed to scrape as above. When your plate is ready for taking a proof, or impression, send it to the copper-plate printer, and get it proved. When the proof is dry, touch it with white chalk where it should be lighter, and with black chalk where it should be darker: and when the print is retouched, proceed as before for the lights; and for the shades use a small grounding-tool, as much as you judge necessary, to bring it to a proper colour; and when you have done as much as you think expedient, prove it again; and so proceed to prove and touch till it is entirely to your mind.

Engraving in aqua tinta. — Aqua tinta is a method of producing prints very much resembling drawings in Indian ink. The principle of the process consists in corroding the copper with aqua fortis, in such a manner, that an impression from it has the appearance of a tint laid on the paper. This is effected by covering the copper with a powder, or some substance which takes a granulated form, so as to prevent the aqua-fortis from acting where the particles adhere; and by this means cause it to corrode the copper partially, and in the interstices only. When these particles are extremely minute and near to each other, the impression from the plate appears to the naked eye exactly like a wash of Indian ink; but when they are larger, the granulation is more distinct: and as this may be varied at pleasure, it is capable of being adapted, with great success, to a variety of purposes and subjects. This powder, or granulation, is called the aqua-tinta grain, and there are two general modes of producing it. We shall first describe what is called the powder-grain, because it was the first that was used. Having etched the outline on a copper-plate, prepared in the usual way by the coppersmith (for which see the article ETCHING), some substance must be finely powdered and sifted, which will melt with heat, and when cold will adhere to the plate, and resist the action of aqua fortis. The substances which have been used for this purpose, either separately, or mixed, are asphaltum, Burgundy pitch, rosin, gum-copal, gum-mastich; and, in a greater or less degree, all the resins and gum-resins will answer the purpose. Common rosin has been most generally used, and answers tolerably well; though gum-copal makes a grain that resists the aqua fortis better. The substance, intended to be used for the grain, must now be distributed over the plate, as equally as possible; and different methods of performing this essential part of the operation have been used by different engravers, and at different times. The most usual way is, to tie up some of the powder in a piece of muslin, and strike it against a piece of stick, held at a considerable height above the plate; by this, the powder that issues falls gently, and settles equally over the plate. Every one must have observed how uniformly hair-powder settles upon the furniture, after the operations of the hair-dresser. This may afford a hint towards the best mode of performing this part of the process. The powder must fall upon it from a considerable height, and there must be a sufficiently large cloud of dust formed.

The plate being covered equally over with the dust, or powder, the operator is next to proceed to fix it upon the plate, by heating it gently, so as to melt the particles. This may be effected by holding under the plate lighted pieces of brown paper rolled up, and moving them about till every part of the powder is melted; this will be known by its change of colour, which will turn brownish. It must now be suffered to cool, when it may be examined by a magnifier, and if the grains or particles appear to be uniformly distributed, it is ready for the next part of the process. The design or drawing to be engraved must now be examined, and such parts of it as are perfectly white are to be re-marked. Those corresponding parts of the plates must be covered, or stopped out, as it is called, with turpentine-varnish, diluted with turpentine, to a proper consistence to work freely with the pencil, and mixed with lamp-black, to give it colour; for if transparent, the touches of the pencil would not be so distinctly seen. The margin of the plate must also be covered with varnish. When the stopping out is sufficiently dry, a border of wax must be raised round the plate, in the same manner as in etching, and the aqua fortis properly diluted with water poured on. This is called biting in, and is the part of the process which is most uncertain, and which requires the greatest degree of experience. When the aqua fortis has lain on so long that the plate, when printed, would produce the lightest tint in the drawing, it is poured off, and the plate washed with water, and dried. When it is quite dry, the lightest tints in the drawing are stopped out, and the aqua fortis poured on as before, and the same process is repeated as often as there are tints to be produced in the plate. Although many plates are etched entirely by this method of stopping out, and biting in, alternately, yet it may easily be conceived, that in general, it would be very difficult to stop round, and leave out all the finishing touches; as also the leaves of trees, and many other objects, which it would be impossible to execute with the necessary degree of freedom, in this manner. To overcome this difficulty, another very ingenious process has been invented, by which these touches are laid on the plate with the same ease and expedition, as they are in a drawing of Indian ink. Fine washed whiting is mixed with a little treacle or sugar, and diluted with water in the pencil, so as to work freely: and this is laid on the plate covered with the aqua-tint ground, in the same manner, and on the same parts, as ink on the drawing. When this is dry, the whole plate is varnished over with a weak, and thin, varnish of turpentine, asphaltum, or mastich, and then suffered to dry, when the aqua fortis is poured on. The varnish will immediately break up in the parts where the treacle mixture was laid, and expose all these places to the action of the acid, while the rest of the plate remains secure. The effect of this will be, that all the touches or places where the treacle was used, will be bit in deeper than the rest, and will have all the precision and firmness of touches in Indian ink. After the plate is completely bit in, the bordering wax is taken off, by heating the plate a little with a lighted piece of paper; and it is then cleared from the ground, and varnished by oil of turpentine, and wiped clean with a rag, and a little fine whiting, when it is ready for the printer. The principal disadvantages of this method of aqua-tinting are, that it is extremely difficult to produce the required degree of coarseness, or fineness, in the grain, and that plates so engraved do not print many impressions before they are worn out. It is therefore now very seldom used, though it is occasionally of service. We next proceed to describe the second method of producing the aqua-tint ground, which is generally practised. Some resinous substance is dissolved in spirit of wine, as common rosin, Burgundy pitch, or mastich, and this solution is poured all over the plate, which is then held in a slanting direction till the superfluous fluid drains off; and it is laid down to dry, which it does in a few minutes. If the plate is then examined with the magnifier, it will be found that the spirit, in evaporating, has left the rosin in a granulated state, or rather, that the latter has cracked in every direction, still adhering firmly to the copper. A grain is thus produced with the greatest ease, which is extremely regular and beautiful, and much superior, for most purposes, to that produced by the former method. After the grain is formed, every part of the process is conducted in the same manner, as above described.

Having thus given a general idea of the art, we shall mention some particulars necessary to be attended to, in order to insure success in the operation. The spirit of wine used for the solution, must be highly rectified, and of the best quality. What is sold in the shops, generally contains camphor, which would entirely spoil the grain. Rosin, Burgundy pitch, and gum mastich, when dissolved in spirit of wine, produce grains of a different appearance and figure; and are sometimes used separately, and sometimes mixed in different proportions, according to the taste of the artist, some using one substance, and some another. In order to produce a coarser, or a finer, grain, it is necessary to use a greater or smaller quantity of rosin; and to ascertain the proper proportions, several spare pieces of copper must be provided, on which the liquid may be poured, and the grain exa-

mined, before it is applied to the plate to be engraved. After the solution is made, it must stand still and undisturbed for a day or two, till all the impurities of the rosin have settled to the bottom, and the fluid is quite pellucid. No other method of freeing it from those impurities has been found to answer; straining it through linen or muslin, only fills it with hairs, which are ruinous to the grain. The room in which the liquid is poured on the plate, must be perfectly still, and free from dust; which, whenever it falls on the plate while wet, causes a white spot, which it is impossible to remove without laying the grain afresh. The plate must also be previously cleaned, with the greatest possible care, with a rag and whiting, as the smallest stain, or particle of grease, produces a streak or blemish in the grain. All these attentions are absolutely necessary to produce a tolerably regular grain; and, after every thing that can be done by the most experienced artists, still there is much uncertainty in the process. They are sometimes obliged to lay on the grains several times, before they procure one sufficiently regular. The same proportions of materials do not always produce the same effect, as much depends on their qualities; and something on the weather. These difficulties are not to be surmounted but by a great deal of experience; and even those, who are daily in the habit of practising the art, are frequently liable to unaccountable accidents. Indeed it is much to be lamented, that so elegant and useful a process should be so extremely delicate, and uncertain. It being necessary to hold the plate in a slanting direction, in order to drain off the superfluous fluid, there will naturally be a greater body of the liquid at the bottom than at the top of the plate. On this account, a grain laid in this way is always coarser at the lower side of the plate. The most usual way is, to keep the coarsest side for the foreground, that being generally the part which has the deepest shadows. In large landscapes, sometimes various parts are laid with different grains, according to the nature of the subject. The finer the grain is, the more nearly does the impression resemble Indian ink, and the fitter it is for imitating drawings; but very fine grains have several disadvantages; for they are apt to come off before the aqua fortis has lain on long enough to produce the desired depth; and as the plate is not corroded so deep, it sooner wears out in printing; whereas coarser grains are firmer, the acid goes deeper, and the plate will throw off a great many more impressions. The reason of all this is evident, when it is considered, that, in the fine grains, the particles are small, and near each other, and consequently the aqua fortis, which acts laterally as well as downwards, soon undermines the particles, and causes them to come off. If left too long on the plate, the acid would eat away the grain entirely. On these accounts, therefore, the moderately coarse grains are more sought after, and answer better the purpose of the publisher, than the fine grains which were formerly in use. Although there are considerable difficulties in laying properly the aqua-tint grain, yet the corroding of the copper, or biting in, so as to produce exactly that tint required, is still more precarious and uncertain. All engravers allow that no positive rules can be laid down, by which the success of this process can be secured; nothing but a great deal of experience, and attentive observation, can enable the artist to do it with any degree of certainty. There are some hints, however, which may be of considerable importance to the person who wishes to attain the practice of this art. It is evident that the longer the acid remains on the copper, the deeper it bites, and consequently the darker will be the shade in the impression. It may be of some use, therefore, to have several bits of copper laid with aqua-tint grounds, of the same kind to be used in the plate, and to let the aqua fortis remain for different lengths of time on each; and then to examine the tints produced in one, two, three, four minutes, or longer. Observations of this kind, frequently repeated, and with different degrees of strength of the acid, will at length assist the judgment, in guessing at the tint which is produced in the plate. A magnifier is also useful to examine the grain, and to observe the depth to which it is bitten. It must be observed, that no proof of the plate can be obtained till the whole process is finished. If any part appears to have been bitten too dark, it must be burnished down with a steel burnisher; but this requires great delicacy, and good management, not to make the shade streaky; and as the beauty, and durability, of the grain are always somewhat injured by it, it should be avoided, as much as possible.

Those parts which are not dark enough, must have a fresh grain laid over them, and be stopped round with varnish, and subjected again to the aqua fortis. This is called re-biting, and requires peculiar care and attention. The plate must be very well cleaned out with turpentine, before the grain is laid on, which should be pretty coarse, otherwise it will not lie upon the heights only, as is necessary in order to produce the same grain. If the new grain be different from the former, it will not be so clear, nor so firm, but rotten.

Engraving on wood. — Engraving on wood is a process exactly the reverse to engraving on copper. In the latter, the strokes to be printed are sunk, or cut into the cop-

per, and a rolling-press is used for printing it; but in engraving on wood, all the wood is cut away, except the lines to be printed, which are left standing up like types, and the mode of printing is the same, as that used in letter-press. The wood used for this purpose is boxwood, which is planed quite smooth. The design is then drawn upon the wood itself with black lead; and all the wood is cut away with gravers, and other proper tools, except the lines that are drawn. Or sometimes the design is drawn upon paper, and pasted upon the wood, which is cut as before. The art is of considerable difficulty, and there are very few who practise it. It is, however, useful for books, as the printing of it is cheaper than that of copper-plates. It cannot be applied equally well to all the purposes, to which copper-plate engraving is applicable.

Engraving on precious stones.—In this process they use either the diamond, or emery. The diamond, which is the hardest of all stones, is only cut by itself, or with its own matter. The first thing to be done in this branch of engraving, is to cement two rough diamonds to the end of two sticks large enough to hold them steady in the hand, and rub or grind them against each other till they are brought to the desired form. The dust, or powder, that is rubbed off, serves to polish them, which is performed with a kind of mill that turns a wheel of soft iron. The diamond is fixed in a brass dish, and thus applied to the wheel, is covered with diamond-dust, mixed up with oil of olives; and when the diamond is to be cut facet-wise, they apply first one face, then another, to the wheel. Rubies, sapphires, and topazes, are cut and formed the same way on a copper wheel, and polished with tripoli diluted in water. As to agates, amethysts, emeralds, hyacinths, granites, rubies, and others of the softer stones, they are cut on a leaden wheel, moistened with emery and water, and polished with tripoli, on a pewter wheel. Lapis-lazuli, opal, &c. are polished on a wooden wheel. To fashion and engrave vases of agate, crystal, lapis-lazuli, or the like, they make use of a kind of lathe, like that used by pewterers to hold the vessels, which are to be wrought with proper tools: that of the engraver generally holds the tools, which are turned by a wheel; and the vessel is held to them to be cut and engraved, either in relievo or otherwise; the tools being moistened, from time to time, with diamond-dust and oil, or at least emery and water. To engrave figures or devices on any of these stones, when polished, such as medals, seals, &c. they use a little iron wheel, the ends of whose axis are received within two pieces of iron, placed upright, as in the turner's lathe; and to be brought closer, or set further apart, at pleasure: at one end of the axis are fitted the proper tools, being kept tight by a screw. Lastly, the wheel is turned by the foot, and the stone applied by the hand to the tool, and is shifted and conducted, as occasion requires. The tools are generally of iron, and sometimes of brass: their form is various; but it generally bears some resemblance to chisels, gauges, &c. Some have small round heads like buttons; others like ferules, to take the pieces out; and others flat, &c. When the stone has been engraved, it is polished on wheels of hair-brushes and tripoli.

Engraving on steel, is chiefly employed in cutting seals, punches, matrices, and dyes proper for striking coins, medals, and counters, &c. The method of engraving with the instruments, &c. is the same for coins as for medals and counters. All the difference consists in their greater or less relievo, the relievo of coins being much less considerable than that of medals, and that of counters still less than that of coins. Engravers in steel commonly begin with punches which are in relievo, and serve for making the creux, or cavities of the matrices and dyes: though sometimes they begin with the creux, or hollowness, but then it is only when the intended work is to be cut very shallow. The first thing done, is that of designing the figures; the next is the moulding of them in wax, of the size, and depth, they are to lie, and from this wax the punch is engraved. When the punch is finished, they give it a very high temper, that it may the better bear the blows of the hammer, with which it is struck, to give the impression to the matrix. The steel is made hot to soften it, that it may the more readily take the impression of the punch; and after striking the punch on it, in this state, they proceed to touch up or finish the strokes and lines, where, by reason of their fineness, or the too great relievo, they are in any wise defective, with steel gravers of different kinds, chisels, flatters, &c. being the principal instruments used in graving on steel. The figure being thus finished, they proceed to engrave the rest of the medal, as the mouldings of the border, the engrailed ring, letters, &c. with little steel punches, well tempered, and very sharp.

ENGRAVINGS are a special property in the authors of them for a certain number of years, as has been observed. *See* ENGRAVERS.

ENSURANCE. *See* INSURANCE.

ENTREPOST, or ENTREPOT, the public magazine, appointed by the sovereign or state, in most foreign countries, for the reception of all kind of merchandise imported, with a design, either to carry them through the dominions of the sovereign or state where they are debarked, or to reship them for some other country: merchandise thus

landed not being subject to the duties of import, the care of them must be confided to the officers of the customs, who give receipts for all goods thus deposited, for which a small sum is paid for the warehouse rent, &c. of them.

An *entrepost* city, is a city which trading nations make choice of as the general magazine for all sorts of merchandise destined for that part of the world where it is situated. Thus Smyrna is the magazine of the Levant, where the English, French, Dutch, and the Venetians lay up their merchandise destined for Persia, and some parts of India. Dunkirk and Ostend were likewise *entrepost* cities, as Marseilles now is.

ENTRY, *Bill of.* In making entries inwards, it is usual for merchants to include all the goods they have on board the same ship in one bill, though sometimes they may happen to be upwards of twenty several kinds, and in case the goods are short-entered, additional or post-entries are now allowed, though formerly the goods so entered were forfeited. As to bills of entry outwards, or including goods to be exported, upon delivering them, and paying the customs, you shall receive a small piece of parchment, called a cocket, which testifies your payment thereof, and all duties for such goods. If several sorts of goods are exported at once, of which some are free, and others pay customs, the exporter must have two cockets, and therefore must make two entries; one of the goods that pay, and the other of the goods that do not pay custom. Entries of goods on which a drawback is allowed, must likewise contain the name of the ship in which the goods were imported, the importer's name and the time of entry inwards. The entry being thus made, and an oath taken that the customs for those goods were paid as the law directs, you must carry it to the collector and comptroller, or their deputies; who, after examining their books, will grant a warrant, which must be given to the surveyor, searcher, or land-waiter, further to certify the quantity of goods; after which the certificate must be brought back to the collector and comptroller, or their deputies, and oath made that the said goods are really shipped, and not to be landed again in any part of Great Britain.

ERMIN, or ERMINE. (GER. DA. and SW. *Hermelin.* DU. *Hermyn.* FR. *Hermine, Ermine.* IT. *Armellina, Ermellino.* SP. *Armino.* PORT. *Arminho.* RUS. *Gornostai.* POL. *Gronostay.* LAT. *Erminea.*) The animal that produces this fur is the *Mustela candida* of Linnæus. It is a species of weasel, and abounds in all the cold countries, especially Russia, Norway, and Lapland. The English white stoat is of the same family. Furriers have given the name of *ermin* to the skin of the sea-otter, the *mustela lutris*, which is also an inhabitant of the most northern countries; but for what reason they have so applied the appellation does not appear. The colour of this animal is extremely dark, and its fur is reckoned among the most valuable. It is sold principally to the Chinese.

ESSENCES. Several of the volatile or essential oils are thus called by the perfumers; such are the essences of bergamot, lemon, lavender, origanum, rosemary, spike, &c. &c.

ESSENCE, ORIENTAL, among the jewellers of Paris, denotes a certain ingredient made from the scales of the little fish called the blay, with which they contrive to imitate oriental pearls.

ESCAUN, a Dutch and Flemish silver current coin, value *6d.* sterling.

ESTRICH, or ESTRIDGE, (GER. FR. *Duvet d'autruche.* IT. *Penna matta di strozzo.* SP. *Plumazo de avestruz.* PORT. *Frouxel de abestruz.* LAT. *Struthionum plumæ molliores,*) is the fine soft down which lies immediately under the feathers of the bird called the ostrich. The finest is used as a substitute for beaver in the manufacture of hats, and the coarser or stronger sort is employed in the fabrication of a stuff, which resembles a fine woollen cloth. We usually import our estridge from the Levant, from Italy, and from other parts of the Mediterranean.

ETCHING, is a manner of engraving on copper, in which the lines, instead of being cut with a graver, are corroded in with aqua fortis. It has many advantages over engraving by cutting. In all the engravings on copper that are executed in the stroke manner, etching, and graving, are combined, the plate being generally begun by etching, and finished by the graver. Landscapes, architecture, and machinery, are the subjects that receive most assistance from the art of etching, for it is not so applicable to portraits, and historical designs. We shall first describe the various instruments and materials used in the art.

Copper-plates may be had ready prepared in most large towns; but when these cannot be had, procure a pretty thick sheet of copper, rather larger than your drawing, and let the brazier from whom you get it planish it well; then take a piece of pumice stone, and with water rub it all one way, till it becomes tolerably smooth and level; a piece of charcoal is next used with water for polishing it still farther, and removing the deep scratches made by the pumice stone, and it is then finished with a piece of charcoal of a finer grain, with a little oil.

Etching points, or needles, are pointed steel instruments, about an inch long, fixed in handles of hard wood, about six inches

in length, and of the size of a goose-quill. They should be well tempered, and very accurately fixed in the centre of the handle. They must be brought to an exactly conical point, by rubbing upon an oil-stone. Several of these points will be necessary. A parallel ruler is necessary for drawing the straight lines. Compasses are useful for striking circles, and measuring distances. Aqua fortis, or rather nitrous acid, is used for corroding the copper, or for biting in, as it is called. This must be kept in a bottle with a glass stopple, for its fumes destroy corks. A stopple made of wax, or a cork well covered with wax, will serve as a substitute. Bordering-wax for surrounding the margin of the copper-plate when the aqua fortis is pouring on, may be bought ready prepared, but it may be made as follows: Take one-third of bees' wax to two-thirds of pitch; melt them in an iron ladle, and pour them, when melted, into water lukewarm; then mould it with your hand till it is well mixed, and the water squeezed out. Form it into rolls of convenient size. Turpentine varnish is used for covering the copper-plate with, in any part where you do not wish the aqua fortis to bite. This may be diluted to a proper consistence with turpentine, and mixed with lamp-black when laid upon the plate. Etching-ground is used for covering the plate all over, previously to drawing the lines on it with the needles. It is prepared in the following manner: Take of virgin wax and asphaltum, each 20 ounces; of black pitch and Burgundy pitch, each half an ounce; melt the wax and pitch in a new earthen-ware glazed pipkin, and add to them, by degrees, the asphaltum, finely powdered. Let the whole boil till such time as, by taking a drop upon a plate, it will break when it is cold, on bending it double two or three times between the fingers. The varnish being then enough boiled, must be taken off from the fire, and, letting it cool a little, must be poured into warm water, that it may work the more easily with the hand, so as to form into balls for use. It must be observed, first, that the fire be not too violent, for fear of burning the ingredients; a slight immersing will be sufficient: secondly, that while the asphaltum is putting in, and even after it is mixed with them, the ingredients should be stirred continually with a spatula: and, thirdly, that the water, into which this composition is thrown, should be nearly of the same degree of warmth with it, to prevent a kind of cracking, which happens when the water is cold. The varnish ought always to be harder in summer than winter, and it will become so, if it be permitted to boil longer, or a greater portion of the asphaltum be used. To lay the ground for etching, proceed in the following manner: Having cleaned the copper-plate with some fine whiting and a linen rag, to free it from all grease, fix a hand-vice to some part of it, where no work is to be done, to serve as a handle for managing it by when warm. Roll up some coarse brown paper, and light one end of it; then hold up the back of the plate over the burning paper, moving it up until ever part is heated, so as to melt the etching ground, which should be rolled up in a bit of taffeta, to prevent any dirt, that may happen to be among it, from mixing with what is melted upon the plate. If the plate be large, it will be best to heat it over a chafing-dish, with some clean coals. It must only just sufficiently be heated to melt the ground. When a proper quantity of the etching ground has been rubbed upon the plate, it must be dabbed, or beaten gently, while the plate is hot, with a small dabber made of cotton, wrapped up in a piece of taffeta: by which operation the ground will be distributed equally over the plate. When the plate is thus uniformly and thinly covered with varnish, it must be blackened by smoking it with a wax taper. For this purpose, twist together three or four pieces of wax taper to make a larger flame, and while the plate is yet warm, hold it with the varnished side downwards, and move the smoky part of the lighted taper over its surface, till it is made almost quite black: taking care not to let the wick touch the varnish, and that the latter get no stain or smear. In laying the etching ground, great care must be taken that no particles of dust or dirt of any kind settle upon it, as those would be found very troublesome in etching; the room, therefore, in which it is laid, should be as still as possible, and free from dust. The ground being now laid, and cool, the next operation is to transfer the design to the plate. For this purpose, a tracing on oiled paper must be made, from the design to be etched, with pen and ink, having a very small quantity of ox's gall mixed with it, to make the oiled paper take it; also a piece of thin paper, of the same size, must be rubbed over with red chalk, powdered by means of some cotton. Then laying the red chalked paper, with its chalked side next the ground, on the plate, put the tracing over it, and fasten them both to the ground, by a little bit of bordering wax. When all this is prepared, take a blunt etching needle, and go gently all over the lines in the tracing; by which means the chalked paper will be pressed against the ground, and the lines of the tracing will be transferred to the ground; on taking off the papers they will be seen distinctly. The plate is now prepared for drawing through the lines which have been marked upon the ground. For this, the etching points, or needles, are employed, leaning hard, or lightly, according to the

degree of strength required in the lines. Points of different sizes, and forms, are also used for making lines of different thickness, though commonly this is effected by the biting in of aqua fortis. A margin or border of wax must now be formed all round the plate, to hold the aqua fortis when it is poured on. To do this, the bordering wax must be put into lukewarm water, to soften it, and render it easily worked by the hand. When sufficiently pliable, it must be drawn out into long rolls, and put round the edges of the plate, pressing it down firmly, and forming it with the fingers into a neat wall or margin; a spout must be formed in one corner, to pour off the aqua fortis afterwards. The spirit of nitre is now to be diluted with four or five times as much water, or more, (according as you wish the plate to be bitten quickly, or slowly,) and poured upon the plate. In a few minutes you will see minute bubbles of air filling all the lines that have been drawn on the copper, which must be removed with a feather as they appear. By the more, or less, rapid production of these bubbles, you judge of the rapidity, with which the nitre acts upon the copper. The biting in of the plate is the most uncertain part of the process, and nothing but very great experience can enable any one to tell when the plate is bitten enough, as the thickness, and depth of the line, cannot easily be seen till the ground is taken off. When you judge from the time the acid has been on, and the rapidity of the biting, that those lines, which you desire to be the faintest, are as deep as you wish, you pour off the aqua fortis by the spout, wash the plate with water, and dry it, by blowing with a bellows, or by the fire, taking care not to melt the ground. Those lines that are not intended to be bitten any deeper, must now be stopped up with turpentine varnish, mixed with a little lamp-black, and laid on with a camel's-hair pencil; and when this is thoroughly dry, the aqua fortis may be poured on again, to bite the other lines that are required to be deeper. This process of stopping out, and biting in, is to be repeated as often as there are to be lines of different degrees of thickness, taking care not to make any mistake in stopping out wrong lines. It is also necessary to be particularly careful to stop out with the varnish those parts, from which the ground may happen to have come off, by the action of the nitre, otherwise you will have parts bitten that were not intended, which is called foul biting. When the biting is quite finished, the next operation is to remove the bordering-wax and the ground, in order to see what success you have had; for till then this cannot be known exactly. To take off the bordering-wax, the plate must be heated by a piece of lighted paper, which softens the wax in contact with the plate, and occasions it to come off quite clean. Oil of turpentine is now poured upon the ground, and the plate is rubbed with a bit of linen rag, which removes all the ground; lastly, it is cleaned off with whiting. The success of the etching may now be known, but it is necessary to get an impression taken upon paper, by a copper-plate printer. This impression is called a proof. If any parts are not bitten so deep as was intended, the process may be repeated, provided the lines are not too faintly bitten to admit of it. This second biting in, in the same lines, is called re-biting, and is done as follows: Melt a little of the etching-ground on a spare piece of copper, and dab it a little, to get some on the dabber; then having cleaned out with whiting the lines that are to be re-bitten, heat the plate gently, and dab it very lightly with the dabber. By this the parts between the lines will be covered with the ground; but the lines themselves will not be filled up, and consequently will be exposed to the action of the aqua fortis. This is a very delicate process, and must be performed with great care. The rest of the plate must now be varnished over, the bordering-wax put on again, and the biting repeated in the same manner as the first. If any part should be bitten too deep, it is more difficult to recover it, or make it fainter. This is generally done by rubbing the part down with a piece of charcoal. This will make the lines shallower, and cause them not to print so black. Should any small parts of the lines have missed altogether in the biting, they must be cut with the graver; which is also sometimes employed to cross the lines of the etching, and thus to work up a more finished effect. Dry pointing, as it is called, is also another method used for softening the harsh effects usually apparent in an etching. This is done by cutting with the etching point upon the copper, without any ground or varnish. This does not make a very deep line, and is used for covering the light, where very delicate tints and soft shadows are wanting. By varying these processes of etching, graving, and dry pointing, as is thought necessary, the plate is worked up to the full effect intended; and it is then sent to the writing engraver, to grave whatever letters may be intended to be put upon it.

Etching on glass.—Glass resists the action of all acids, except the fluoric acid. By this, however, it is corroded in the same manner as copper is by aqua fortis; and plates of glass may be engraven in the same manner as copper. There are several methods of performing this. We shall first describe the mode of etching by means of the fluoric acid in the state of gas. Having covered over the glass to be etched with a

thin coat of virgin-wax, (which is only common bees'-wax bleached white,) draw the design on it in the same manner as in etching on copper. Then take some fluor spar, commonly called Derbyshire spar, pound it fine, and put it into a leaden vessel, pouring some sulphuric acid over it. Place the glass with the etched side lowermost over this vessel, two or three inches above it. Apply a gentle heat to the leaden vessel; this will cause the acid to act upon the fluor spar, and disengage the gas, which will corrode the glass. When it is sufficiently corroded, remove the wax by oil of turpentine. This etching may be also performed by raising a margin of bordering-wax all round the glass, in the same manner as copper etching, and pouring on the liquid fluoric acid which acts upon the glass. When it is sufficiently corroded, remove the ground as before. A third method of etching on glass is as follows: Having put the wax on the glass, draw your design, and raise a margin all round it. Then put the fluor spar, with some sulphuric acid diluted with water, upon the glass. The sulphuric acid will dissolve the fluoric, which will be absorbed by the water and corrode the glass.

ETHER, or Æther. When some of the acids are combined with alcohol at a certain temperature, decomposition takes place, and the product is a peculiar fluid, termed *Ether*, According as the different acids may have been employed, it is called *sulphuric, nitric, muriatic,* or *acetic ether*.

The ethers are light, colourless fluids, of a peculiar penetrating smell, and a strong spirituous taste. They are volatile at low temperatures. Good sulphuric ether is of specific gravity .750. They possess highly stimulating properties, as medicines.

Sulphuric ether is of considerable use in the arts: it takes up gold from its solution in aqua-regia; and is thence employed for gilding; the ether, being volatile at the common temperature of the atmosphere, leaves the gold thinly distributed over the body to which the solution has been applied. It is also used for dissolving elastic gum.

EUPHORBIUM. (Ger. *Euphorbiengummi*. Du. Da. and Lat. *Euphorbium*. Sw. *Prustkäda*. Fr. *Euphorbe*. It. and Sp. *Euforbio*. Port. *Euforbio, Alforba*.) *See* GUM.

EUROPE, one of the four quarters of the globe, and, though the smallest, yet is the most important in point of commercial, as well as political, consequence; being the emporium, in which all the trade of the other parts is centered.

We do not enter into an historical detail of the rise and progress of European commerce in this place, having already treated it at sufficient length, under the article COMMERCE; but to develope the state of European traffic, as it exists in modern times, and exhibit the commercial relations, by which the nations that compose it are bound to each other. To accomplish this design, we shall likewise avoid all cosmographical details, and confine our observations and statements to the *Productions, Manufactures,* and *Commerce* of the different countries of Europe, under their respective heads.

In pursuance of this design, an alphabetical arrangement of the different kingdoms and states of Europe has been considered the best.

Denmark.—*Copenhagen*, or, in the language of the country, *Kiobenhavn*, is the capital, not only from being the residence of the king and the public functionaries of the government, but from being the emporium of trade, commerce, and manufactures. It is situated in the island of Zealand, the principal one of those which go to compose this kingdom, and has one of the finest harbours in the Baltic, with a depth of water sufficient for vessels of any burthen.

Productions.—Busching estimates the annual produce of the whole kingdom at 8,361,700 tons of corn, rye, barley, oats, wheat, buck-wheat, pease, vetch, and beans. In a good harvest the Danes export grain. The islands of Fionia, Laland, (which is the most fertile,) Langeland and Jutland, furnish the greatest quantities of corn. The inhabitants of Denmark have used some exertions to derive, from their native soil, wool for the manufacture of cloths and other stuffs; not that this article is scarce in Denmark, on the contrary, flocks of sheep abound here; but, with the exception of a few districts, the wools are of the coarsest description, fit at best for the manufacture of ordinary hats only. In some parts of Jutland the Danes have introduced the race of English sheep. The Danish horses are so beautiful in figure, and so strong, that they are in general preferred to all other horses for the harness. The islands of Zealand, Fionia, and Laland, furnish the best saddle-horses. Those of Jutland are larger, heavier, and have bigger heads. The horses of the duchies are very beautiful, fit for harness, larger than the Danish, but less durable. Those of the district of Anglen are reputed the best. A vast number of horned cattle are pastured in Denmark. We are assured that 100,000 oxen are annually exported, 80,000 of which are furnished by Jutland. Large flocks and herds of sheep, and pigs, are also reared here, several of which are exported to foreign countries. Hides of oxen, sheep, and calves likewise form part of the commodities of this kingdom. The herring-fishery is carried on near the island of Zealand, and might be entirely engrossed by the Danes.

Denmark has long been celebrated for its mines, and several considerable discoveries of ores have been recently made in the mineral world; besides many substances fit for dyeing, such as vitriol, alum, &c. Jutland and Zealand produce ochre, a red earth, called Danish red, besides umber, and a sort of blue earth, &c.

Manufactures.—Sugar-houses have been established in Denmark for nearly half a century; and there is a salt-petre manufactory at Copenhagen. Within five or six miles of the capital there are powder-mills, whence the navy, and army, are supplied with ammunition. The manufacture of cloth is the principal fabric in wool, and, we may add, the chief of the Danish manufactures; it is carried on at Copenhagen. Next to cloth, the most considerable woollen manufactures are camlets, calimancoes, bolting-cloths, serges, swan-skins, plush, &c. Some of these stuffs are made in the capital, and some in different parts of the kingdom. The greater part of the wool, consumed in the manufactures, is brought from Germany ready spun. There are above fifty-four fine woollen-stocking manufactories. The islands of Faro also furnish a great number of woollen stockings for the use of the soldiers and sailors. Stockings, caps, gloves, &c. are made from cotton principally in Jutland, whence they are frequently exported. There are hat manufactories at Copenhagen. The wool of Zealand is very coarse, and serves only for making a sort stuff called *wadmel.* There are but few silk manufactures in Denmark. At Copenhagen are made painted linens, oil-cloth, calico, cambrics, and most of those articles which we call Manchester goods. Also sail-cloth, for the royal navy, as likewise ropes, &c. The manufacture of lace is chiefly carried on in the duchy of Sleswick, at Tondern; the greater part of the women at this place being employed in the making of it. A great deal of this lace is sent into Norway, Germany, and to the Baltic. There are paper-mills at Lunden, Roschild, and Ingelsholm, in Jutland. At the first is manufactured lapping paper; at the second are made two sorts of writing paper, and lapping paper; and at the third, the paper which bears the name of the place, besides a sort of blue paper, and paste-board. White, yellow, black, and gray, glazed leather gloves are made at Randers in Jutland, at Odensee in Fionia, and in the duchy of Sleswick. There are several soap-boilers in Denmark, and, in fact, there are few towns in which one, or more, are not to be found. There is a vitriol manufactory in Fredericksburgh, and another at Jagers. Delft and porcelain are made in Denmark; but very little of the former, and none of the latter, is exported. There is a manufactory of fire-arms at Elsinore, where are made muskets, pistols, and bayonets.

Commerce.—The situation of Denmark is so well adapted for commerce, as to render this kingdom a staple of the Baltic. Formerly the Hanse Towns possessed the commerce of Denmark, but the English, and the Dutch, wrested it from them. The Danes having very few colonies in America, the traffic which they carry on with that part of the world as well as with Africa, is very inconsiderable in time of peace; but when war takes place between the other maritime powers, they profit by the occasion, and drive a brisk trade to those quarters of the globe. Next to Copenhagen, the chief commercial towns of Denmark are, Usted, Christianstadt, Carlscrona, Saltzburg, Carlshaven, and Elsinore. The major part of the commerce with Denmark is conducted in the way of barter. The Danish exports are, occasionally corn, at all times seeds, some dried fruits, spirits distilled from grain, beer, flour, horses, oxen, Jutland pigs, bacon, salted provisions, butter, cheese, tallow, wax, honey, mead, skins, wool, hogs' bristles, horse-hair, quills, herrings, pickled oysters and other fish; cloths, gloves, laces, cord, tin, copper, and iron-ware; linen-cloths, all sorts of woollen-stuffs, stockings, sheep-skins, spun-wool, sail-cloth, hats, hones, delft, brown crockery, trunks, shoes, slippers, refined sugar, syrup, &c. &c. The species of merchandise which sell well in Denmark are, salt, wines, and brandy; paper, gold, silver, silken, and woollen, stuffs; tobacco, cotton, indigo, and spices. The principal part of the trade of Denmark is under the monopolies of certain companies, as the East India, and Greenland, Companies. They had an Icelandic Company of considerable importance, but this trade is now thrown open; and an African Company, which can scarcely be said to exist since the abolition of the slave trade, in which meritorious act Denmark took a lead. They have a national bank at Copenhagen, but its paper is always at a considerable discount.

Accounts are kept here in rix-dollars, each consisting of 6 marcs, and each marc of 16 skillings Danish; but none of these monies are in general circulation; that which is used in commercial transactions being Bank money, at a discount, as has been observed.

We must not close this article without some account of Elsinore, the second place for importance in the Danish dominions, situated near the streights called "the *Sound*," where the Baltic and North Seas unite, and from which, though a place having no trade of its own, a great portion of the king of Denmark's revenues arise; for here every merchant-vessel passing the Sound is obliged to pay a certain duty, (differing indeed according to treaties with different companies,) this right being guaranteed by all the commercial nations

of Europe. In 1817, the following ships passed the Sound:

English - -	2088
Swedish - -	1044
Norwegian - -	478
Prussian - -	917
Dutch - -	695
Danish - -	463
Hanoverian -	212
Bremen - -	11
Hamburgh - -	42
Mecklenburgh -	169
Russian - -	197
American - -	63
French - -	22
Other nations -	360
Total number	13,148

England. — To this article we shall dedicate a greater number of pages than to those that have preceded; because this head must, without doubt, prove much more interesting to the generality of the readers of this work, than any of the foregoing. With respect to the articles *productions* and *commerce*, we shall pursue our usual plan; but, in detailing that of *manufactures*, we purpose, as well for the sake of perspicuity, as of avoiding omissions, &c. to arrange the *principal* manufacturing cities, and towns, in alphabetical order, assigning to each its proper branches of trade and manufacture, and inserting under every head such observations as shall appear necessary.

Productions. — The principal productions of the soil itself are grain, vegetables, wood, hops, hemp, flax, and the common fruits.

Grain. — England need not to envy France its vines, nor Italy its olives; for its grain amply compensates (by supplying real necessaries for the maintenance of life) for the want of those luxuries. The quantity of wheat and rye annually reaped in England and Wales has been estimated at 5,110,255 qrs., of barley 4,603,272 qrs., and of oats 4,240,947 qrs. Mr. Arthur Young's computation is as follows, viz.

Of corn and rye	9,198,585	quarters.
Barley -	11,595,792	ditto.
Oats -	10,285,690	ditto.

The greater part of this grain is consumed at home, and Mr. Young observes, "there is only a quantity to the value of 947,000*l.* sterling exported annually." The population of the kingdom, however, has increased so rapidly since that calculation was made, that of late years, instead of being to any degree an exporting, we have become an importing country, and *that* to a considerable amount. The English counties are in general fertile in corn; the most distinguished, however, are Cambridgeshire, Hertfordshire, Dorsetshire, Gloucestershire, Oxfordshire, Cornwall, Kent, Essex, Suffolk, Northamptonshire, Berkshire, Bedfordshire, Lancashire, Yorkshire, Somersetshire, Buckinghamshire; and in Wales, Cardigan, Carmarthen, Brecknock, Montgomery, and Anglesea. The greatest quantity of barley is grown in Essex, Cambridge, Bedford, Norfolk, Huntingdon, Suffolk, Surrey, Bucks, Nottingham, Oxford, and Berks. From the ports situated upon the eastern and southern coasts of England, grain is principally exported; the chief of these ports are Berwick, Chichester, Colchester, Dover, Exeter, Harwich, Hull, Ipswich, Lynn-Regis, Milford, Newhaven, Poole, Portsmouth, Sandwich, Shoreham, Southampton, Wells in Norfolk, Yarmouth, and London. The English flour has been reckoned the best in the world, and finds its way into many foreign markets, when corn is at such a price that it is lawful to export it; but the American flour, though different in flavour, is found to be little inferior for use.

Vegetables and Fruits. — Potatoes, it is the common opinion, were first brought from America to Ireland, and thence to England. These valuable vegetables were long cultivated chiefly in Middlesex, Hertfordshire, Nottinghamshire, Lancashire, Staffordshire, Warwickshire, Surrey, and in Carmarthenshire in Wales; but are now the staple article of food for the poor, and the common appendage of the tables of the wealthy, in every part of the kingdom. Cabbages, artichokes, lettuces, asparagus, celery, &c. &c. are grown throughout the kingdom. Apples, pears, cherries, peaches, plums, and apricots, grow very plentifully in the greater part of it. There are entire fields of turnips, pease, and horse-beans throughout the whole of it. According to the modern course of husbandry, turnips are of the most essential importance, and, of late, cabbages have been much cultivated on a large scale, having been found with very little contrivance to be rendered one of the most productive esculents for the food of milch cows. Mangel wurzel is now also coming much into vogue for the same purpose.

Wood was formerly abundant in Great Britain, and there were many royal forests abounding in timber; but partly from their having been inclosed, on account of the great demand for corn, and partly from other causes, the timber on these (till very recently at least) has been suffered to decline. For that which supplies our navy we are principally obliged to the forests of Germany, and to some of the northern kingdoms; and for architectural and domestic purposes to Russia, which produces the best fir of any country in Europe. A great deal of fir is grown in Scotland, but it is not so tough, or so durable, as that from Russia and Sweden. A taste for planting has prevailed much of late years, but it has been rather for ornamental timber, than for that

which alone can be materially serviceable for the purposes of the navy, viz. oak. However, it must not be omitted that considerable discoveries have recently been made of the utility of some other kinds of wood for the internal service of ships. One species of poplar, beside its always resisting conflagration, has been found to harden with time, to be light in weight, and not to be subject to shiver or splinter, qualities beyond all estimate for some purposes. Boards of larch-wood have also been demonstrated to be even more durable than those of oak, *under water;* and the bark of the last mentioned tree to be inferior only to the oak for the purposes of tanning. *See further, title* TIMBER.

For vegetables, *see further, title* ROOTS.

For *hops, hemp, flax,* and *saffron,* those respective *titles,* and *postea.*

For fruits, *title* CIDER.

We now come to consider those articles which emanate from, or are supported by, the soil, though not the direct and immediate product of its surface. Such are liquors derived from grain, or from fruits; cattle depastured on its vegetable produce; and minerals extracted from its bowels.

Beer. — This, as a generic term for a staple article of consumption, and of export, has been already treated under that *title.* It ought not, however, to be entirely overlooked under the immediate subject of our observations. Under this head are comprehended all the different kinds of malt liquor brewed in England, namely, ale, porter, and table beer. Ale is brewed in almost every part of the kingdom; but that made in Staffordshire, Bedfordshire, Lincolnshire, Yorkshire, Dorsetshire, and Nottinghamshire, is the most esteemed. The ale made at Burton-upon-Trent in Staffordshire, is smooth, but heady and bitter. Dorsetshire beer is also a kind of ale, but of a lighter quality than those already mentioned. The Nottingham ale possesses a bitter flavour, and is exceedingly wholesome, as is that made at Lichfield in Staffordshire, a great deal whereof is consumed by the manufacturers and other inhabitants of the adjacent populous town of Birmingham. In, and about, London are innumerable ale breweries, some of which send out excellent ale, and others the vilest trash, which, so far from being a wholesome beverage, has in many instances proved absolute poison to its consumers. All the ales of London are made in imitation of the country ales; but seldom are equal to their originals. Porter may be divided into two classes, namely, brown-stout, and porter properly so called. The London porter has deservedly obtained the reputation of being the best in the world; it is a wholesome, cooling, and at the same time nutritive, beverage. The porter breweries in, and about, London are so numerous, that our limits will not permit us to enter into a detail of their situations, different characters, &c. Vast quantities are annually exported from London for America, the West Indies, India, Africa, and most of the northern nations. When intended for warm climates, the porter is exposed, for several days previously to its being shipped, to the open air, in large vats, in order that it may flatten, as in the voyage it is fermented, and consequently, by the time it reaches the place of its destination, becomes so brisk, and in such high order, as to be fit for immediate use. Brown-stout is only a fuller bodied kind of porter than that which serves for ordinary drinking. A great deal of this is exported to America and the West Indies. Porter of a quality not much inferior to that made at London, is brewed in many of the provincial towns, and that now in considerable quantities. A liquor inferior in strength, and commonly called "small beer," and sometimes "table beer," is now also to be had at almost all public breweries. So obtained it is generally vapid and spiritless, but when brewed in private families is a delicious beverage. All sorts of beer should be made from malt and hops; of late, however, it has been discovered that noxious ingredients have, in many instances, been substituted both for one, and the other, although prohibited by divers statutes.

Malt, which is grain in an incipient state of vegetation, and afterwards dried and bruised, is, as we have already stated, one of the chief ingredients used in the making of beer. It is a considerable object of English commerce. The following are the principal species of malt, with their different weights, used in the metropolis:

Best pale Kingston,	39½ lbs.	per bushel.
Good ditto,	38½ lbs.	ditto.
Best brn. Abingdon,	36½ lbs.	ditto.
Indifferent ditto,	34 lbs.	ditto.
Best brown Norfolk,	34½ lbs.	ditto.
Best ditto Hertford,	35½ lbs.	ditto.

A prodigious quantity is now manufactured in the middle of the kingdom, especially in the county of Nottingham. More than 50 millions of bushels are annually consumed for breweries and distilleries.

Hops. — The culture of hops occupies large tracts of land in the counties of Kent and Surrey, where the best sort is grown; Worcestershire also yields large quantities, but of a quality inferior to the first mentioned. The counties of Nottingham, Essex, and Sussex, also boast some plantations, as do several parts of Wales. Some writers assert, that the best hops in England are grown near the town of Farnham in Surrey, but others give the preference to those grown in Kent. The duties laid upon malt and hops are very considerable, and yield the crown a large revenue.

Cider.—If any thing can compensate for the almost total defect of wine in England, it is the cider. The English cider is most certainly the best in Europe, notwithstanding the French tell us that the ciders of Brittany, and Normandy, are far superior to ours. The Herefordshire cider is generally reckoned the best, though many give the preference to the Devonshire. The inhabitants of Worcestershire, Gloucestershire, and Somersetshire, make very good cider, and in large quantities: exclusive of what they themselves consume, these counties annually send to London about 30,000 hogsheads of cider. The counties of Kent, Oxford, and Glamorgan in Wales, produce very excellent cider; the latter county is termed, very justly, the garden of Wales.—*Perry* is made to such perfection, that it is not unfrequently sold as Champaign. Perry is in general the produce also of the cider counties, and with it is exported to Ireland, the West Indies, &c.

Wines.—Wines for home consumption (for they are not of sufficiently exquisite flavour to have become an article of export) are made in considerable quantities from currants, gooseberries, and other fruits; are an object of considerable duties when sold, and raise a revenue of some importance.

Spirituous Liquors.—There are numberless distilleries in, and about, London, and most of the large towns and cities, in which are made spirituous liquors, principally from grain, in imitation of Hollands, geneva, rum, and brandy; all these are, in quality and flavour, inferior to the genuine spirits, and some of them, particularly the geneva, are oftentimes adulterated by mixtures, such as vitriol, turpentine, &c. There is a neutral spirit made by the London distillers, which, by a mixture of water, they reduce to any degree of strength that suits their purpose. The price of malt spirits varies from about 9*s.* to 13*s.* per gallon.

Hemp and Flax are chiefly cultivated in the following places; near Dover and Maidstone in Kent; in some parts of Middlesex; the neighbourhood of Ely, Taunton, and Exeter; in Lincolnshire; in Somersetshire; and Suffolk. On the whole, hemp and flax are not very conspicuous in the list of English productions.

Wax and Honey are found in abundance throughout the country, and form a branch of internal commerce. The cakes of wax for the manufacture of candles are obliged to be stamped with the bleacher's name, to prevent fraud in mixing tallow, or turpentine, with the wax.

Beasts.—The rearing of cattle, their uncommon abundance in England, and the dedication of large tracts of land to their use, are as ancient as the Britons and the Picts. The number pastured in England ought, indeed, to be considerable; for it is well known, that the English consume more meat, and less bread, than any other European nation. Mr. Arthur Young, in his journey to the north of England, estimated the value of beasts at 36,480,000*l.* All the counties of England furnish oxen; but Lancashire, Somersetshire, and Buckinghamshire, produce vast herds of excellent quality; the oxen of Lincolnshire, of Romney-marsh in Kent, of Somersetshire, Huntingdonshire, Suffolk, Herefordshire, Salop, Leicestershire, Northamptonshire, and Dorsetshire, are not only numerous, but of a remarkably large size. The Welsh cattle are in general so small that they have obtained the appellation of *runt*, a name of contempt. Oxen are generally considered to have attained their full growth, and consequently to be fit for slaughtering, when they arrive at the age of four or five years. It is very common in some of the counties, particularly in Somersetshire, to employ oxen for the purposes of agriculture till they are three or four years old, after which they are fed to the age of seven, and then slaughtered. Markets are held once, or twice, a week for the sale of cattle in every city, and almost every town in England. The kine of England are not less remarkable for their size and beauty, than for the quantity of rich milk which they yield, and from which are made excellent butter and cheese. England has always reared large flocks of sheep, which have in a very great degree contributed to the welfare of the country. The flat country between East Bourn in Sussex, and Chichester and Portsdown in Hampshire, is entirely covered with sheep: in Romney-marsh there is an extent of 47,110 acres entirely devoted to feeding them: it is computed that upon this tract (allowing three sheep to an acre) 141,330 sheep are fed exclusive of lambs. The number of beasts which pass into Salisbury Plain almost exceeds calculation. The highlands of Coteswold, and the neighbouring plains in Gloucester, Worcester, and Oxford, also abound in sheep. The county of Surrey has its share also; but Lincolnshire and Leicestershire, till very lately, divided the celebrity of the kingdom for wool between them; the former for the large heavy sheep with long coarse wool, adapted to the manufacture of carpets, baizes, &c., the latter to that of cloths for apparel. We must not pass over in silence the sweet-flavoured, but small, sheep of the Welsh mountains, nor the fine wool of those bred in the environs of Leominster in Herefordshire. Some mention should also be made of the flocks fed in the wolds of the East Riding of Yorkshire, and the county of Durham; here are found sheep nearly as large as the Leicestershire breed. These animals have so multiplied in Northumberland and Cumberland, that the inhabitants are obliged annually to

send away great numbers of them; nevertheless it is only forty years since the people of these shires began seriously to attend to the breeding of sheep. On the downs situated towards the middle of Wiltshire, are pastured more sheep than in any other part of England. Within a few years past, the Merino breed of sheep from Spain has been introduced into this country; they will tend to improve considerably the quality of our wools, and, it is said, are of so hardy a nature, that they will thrive even in the Shetland Isles. However, an opinion prevails that their wool is deteriorated, after a generation or two, in this climate, but that by crossing the breed with that of our fine-woolled down sheep, all the benefit we can wish is obtained in point of fleece, and the qualities of our own sheep communicated to the produce of the connection.

Wool has long been considered the staple commodity of our island, and has been viewed with the most jealous attention by great individuals, as well as by the legislature. Hence the exportation of sheep themselves, as well as of their fleeces, have been prohibited by divers statutes, especially by 28 Geo. 3. c. 38. under severe penalties.

Cheese is made in smaller or greater quantities, in all the counties of England. That of Gloucestershire is accounted the best, and is certainly one of the dearest; the finest sort is that called Berkeley hundred. The Worcestershire is similar to that made in Gloucestershire. The Gloucester is distinguished into single, double, and treble, according to its thickness. The Stourbridge is the most celebrated of the cheeses of Worcestershire. The Cheshire is, without doubt, the wholesomest, and the most used of any kind of cheese; and some think that, in respect to flavour and quality, it is by no means inferior, but rather superior, to that of Gloucestershire: about 30,000 tons are annually sent from Cheshire to London, and large quantities to Bristol, York, Scotland, Ireland, &c. A very rich kind, under the name of Stilton cheese, is made in Leicestershire; and an excellent mild cheese is made in Derbyshire and Nottinghamshire. The Warwickshire is very good; great quantities of it are consumed in the large town of Birmingham, and about 19,000 tons are annually sent to London. At Chedder in Somersetshire, very large ones are made, which come near, in flavour and quality, to Parmesan cheese. All the milk of Somersetshire is used for the making of cheeses. The Banbury cheese of Oxfordshire is very good. The Wiltshire is rich, and much esteemed. The Suffolk is proverbially the worst in England.

Butter. — Butter of very good quality is made in Suffolk; and a fair for the sale of this article is established at Ipswich. The city of York carries on a large traffic in it. The Cambridge butter is excellent, and forms a valuable branch of Cambridgeshire commerce. Epping, in Essex, furnishes London with great quantities, and is said to be the best made in the kingdom. Cambridge, Suffolk, and York, annually supply London with about 60,000 firkins, and Epping supplies about one-fourth as much.

Pigs are reared in almost every shire. The English pork is very fine, and by far more delicate than that of any other country. The hams of Yorkshire, Wiltshire, &c. and their bacon, are exquisitely flavoured, and the former, as well as the sides of the latter, are of an extraordinary size. Very large quantities of hams, and bacon, are exported to the West Indies, beside which they form a considerable branch of internal commerce.

Goats are reared in all the mountainous parts of England; but Wales abounds in these useful animals. The breed of English and Welsh goats is large, and their skins afford a considerable revenue to their owners: their milk also yields a profit.

Horses. — England abounds in these excellent, noble, and useful animals: they are of every description. The best horses are the Lincolnshire, Northamptonshire, Leicestershire, and Yorkshire. The Welsh are small, but active. The rich pastures, and the extraordinary care that is taken of the colts, as well as the excellence of the various breeds, combine to enhance the value of the horses of England. Those who rear them take uncommon pains to improve the breed, by procuring foreign stallions of the most esteemed species, such as those of Barbary, Turkey, Denmark, Flanders, and Naples. To this attention on the part of the breeders, may be attributed the swiftness and beauty of the English geldings. Buffon says, that in respect to figure, the English horses nearly approach those of Arabia and Barbary, from which, in fact, they derive their origin; nevertheless, the heads of the former are rather larger than those of the latter, but they are well-shaped, though the ears are somewhat longer. By the ears alone, one might discover with ease the difference between a horse of Arabia or Barbary, and one of England; but the grand point of distinction between those species, lies in their height and size. The English horses are in general better filled than the others, and are commonly about 4 feet 10 inches, and not unfrequently 5 feet in height. They are of various colours, and for strength, beauty, activity, and capability of undergoing fatigue, are not to be excelled by any horses in the world. Their beauty and excellence strike every foreigner in passing through the kingdom. The number of races established in various parts of the kingdom may be assigned as so many causes for the high perfection to which the breed has been

brought. Newmarket possesses the first race-course in England, and the most celebrated in the world: hither are brought race-horses, which, for figure and beauty, might serve as models to a sculptor or painter, who wished to give an animated description of the horses of the sun. There are excellent race-courses at Doncaster in Yorkshire, Newcastle-upon-Tyne, Chester, Lichfield, Lewes, Epping, Brighton, York, Derby, &c. &c. The breed of English cart and carriage horses is very fine; to form a just idea of the stateliness, and muscular strength, of these animals, they must be seen in harness. There are numberless horse-fairs throughout the kingdom, which our limits will not permit us to enumerate. The exportation of horses for foreign parts is not prohibited, and is very considerable.

Mules and Asses are very abundant in England, and are in general larger than those of other countries, Spain and Portugal excepted. They are chiefly used by the poorer classes of inhabitants, but of late years the watering places have given the *Donkies* a preference to horses for the purpose of riding; for invalids their milk is recommended in consumptive cases.

Fowl. — The tame fowl of England are turkies, geese, ducks, &c. In Norfolk, turkies are reared to a larger size than any where else, and sent in immense flocks to the London market. Geese are bred in almost every county, and great numbers of them sent to London, particularly about Christmas. The chickens of England, though well-flavoured, are inferior in point of delicacy to those of Ireland, which in their turn are not to be compared to those of France. The wild fowl of England consist chiefly of moor-game, wild ducks, larks, partridges, pheasants, plovers, quails, snipes, teal, widgeons, woodcocks, and wheat-ears. The wheat-ear is delicious; it is about the size of a lark, and is only found in Sussex, particularly in the neighbourhood of Brighton. In enumerating game, we should not forget to name the beasts, as well as birds, which come under that denomination. The deer of the English parks, which were originally a foreign breed, are superior in beauty of skin, and delicacy of flesh, to those of most countries. The hares, rabbits, &c. are also numerous, and truly excellent in their kind.

Fish. — The situation of England secures, in the article of fish, an important source of riches: it forms a considerable branch of internal, as well as external, commerce. No country on the face of the globe is better situated for carrying on fisheries than Great Britain. The Whale fishery is more within its power than that of any nation, and at all seasons of the year the English enjoy the profits arising from some, or other, of their fisheries. The Greenland fishery, although of late there has been a considerable increase of the shipping sent hither, especially from Hull, does not seem to be completely naturalized. Dr. Franklin, by a bold, but expressive figure of speech, termed the fisheries the "agriculture of the ocean," and certain it is, that they have been a greater source of wealth to some countries than the produce of their land. We shall have occasion to treat of the public fisheries more particularly hereafter under that title, and therefore at present it is unnecessary to say more on the subject.

Cod. — The general name of white fish is given to all kinds of cod, such as haddock, &c. The cod fish used in England is brought from the northern coasts of the island, from the eastern coasts of Scotland, from those of New England in America, or from the banks of Newfoundland.

Haddocks are very common. The large shoal of haddocks makes its appearance periodically on the coast of Yorkshire.

Herrings. — The large shoals of herrings proceeding towards the British coasts, first make their appearance in the latitude of Shetland in April, and May; but these are only, what has frequently and justly been called, the *advanced guard* of the immense multitudes that follow in June. The latter separate at Shetland into two wings, one of which proceeds along the eastern coast of Great Britain to the English channel, the other directs its course to the westward, first visiting the Hebrides, whence they pursue their way to the north of Ireland: here they must again separate; one division enriches the coasts of the Irish sea, the other is soon lost in the immensity of the Atlantic ocean. In 1750, a British herring-fishery was erected, and since that period premiums have been granted by parliament for its encouragement. Of late years, the herring-fishery of the Frith of Forth has become very important and productive, and large quantities are thence exported, chiefly to the West Indies. They are likewise known in Germany by the name of Scotch herrings, but have not been much approved of, though preferable to those of Yarmouth, Cardigan, &c. for exportation. As during the last war the Dutch fishermen were not permitted to visit the British coasts, the English herring-fishery has gained, both in respect to quantity, and quality, but still far from having attained the excellence of the Dutch method of curing the fish. The English herring-fishery is very ancient, and a charter of Edward I. dated 1306, makes mention of its being established at Great and Little Yarmouth. Our great stations for this fishery are off the Shetland and Western isles, and off the coast of Norfolk. There are two seasons for herring fishing; the first from June to the end of August, and the second in autumn.

Lobsters — are taken in abundance in the British channel, on the coasts of Norfolk,

whence they are brought to London for sale; they are also found in great plenty on the coast of Yorkshire, and the east coast of Scotland.

Mackarel — is a summer fish of passage, found in large shoals upon the English coasts. The fishing is usually in the months of April, May, June, and July. The mackarel enter the English channel in April, and proceed up the straits of Dover, as the summer advances, so that by June they are on the coasts of Cornwall and Sussex, where the fishery is most considerable. They are excellent food when fresh, and constitute an article of commerce when well prepared, pickled, and put up in barrels. Cornwall cures the largest quantity of mackarel of any part of England.

Oysters. — This fishery is principally carried on at Colchester, in Essex; Feversham and Milton, in Kent; the Isle of Wight; the Swales of the Medway; and Tenby, on the coast of Wales. From Feversham and the adjacent parts, the Dutch have sometimes loaded a hundred large hoys with oysters, in a year. This fish is also taken in large quantities near Portsmouth, and in all the creeks and rivers between Southampton, and Chichester, and vast numbers are carried round by sea to London and Colchester, to be fed in the pits about Wavenhoe, &c. The oyster season is from the beginning of August to the end of winter. The English oysters were held in high esteem by the Romans.

Pilchards. — This fish at first sight might be easily mistaken for a herring. The chief pilchard fisheries are along the coasts of Cornwall and Devonshire. The English method of catching varies from that of other countries; on our coasts, there are persons posted ashore, who spying the colour of the water where the shoals are, make signs to the boats to go among them and cast their nets. Pilchards, when salted and barrelled, form an article of export. The chief ports whence they are shipped are Falmouth, Fowey, Saint Ives, and Penzance.

Salmon. — In no part of the world is this fish found in greater abundance, and perfection, than in Great Britain. The principal salmon fishery was formerly at Newcastle-upon-Tyne, but has latterly considerably declined. Berwick-upon-Tweed, and Dundee and Perth upon the Tay, seem to have possession of the market; this fish is likewise found in most of the rivers in England, particularly the Trent, the Severn, the Thames, and the river Ribble; its greatest weight is from 70 to 80 pounds. In Wales they smoke salmon, but theirs is far inferior in flavour to the smoked salmon of the Elbe. The English export them pickled to Venice and Leghorn. They are commonly taken in weirs, or with nets, but they are also caught by means of a spear, which the fisherman darts into the fish when he sees it swimming near the surface of the water; it is customary, likewise, to catch them at night, by means of lights attached to the stem or stern of the boat. The season for salmon is from March to September. Smelts are caught in abundance at high-tide during the summer and autumn months, about Limehouse and Poplar.

Turbots. — Turbots are plentiful, and of all sizes, from that of a flounder, to 30 lbs. They are taken chiefly off the north coast of England, and form a considerable, and profitable, branch of internal commerce.

Besides the salt-water fish already treated of, there are many other sorts caught on the different coasts of England: at Exeter, soles of an amazing size, and exquisite flavour, are taken, the greater part whereof is sent to the city of Bath, also the fish called John Dory. The plaice, commonly called Dutch plaice, are caught upon the coasts of Kent, Sussex, and Essex, as are vast quantities of whitings. Flounders are taken at the Nore, and in the Thames even above London Bridge.

The rivers of England abound in all sorts of fresh-water fish, but particularly in salmon, barbel, bleak, carp, pike, trout, gudgeon, tench, smelts, bream, chub, dace, pope, roach, and umber or grayling. Most of the rivers abound in eels, as indeed do many of the small streams.

The laws in regard to fishing are numerous and strict, and will be found in another part of our work, under the head of FISHERY.

Mines and Minerals. — England has been distinguished for its mines since the time of the Romans, one of whose writers bestows upon it the designation of *metallorum fluens rivis*, but it does not appear that the Britons turned their attention to their mineral treasures till the reign of Henry VI. since which period, they have gradually made valuable discoveries in this respect.

England possesses neither gold nor silver mines, at least none that we know of; but the lead and other mines yield small quantities of these metals.

Iron. — The most considerable iron mines are those of Cumberland, Staffordshire, Hampshire, Warwickshire, Derbyshire, Sussex, Cheshire, and Westmoreland. The steel made in England is much esteemed on account of the fineness of its grain; it is manufactured in many counties, but particularly in Gloucestershire, Warwickshire, Yorkshire, and Northumberland. There are considerable iron mines, and steel works at Colebrook Dale, in Shropshire; at this place has been cast and erected in the Dale, an iron bridge over the river Severn, made from the produce of the mine; from the example of which, many others have been recently erected in other parts of the kingdom.

Lead. — England has many mines of this metal: the principal ones are situated in Cumberland, in the Peak of Derbyshire, in the S. W. part of Northumberland, Devonshire, Yorkshire, Durham, Mendip Hills in Somersetshire, and in Westmoreland; also in Cardigan, Carmarthen, Flint, and Montgomery, in Wales. The mines of the Peak are very rich; those of Keswick, in Cumberland, also produce a great deal of ore. There are a few lead mines of some value in Cornwall. The lead of Carmarthenshire is excellent: the lead ore of Devonshire, and of some mines in Wales, yields nearly 30 ounces of silver per ton. That drawn from the mines situate near Holywell, in Flintshire, does not yield above 18 ounces, and there are some mines of lead which do not yield above 4 ounces, whilst from others are drawn nearly 14 grains per lb. The mountains of Cardiganshire are so rich in lead mines, which yield a large quantity of silver, that they are called *Welchi Potosi*, or the Welch Potosi; the lead drawn from these mines generally yields 72 oz. of silver. There is a lead company established in London, but it is not endowed with exclusive privileges. At Barrowdale, in Cumberland, there is a black-lead mine, which metal is almost peculiar to this county; it has been since found in the neighbourhood of Ayr in Scotland.

Pewter. — The greater part of this metal which is used throughout Europe, is the produce of England: it is formed with antimony and tin; hence the county producing tin gives us the best pewter.

Tin. — Cornwall is decidedly in possession of the best tin mines of England; the produce of these mines has made the fortunes of thousands of persons, and the working of them gives daily employment and bread to numerous families.

Copper. — Great Britain is not equally rich in copper, as in lead and tin, nevertheless it possesses many mines of the former metal; such are those of Yorkshire, Cornwall, Derbyshire, Staffordshire, Devonshire, and Somersetshire. Copper is also found in Carmarthen, and Cardigan, in Wales, and in the Isle of Man. The copper mines situated in the Quantox hills of Somersetshire, are reckoned the richest in England; two pounds of the ore yield rather more than one pound of metal. There is a company established in London, called "The English Copper Company," but its privileges are not exclusive.

Coal. — Coal mines are spread throughout the kingdom, and nature in the formation of them appears to have specially provided for the astonishing progress, the rapid strides, which British manufactures in general, were to make through the means of this invaluable mineral: most of the mines are apparently inexhaustible. The places which possess the richest coal mines are, Northumberland, which furnishes an amazing quantity to London, &c. by way of Newcastle, whence they are carried down to Shields, which is the rendezvous of the colliers; Cumberland, which exports coal for Ireland by way of Whitehaven; this trade gives employment to more than 200 vessels: to these we may add Derbyshire, Durham, Yorkshire, and Staffordshire. The coal of the latter is taken from the pits in immense blocks, and supplies the large town of Birmingham with all the coal consumed in its numerous hardware manufactories; beside which, a large quantity of it is now sent to London by canals. Lancashire may truly be said to abound in coal; in the neighbourhood of Wigan, in this county, is found that excellent species of coal called Cannel, with which it not only furnishes most of the towns in that county, but also, through the medium of the port of Liverpool, sends vast quantities to Ireland. In Wales, the counties of Carmarthen and Pembroke possess famous coal mines, with the produce whereof they furnish Devonshire, and some other English shires. By means of the port of Swansea, in Glamorganshire, Wales also supplies the southern coast of England, and many parts of Ireland. This trade employs 1500 vessels of about 200 tons burthen each. The distribution of coal into the interior of England, is effected by means of navigable rivers and canals. Newcastle, Sunderland, and other places in the north, convey their coal to all the ports from Newcastle to London, and even to Portsmouth; from these ports it is sent into the interior, as for example, from Lynn it is sent to the Isle of Ely, to Lincoln, Bedford, Cambridge, and Norfolk. Colchester and Hardwick supply Essex and Suffolk: London sends coals to the other parts of Middlesex, to Hertfordshire, Bucks, Berkshire, Hampshire, and Surrey. The counties of Kent and Sussex receive coals through the medium of the rivers Medway and Stow. The coal of England is without doubt more various in its kinds, and better than that of any other nation, and the mines give bread to thousands, who are amply paid for the fatigues which they undergo, and the risks to which they are exposed when at work. The prices of coals are enormous in London, and many other parts of the kingdom, but in the neighbourhood of the collieries, they are sold at a very low rate; thus at Birmingham, although the demand is so great for that article, coals are sold, when of the best or larger kind, about 12s. and the inferior sort at 7s. and even 6s. per ton, of 24 cwt.

Copperas and Alum. — Green vitriol is an article of considerable internal, and external, commerce: it is made in several parts of England, but the most considerable manufacture of this article is carried on at Dept-

ford, in Kent. The copperas is made from a fire-stone found chiefly in Essex, and Hampshire, and which is called *gold-stone*, on account of its colour. The alum mines are situated in Yorkshire and Lancashire, and the mineral is found in small masses of a blueish colour, like slate. These masses contain much sulphur, and are accounted a kind of fire-stone from which vitriol may be also extracted.

Fuller's Earth — is a very valuable article for many purposes; it is a sort of marle, and serves for the preparation of stuffs; chiefly found near Ryegate, in Surrey; Maidstone, in Kent; Woburn, in Bedfordshire; Brickhill, in Staffordshire; in the Isle of Sky, in Scotland, &c.

Pipe Clay. — The glazed earth fit for making tobacco pipes, is found in the greatest perfection in Northamptonshire, near Poole in Dorsetshire, and at the Isle of Wight: it is sold at London for 20*s.* per ton: its exportation is prohibited.

In England is found a vast number of fossils worthy the attention of naturalists. Somersetshire, Kent, Sussex, Derbyshire, and Wales, possess marble quarries; Rutlandshire and Nottinghamshire are rich in alabaster; at the rock of St. Vincent, near Bristol, crystal is found; and amianthus in the Isle of Anglesea, &c. &c.

Salt. — The English obtain salt from sea water, salt springs, and mines of fossil salt. The frequent rains, and the feebleness of the sun's rays, do not admit of a great deal of salt being procured by means of evaporation. Many salt-pans are established upon the southern, and some upon the northern, coasts of the island, from which material advantage is derived. The principal salt-pans are at Lymington, Portsea, and the Isle of Wight, in Hampshire: Poole in Dorsetshire, on the southern coast of Devonshire, South Shields in the county of Durham, Blyth and Hartley in the county of Northumberland. The springs which produce salt, are, for the most part, situated in Durham, and Cumberland. South Shields, and some other parts of the county of Durham, together with some towns in Northumberland, and Yorkshire, carry on a considerable commerce by means of their salt-works. It is computed that there are no less than 208 salt-works in the three last mentioned counties; each of these produces from 11 to 1200 tons of salt per annum. A great deal is sent by sea to London, where it is known under the name of Newcastle salt; quantities are also exported from Newcastle to Denmark, Norway, and other states of the North. The counties of Stafford, Worcester, Lancaster, and Cheshire, also possess considerable salt-works: the principal are those of Droitwich in Worcestershire, Barton in Lancashire, and Middlewich, and Namptwich, in Cheshire. In Cheshire many saline fountains, or salt springs, are to be met with, which yield large quantities of excellent salt. These springs, generally yield for every pound of water six ounces of salt. There are likewise some saline springs in Somersetshire, Cumberland, and Westmoreland. The richest salt mines are found in the environs of Northwich in Cheshire, from which immense quantities of rock-salt are raised; and much of it, in its crude state, is conveyed to Liverpool to be exported. Rock-salt is found in solid masses in many parts of Lancashire, whence it is sent to Devonshire, where it is broken up, and boiled in salt water: from this process results a sort of salt which is much stronger and more pungent than ordinary salt, and it is therefore termed *salt upon salt.* The salterns employed in this purpose are situated at Biddeford, Ilfracomb, Barnstaple, and other towns upon the coast of Devon, where the inhabitants make use of the salt for curing herrings, as do those of Dartmouth, Weymouth, Colchester, &c. To the salt-works already enumerated may be added those of Lowmarsh, in Carmarthenshire, and Holyhead, in the Isle of Anglesea, as also those of Colchester, Manningtree, Ipswich, Woodbridge, Southwould, &c. For the laws, &c. relating to this production, we must refer to the article SALT.

There is nothing, by which Great Britain is distinguished over all the countries of Europe, more than by the facilities afforded to loco-motion, and to the conveyance of all kinds of articles of agriculture, manufacture, and commerce, by land and by water. In inland navigation, by rivers and canals, it is now inferior but to few countries; but in public roads, with the accommodations attached to them, it is superior to all. It appears, by a return recently made to parliament, that the roads made by the authority of special statutes, and supported by the contributions of those who travel over them, in England and Wales only, exclusive of Scotland, extend over 19,755 miles; and that the other highways within the same limits, supported by parochial impost, are about 95,104 miles.

Manufactures.—The English nation possesses the virtue of public spirit in a supereminent degree, and gives a sort of liberal and philanthropical encouragement to every species of industry. In proof of the truth of this assertion, we need only mention the "Society for the Encouragement of Arts, Manufactures, and Commerce," established at London. The members of this society furnish an annual contribution, out of which is formed a fund for the purpose of granting prizes and premiums to such artists, handicraftsmen, and agriculturists, as produce useful machines tending to improve the state of manufactures, arts, and commerce. No

wonder, then, that manufactures of every description flourish in England; that they have been brought to the highest pitch of perfection; that their extent, grandeur, and national utility, have excited the astonishment of all neighbouring nations.

General View of the Manufactures. — The manufactures which have made the greatest progress are woollen stuffs of all sorts, carpets, leather of every description, hardware, hats, glass, crystal, hosiery, vegetable and mineral acids, mathematical and optical instruments, carriages of every kind, pottery, china, printing, paper, types, sculpture, vases, silken stuffs, dyeing, &c. &c. To these may be added, cotton goods of every kind: the woollen manufactures are, without doubt, the most important; and, whether we regard their variety or extent, are far superior to those of any other nation. The principal inhabitants of all the countries of Europe make use of our cloths, as do the people of Asia, Africa, and America; thus are English woollens carried to, and disseminated throughout, all parts of the globe. The woollen goods manufactured in Great Britain, consist of cloths of every description in regard to quality, size, and colour; serges, kerseys, baizes, perpetuanas, frizes, swansdowns, flannels, blankets, stockings, &c. &c. To these we may add, carpets, whose beauty equals that of the Persian or Turkish. The tan-yards of England are numerous, and the commerce carried on in hides, and leather in general, extensive beyond description. A great deal of calf-skins are exported, which bear a good reputation; as do the coney, hares', foxes', squirrels', and other skins. A vast quantity of rabbits' and hares' wool is employed in the manufacture of hats. There are in many parts of the kingdom, manufactories of morocco, and other leathers for shoemakers' use, which of late years have been brought to a great degree of perfection. The hardware manufactures have been carried to the highest pitch of elegance and excellence; they consist of every thing made from iron, brass, steel, copper, &c. such as cutlery of all sorts, from a lancet to a hanger or broad-sword, kitchen-ware, warming-pans, fenders, fire-irons, stove-grates, pistols, muskets, cannons, clock and watch movements, wire of every description, nails, pins, needles, &c. &c. The hatting business is one of the most profitable and useful in England; the English hats are the best, neatest, and most durable, of any in the world; they are lighter, and more elegantly shaped than those of France. The hats made from the fur of animals, consists of castors or beaver hats, the bodies whereof are composed of a mixture of hair, coney wool, hares' wool, and finally beaver intermixed with a small portion of floss silk; plated hats, which are only thinly covered with beaver; cordies, a sort of coarse hats chiefly used by farmers and the middling classes; and felts, the coarsest of wool hats, which are only worn by the lower orders, or packed in puncheons and exported to the West Indies for the use of the negroes. These hats are all of various colours, but the most prevailing are black. Women's and children's beaver and woollen hats or bonnets are of all colours, but principally of black, drab, white, green, purple, blue, brown, (called Devonshire browns,) and fawn colour. There are many other kinds of hats made, such as silken hats of every description and colour, for the manufacture of which, patents have been obtained by London manufacturers; these hats are water-proof, and for a time appear very beautiful, but stiff and heavy; great quantities are exported to America, as well as to different parts of Europe. There are glass-houses all over the kingdom. The English plate glass is excellent, as is the common window glass, &c. All sorts of glass ornaments, table utensils, lustres, &c. are now cut in England in a superior manner to those of France; and are exported to India, and most parts of the world; indeed, it is almost impossible to conceive that any glass can, either in point of quality, or external beauty, excel that which is daily exhibited in the shops of London; the bottles, phials, &c. are likewise capital in their kinds. Woollen, thread, cotton, and silken hosiery, forms a considerable branch of our manufactures, and the stockings of England are universally esteemed: large quantities are exported to America.

The manufactures of vitriol, &c. are numerous, being of great use in the hardware and other businesses.

Carriages of every description form one of the most considerable branches of English manufactures. Coaches, curricles, chaises, &c. are not only made for home use, but also for exportation.

The soil of England is peculiarly adapted for the fabric of pottery and porcelain. English china has of late years been brought to such great perfection, as not only to excel the French fabric, but even to rival, and, in some respects, excel, the original from whence it derives its name. Printing is carried on with the greatest neatness and elegance; the English printing far surpasses that of many other, indeed we may say, of every other nation; and it is a well-known fact that, for several years past, and even at the present day, English pressmen are employed upon the first works in Paris, and receive better wages than the natives of France themselves. Paper of all sorts, from thick and coarse brown, to the finest writing paper, is made in several of the large towns and cities, and carried to a pitch of perfection hitherto unexampled. Sculpture every day gains ground, and the beauty of several

of our artists' productions is hardly out-done by the best works of the Italian school. Silks, such as velvets, tabbies, sarsnets, ribbons, laces, taffetas, &c. are made in many parts of England, and are by no means inferior to the Italian fabric either in regard to durability or beauty. The manufactures of cotton goods may be said to be one of the chief sources of English wealth and prosperity. The principal articles in this line are, calicoes, dimities, counterpanes, furniture for rooms, hangings, &c. &c. There are, moreover, sundry other manufactures throughout the kingdom, of inferior note. We present the reader with an alphabetical list of the *chief* manufacturing cities, towns, &c. of England, making some mention of the commerce, and other points connected with trade in the *principal* places of this great commercial nation.

Abingdon. — Here one of the most considerable markets in grain, in England, is held, and much business is done in the malting line.

Alton.—Here are several manufactures of druggets and serges, white yarn, and a variety of worsted articles dyed in the wool of peculiar quality. In the neighbourhood are many hop plantations.

Altringham. — Manufactories of yarn, worsted and cotton. This place supplies Manchester with fruit and vegetables.

Andover — carries on considerable traffic in shalloons, malting, &c. particularly since the canal hence through Ramsey to Southampton has been cut. Four miles off is held the annual fair of Weyhill, being the largest in England for cattle, sheep, hops, cheese, &c. and lasts fourteen days from the 10th of October.

Arundel (Sussex). — Immense quantities of timber for dock-yards are shipped here, and the town has a manufactory of hop-bagging.

Ashbourn — has a considerable trade in cheese, sent by the river navigation.

Ashburton. — This is one of the four stannary towns of Devon, and has several good tin and copper mines in the neighbourhood, which are very productive; it has also a manufactory for serge.

Atherstone. — Here is a manufactory of hats made of common wool for the West Indies; ribbons, and shalloons.

Austle, Saint.—In the environs are several tin mines, and quarries of porcelain clay, which is sent to Liverpool, Bristol, and Staffordshire, for the potteries. The manufactures are principally of woollen cloth.

Axminster. — Here is a considerable manufactory for broad and narrow cloth, but more particularly for carpets; also for cotton tapes, druggets, leather breeches, and gloves.

Aylesbury. — Many people here derive their support from their peculiar manner of feeding ducks: they prevent these birds from laying till October or November, when, by heating or stimulating their food, they make them drop their eggs; these are put under different hens, which are often continued on the nest for two or three broods, till the bird is sometimes exhausted, and dies. When the ducks are hatched, they are placed with great care near the fire, by which method they are reared, and often sold in the metropolis for 15*s.* or a guinea a couple. Lace-making is carried on here to a great extent.

Bakewell. — Coals here are plentiful, and of good quality. There are several quarries of stone, and lead and zinc mines in the neighbourhood; here is also established a large cotton manufactory.

Bampton in the Bush. — This town has a great trade for leather jackets, gloves, and breeches; and its market on Wednesday is noted for fellmongers' ware.

Barnsley, Black. — A number of forges are continually at work here in the manufacture of wire, nails, hardware, &c. Here are also manufactures of linen, cloth and check, and one for glass bottles. Coals are in great plenty.

Barnstaple was formerly possessed of a haven which, by neglect, became so shallow, that much of the trade was removed to Biddeford: now, however, it is somewhat advancing, and several merchants are established here. The markets are large for cattle, corn, and all kinds of provisions, and it has several woollen manufactories for tammies, shalloons, baize, &c. as likewise fabrics of silk stockings, and waistcoat pieces.

Basingstoke.—About 365 persons are employed in this town, principally in the manufacture of druggets, shalloons, &c. The navigable canal hence to the river Wye has opened a connection with London, very beneficial to the town and its neighbourhood.

Battel. — There are several gunpowder mills in the neighbourhood of this town, which have long been famous for the best gunpowder in Europe.

Bedford. — This town has a good trade in corn by way of Lynn. The soil of the neighbourhood is particularly productive of good wheat and barley, the first of which goes chiefly by land carriage to Kitchen and Hertford, where it is bought, ground into meal, and carried to London. About 500 women are employed here in the manufacture of lace.

Berkeley—is noted for its excellent cheese, denominated *Berkeley-hundred.* The trade is considerable here in timber, coal, malt, and cheese.

Beverley.—This town has a good trade in malt, tanned leather, and oatmeal. Lace-

making is carried on here, but not to any great extent.

Biddeford.—Here are many opulent merchants in the West India and American trade. Timber is here both plentiful and cheap: large quantities of earthen-ware are constantly manufactured here, and sent to Wales in exchange for provisions; and cargoes of oak-bark are exported to Ireland and Scotland. Here is a good trade to Newfoundland. The salt with which the herrings are cured is brought from Liverpool and Warrington, and being dissolved by the sea-water into brine, is boiled afresh into salt.

Bilston. — The contiguity of this town to Wolverhampton, and the benefit of the many branches of canals to all the chief trading towns of the county, have been the means of establishing here, within these few years, numerous manufactories for japanned and enamelled goods, particularly buckle chafes, which are wrought here in great perfection. Here are, also, furnaces for melting iron ore, forges and slitting-mills worked by steam-engines, there being considerable mines of coal, iron-stone, and quarry-stone in the neighbourhood. Bilston is noted for a deep orange-coloured sand, which is much sought after by distant artists to cast metals in; and likewise for a quarry of remarkable stones, lying horizontally one under another, of which the inhabitants make cisterns, troughs, &c., some of it is curiously variegated.

Birmingham. — The population of this extensive town is computed at 60,822 souls, whereof 50,234 are stated in the parliamentary returns as being employed in trade or manufactures; which shows the great traffic carried on here, particularly in the manufacture of cast-iron ware, buttons, plated articles, japanned ware, trinkets and jewellery, as well as fire-arms, which sell unrivalled in all the markets of the world. In the neighbourhood of this town are the famous Soho works, belonging to Mr. Boulton, forming one of the most extensive manufactories in the kingdom, as well for the number of hands it employs, as for the variety of articles it produces. It consists of four squares, with connecting ranges of shops, like streets, capable of employing about 1000 workmen in all the varieties of the button, buckle, plated, or argent moulu, steel and trinket, and cut-glass manufactory. The improved steam-engines of Messrs. Boulton and Watt, also made here, deserve to rank among the most extraordinary inventions of the present age. In 1797, an apparatus for coining and stamping was employed at Soho, by government, on a copper coinage of penny and two-penny pieces; and from that period various coinages of excellent penny, halfpenny, and farthing pieces of copper, have taken place at the same manufactory. Adjacent to Soho is the manufactory for stained glass, of Mr. Egginton, the produce of which displays both taste and correctness of execution. In the town of Birmingham are numerous iron-founderies; there are also brass-works, aqua-fortis and vitriol manufactories. To purchasers of articles in the hardware line, the manufacturers allow discounts as various as from $2\frac{1}{2}$ to 50 per cent. These discounts for ready money are, however, in many instances, merely nominal, the manufacturer laying on profits proportionable to such deductions. Birmingham has been, for many centuries, noted for its extensive leather market, which was held by charter; and there are now annually two officers chosen as leather-sellers; though the tan-yards are now built upon, and the extensive leather-hall has been suffered to decay. The greatest advantage to this emporium of trade is the extension of late years of its canal navigation, now communicating with most parts of the kingdom. The old canal, cut in 1768, brings the raw materials and fuel from Wednesbury collieries; this, again, in 1772, was extended to Atherley, and thence communicates to the Severn by Shrewsbury, Gloucester, and Bristol, and joins the Trent to Gainsborough, Hull, and London. It has also a junction with the Grand Line canal, along Staffordshire to Manchester and Liverpool: hereby conveying the produce of its manufactories entirely by water carriage to the principal sea-ports of the British ocean, the Irish sea, and St. George's channel. By the new, or Birmingham and Fazely canal, there is a communication to Tamworth, Polesworth, Atherstone, Nuneaton, and Coventry, to Oxford and to London. In time of peace, the extent of the trade between Birmingham and the Continent is so great as to baffle description or calculation; merchants from many parts of the world, at such periods, either reside upon the spot, or have agents there, for the sole purpose of transacting their business with that town.

Bitton. — In the neighbourhood are dug up vast quantities of coals, and some iron ore; extraneous fossils are also found here. The river Boyd runs through the town, and on the banks of the river there are several mills for flatting and splitting of brass, grinding dye-wood, &c.

Blackburn. — About 6800 persons are employed here in the manufacture of cotton, calicoes, muslin, and Blackburn gray linen, shot with cotton. The trade of this place has wonderfully increased since the extension of its inland navigation, having a connection with the rivers Mersey, Dee, Ribble, Ouse, Trent, Severn, Thames, and Humber.

Blackwall. — The new wet docks across the isle of Dogs are here cut, with ranges of warehouses on each side, at which the largest ships may load, and unload, with the greatest ease and security; and several hun-

dred sail of vessels may be working at once. Blackwall is likewise remarkable for an extensive ship-yard, and wet dock, the most considerable private one in Europe; containing, with the water and embankment, nearly nineteen acres.

Bodmin—has some manufactures of common serge; and here is a number of considerable dealers in wool, which is washed and sorted here, and employs the neighbouring parishes in spinning. The yarn is principally sent to Ashburton, and other parts of Devonshire.

Bolton le Moor.—This town has been considerably enlarged of late years, by its increase of fustian, and counterpane, manufactories, as well as those of calicoes, muslins, dimities, &c. and all kinds of Manchester goods, which are disposed of at Manchester, Liverpool, &c. and thence, by canal navigation, sent to all the interior parts of the kingdom, as well as to the ports for exportation. Between this place and Wigan, great quantities of cannel coal are found, of which substance the turners of Bolton make snuff-boxes, candle-sticks, &c. In Bolton 10,066 persons are returned as being employed in various manufacturing trades, handicrafts, &c.

Boston.—This town is situated on each side of the river Witham, near its influx with the sea, having thereby the advantages of a sea-port for small vessels; and it has, also, a navigation to Lincoln, partly by the Witham, and partly by a canal. The Hanse Towns established a guild for wool here; but on the prohibition of wool, the trade gradually declined: however, the inclosures of late years, and the navigation, have again revived its consequence. All the neighbouring country is rich in marsh land, and feeds vast numbers of sheep, and oxen, remarkable for their size, and fatness.

Bradford (*Wilts*).—The trade of this place has been considerably augmented by the Kennet and Avon canal, which passes Devizes and Trowbridge to Bath. It has several manufactories of the finest broadcloths, and is particularly eminent for the nicest mixtures: the goodness and colours of the dyeing being attributed to the properties of the water of the Avon.

Bradford (*Yorkshire*).—Nearly 1290 persons are employed here in the manufacture of shalloons, tammies, calimancoes, wool-cards, combs, and leather boxes. Near the town is an extensive iron foundery, which employs several hundred persons in its various branches, where a number of cannon are cast.

Bridgenorth—has manufactures of cloth, stockings, iron tools, besides all handicrafts in common with other towns of England. It has four fairs annually, resorted to from most parts of the kingdom, for cattle, sheep, butter, cheese, bacon, &c.

Bridgewater.—Through the convenience of its navigation, this town has a very good coasting trade, and a number of coal ships are constantly employed.

Bridport.—Its chief manufacture is in twine, sail-cloth, and hats: for the two former it was so noted in the reign of Henry VIII. that it was enacted, "that all the cordage, &c. for the navy, for a limited time, should be made here, or within five miles, and no where else;" which act was confirmed for nearly 60 years.

Brigg.—The inhabitants of this town carry on a good trade in corn, coals and timber, particularly to Hull; they likewise send large quantities of coney wool to London, which is bought up by the wholesale hatters.

Brighton.—The fishery here employs about 300 boats, carrying some three, four, or five men each. The mackarel season commences in April, and that for herrings in October. Independent of these, almost every kind of fish is found in plenty here.

Bristol.—The river Avon is here so deep, that vessels of 1000 tons may safely enter it. About 10,190 of the inhabitants of this populous city are employed in trade and manufacture. There is a dock here, which will contain 10 sail of large vessels, and further on there is another, where a building is erected on 14 pillars of cast iron, being a crane, a curious piece of mechanism, for loading and unloading ships. On the banks of the Avon are several dock-yards, and the merchants' floating dock exceeds in dimensions any even at Portsmouth, or Plymouth. In Bristol are some considerable woollen manufactures; and no less than 15 glass-houses, for which Kingswood and Mendip furnish the coals. In the rocks near Bristol wells, are found those hexagonal crystals, called Bristol stones. Between Bristol and Bath, on a place called Warmley, a company of Bristol merchants have erected an extensive manufactory of pins, and other brass articles, which employ several hundred hands. All the machinery is worked by water, which is raised by two steam-engines. Some French refugees, who have been long settled in Bristol, manufacture fine woollen cloths, of most excellent quality. Varnishes, of uncommon beauty, are also made here. In the city and its environs there are, likewise, numerous sugar-houses, aqua-fortis, and vitriol, manufactories. The foreign commerce of Bristol has decreased in proportion to the augmentation of the trade of Liverpool: it still, however, carries on a considerable traffic with the continent of America, with the West Indies, and with Ireland, whence it receives immense quantities of salted provisions, butter, linen, &c. &c. and in return, sends to the sister country, the chief commodities of England and its colonies. The intercourse between Bristol, and the Baltic, Spain, Portugal, and most other countries of Eu-

rope, in time of peace, is highly advantageous to the city. With respect to the inland trade, Bristol deals with almost every manufacturing town in the kingdom; and supplies Wales with vast quantities of merchandize, especially those of Ireland, the northern parts of Europe, and the colonies. All persons are free to trade here; and the freedom of the city can be purchased at a very moderate sum. No person shall act as a broker in the city of Bristol, till admitted and licensed by the mayor and aldermen, on pain of forfeiting five hundred pounds; and those who employ any such, to forfeit fifty pounds. 3 Geo. 2. c. 31.

Brixham. — The greater part of the inhabitants are employed in the fishery; which supplies London, Bath, Bristol, and Exeter. This place is much increased of late years, from its being the rendezvous of our men of war, particularly for watering, there being a number of shops built on shore for the sale of slops, provisions, &c. which have a great demand, and are very dear.

Bromsgrove. — The inhabitants are chiefly employed in the manufacture of nails, linen, and woollens. Here are, likewise, made vast quantities of needles.

Broseley. — The iron-works here are as considerable as any in the kingdom. Here is also a manufactory of glazed tobacco-pipes.

Buckingham. — The principal manufacture, and indeed the only one of note carried on in this town, is that of lace, made with bobbins, which is said to be nearly equal to the fine laces of France in appearance, and even in point of durability. An immense number of hands are engaged upon this fabric here, and throughout the county of Buckingham.

Burslem. — Nearly 5000 persons, inhabitants of this town, are employed in its extensive potteries.

Burton-on-Trent. — This town is famous for its strong ale, which is sent down the Trent to Hull, and thence exported both for English, and foreign, ports. It has manufactures of hats, cottons, tammies, and some articles of iron; particularly one for converting bloom, and scrap, iron into bars.

Bury (*Lancashire*).— Here upwards of 4500 persons are employed in the manufacture of cotton, in all its branches. There is also a considerable woollen manufactory here, besides capital printing works of calico and muslin in the neighbourhood.

Canterbury.—Its manufactures are worsted, silk, and cotton; the former furnishes employment for several hundred persons, particularly that called Canterbury muslins. Some French Protestants have been long established here, and to them is the city indebted for the estimation in which its silk manufactures are held, and for the great consumption those articles experience in the metropolis. Canterbury is surrounded on all sides with extensive hop-grounds; and is famed for its excellent brawn. By a statute of 34 Henry VIII. no stranger shall keep a shop, or exercise any trade, in this city, without a licence from the mayor and corporation, under a penalty of 6*s.* 8*d.*

Carlisle. — Upwards of 2500 persons are here employed in trade and manufacture. The manufactures consist of cotton-yarn, cotton and linen checks, Osnaburghs, drills, worsted shags, stamped cottons, hats, chamois, tanned leather, lindsays, nails, hardware, dressed flax, ropes, &c. besides calicoes, muslins, fish-hooks, and whips.

Chatham. — This may truly be styled the first arsenal in the world. The dock-yard, including the ordnance wharf, is about a mile in length; and some of the store-rooms are 700 feet in length: the sail-loft being 209 feet long. Although the stores of the navy are so immense in these magazines, every thing is arranged in the greatest order. Here are upwards of 20 smiths' forges constantly at work; and some of the anchors that are made weigh near five tons. The rope-house is 1140 feet in length, in which cables are made 120 fathoms long, and 22 inches round. In the yard are four docks for repairing, and six slips for building new ships. The ordnance wharf, which adjoins hereto, was the original dock, where the guns, belonging to each ship, are arranged in tiers, with the names of the vessels they belong to marked above them. By a disagreement with the inhabitants of Rochester, when application was made to parliament for paving and improving the road, a new road was made to Canterbury, on the south side of the town, without passing through Chatham: which has, in a great measure, injured the trade of the latter.

Cheadle (*Staffordshire*). — This town being surrounded with coal-pits, there have been several manufactories established here in brass, copper, and tin. Vast quantities of tapes are also made here.

Chedder. — The cheese of this place is, in flavour, little inferior to Parmesan.

Chepstow. — This place is the port of all the towns that stand on the rivers Wye and Lug; and vessels of 600 tons are built here. The merchants import their own wines from Oporto, as well as deal, hemp, flax, pitch, &c. from Norway, and Russia. Ships of 700 tons burthen come up to the town. It furnishes Portsmouth, and Plymouth, with considerable quantities of timber, and exports bark, iron, cyder, &c. to various parts.

Chester. — The chief trade of this city results from its intercourse with the city of Dublin, whence vessels bring large quantities of linens, which are sold at three fairs held in the course of the year, to the linen-merchants of the different trading cities and towns of England. Chester has some trifling manufactures of hats and gloves.

Chesterfield. — There is a silk and cotton-mill here, a manufactory for stockings and carpets; and several potteries have been established in its vicinity. The neighbourhood produces plenty of coal, and iron, which are worked to great advantage; and vast quantities of lead are sent hence by the New Canal, which joins the Trent below Gainsborough.

Chichester. — The inhabitants are principally employed in the manufacture of malt, and needles. The haven affords excellent lobsters; and every other Wednesday there is one of the largest markets for sheep and black cattle in the county, which not only supplies the city, but sends vast quantities to Portsmouth, and London. Chichester carries on a trifling commerce with some foreign ports.

Chorley (*Lancashire*). —Considerable manufactures of cottons, printed linens, &c. are carried on here. The neighbourhood abounds with coal, lead, alum, flag and mill-stones; the working of which, as well as the many machines erected of late years, in the calico, muslin, and fustian branches, have more than doubled the population. On the 4th of September a large fair is held here for toys, and woollen-cloths from Yorkshire.

Cirencester. — Upwards of 900 persons are here employed in trade and manufacture, chiefly that of woolstapling, and heavy edge-tools. Curriers' knives of the very best quality are made here. About 500 packs of wool are weekly sold in this market, and large quantities of white woollen-cloths are manufactured for the Turkey-trade.

Colchester. — The chief manufacture here is baize; there is a building called Baize-hall, where a corporation is appointed to try the goodness of the baize-manufacture, and settle every thing relating thereto. The baizes are of two sorts, namely, one of a fine quality, with a yellow list or selvage; and the second coarse, and thick, with a blue selvage. Of the latter large quantities are exported to Portugal. Much eringo-root is grown in the neighbourhood of this town, and candied here. Colchester has long been celebrated for its oysters, the best of which are called Pyefleet, forming a considerable traffic with the metropolis.

Corfe Castle. — More than 700 persons are here employed in trade and manufacture, mostly in that of clay, which is used for the potteries of Staffordshire; many are also engaged in working stone quarries. This place employs a number of vessels in the conveyance of its stone to the metropolis; and here are some rocks of variegated marble.

Coventry. — This city has now little trade except ribbon-weaving, which is performed by engines worked by women and girls. Gauzes, camlets, and lustrings of very excellent quality are made here. There is a manufacture here of plaids, but it is far inferior to the Scotch fabric.

Crosby Ravensworth. — A number of swine are bred in this parish, and the hams cured here, as well as in other parts of the vicinity, are of a peculiarly fine flavour; which is conceived to be in consequence of their being dried over peat.

Crowland. — This place has a great traffic in wild ducks; in the ponds are kept a number of decoy-ducks, which are perfectly tame, and sometimes take a flight, of several weeks together, as is supposed, to the continent; they return with flocks of wild ducks in their company, which they lead to the ponds of their respective owners, where nets are so artfully spread from the trees, that a flock of 2000 or 3000 are often taken at once.

Croydon — has some capital manufactures of paper, printed cottons, besides several bleach-yards. Immense quantities of wood, corn, and barley, are sent hence to London.

Dartford. — The Gunpowder-mills here give celebrity to the place.

Dartmouth. — A great number of vessels are employed here in the pilchard fishery; besides which, the town has a considerable export trade, and imports wine, oil, fruit, &c. The export trade of Dartmouth is confined to France, Portugal, and the Mediterranean. As the chief employment of the inhabitants is commerce and shipping, no manufacture of consequence is to be looked for at this place, though it is a considerable nursery for the British navy; the fishery alone employing near 3000 men, a certain number of whom the proprietors are obliged by law to select from landmen.

Deptford. —The royal dock-yard of Deptford was first erected in the reign of Henry VIII. The store-houses, which form a square, have had several additional buildings; the whole yard covers 31 acres of ground, containing two wet docks, one single and the other double, three slips, a bason, and two ponds for masts, with various manufactories for anchors, cables, masts, blocks, &c. The number of the artisans constantly employed, is about 1500. At Deptford there are several docks for ship-building, the property of private individuals. The Red House, a little to the north-west of Deptford, is the grand store for provisions, &c. for the royal navy; and here persons are stationed for the purpose of examining the articles supplied to the navy by the different contractors, and ascertaining whether they are conformable to the description given of them in the invoices, and worth the prices charged.

Derby. — In this town are some extensive silk-mills, upon a very ingenious plan, the first of which was erected from a model brought from Italy. In this machine are nearly 100,000 movements, put into action by a single wheel, any one of which may

be stopped at pleasure. Every time this wheel goes round, which is three times in a minute, the machine works 73,728 yards of silk. By this mill the raw material is prepared for the warp. Derby has also a very extensive manufactory of porcelain, which, for fineness of texture, and brilliancy of colours, equals that of China. A number of persons are employed in turning vases, urns, and various chimney-ornaments, of marble, spar, and petrifactions, which abound in this vicinity. Here are made fine cotton and worsted stockings. The malting trade is carried on to a considerable extent also.

Devizes. — Here upwards of 1700 persons are employed in making malt, and the manufacture of druggets, serges and kerseymeres. Some light Spanish cloths of tolerably good fabric are likewise made in this town.

Donnington. — The cultivation of hemp for the London market is carried on to a considerable extent in this vicinity.

Dorchester (Dorset) — has entirely lost its famous manufactures of broad cloths, and even its trade in serges is, at the present period, of very little consideration. The inhabitants of Dorchester derive large profits from the numbers of fine sheep fed in the neighbourhood. The ewes in general are very prolific, a circumstance attributed to the aromatic herbs with which the pasturage is interspersed. This place is noted for the excellency of its ale, which is sent to all parts of the kingdom, and even exported.

Dorking. — A great trade is carried on in lime, which is accounted superior to any other made in the country. A great traffic in meal is likewise supported in this town. Dorking is noted for its breed of poultry, which is remarkably large and fine, and singular for the birds having five nails in each claw. Capons, bred here about Christmas, often weigh seven or eight pounds out of the feathers. In the neighbourhood are a number of corn-mills.

Dover — has some rope-works, and a small trade with the ports of France in time of peace, and a trifling coasting commerce, but is principally known for its being the place through which most persons enter England coming from the continent.

Downham (Norfolk) — has a well supplied market, and is particularly noted for its sale of butter, which is conveyed by the river Ouse to Cambridge, whence it is sent by land-carriage to London, and there sold under the denomination of *Cambridge butter.* The sale of this commodity was formerly averaged at 2000 firkins per week.

Downton (Wilts). — The principal employments in this place are lace-making, and malting. It has also a good paper-mill; a grist-mill, and a tan-yard, besides a considerable branch of the tick-weaving business.

Droitwich. — The principal trade here is in the manufactory of fine white salt, deemed to be the best in all Europe. The brine springs are so strong here, that the pits are continually running over, being much stronger than those in Cheshire; they contain about one-fourth salt, while those at Nantwich yield only one-sixth. The brine is pumped out of the pits chiefly by horses into large reservoirs, from which there are trees laid to the different salt-works. By turning a cock the brine is let into boilers of wrought iron, from 14 to 24 feet long, and from 12 to 20 wide, and about 2½ feet deep. It takes near twenty hours boiling, and the salt remains at the bottom of the pans, whence it is transferred into oval wooden baskets, and carried to a stove, where it is left about forty hours to dry, and then is fit for use. A canal conveys the salt to the Severn, whence it is disseminated throughout the kingdom. Some white woollen-cloths are made here for exportation.

Dudley—has most extensive manufactures of nails, and hardware in general.

Dunstable — has long been famous for its manufacture of various articles of use and ornament in straw, particularly of hats, known by the name of *Dunstables:* it used to employ a great number of women and girls; but this manufacture has been almost superseded by the introduction of that called Leghorn. The vicinity is remarkable for the size of its larks, which are caught here in great quantities, and sent to the London markets.

Durham—is noted for its manufactures of stuffs, and carpets, as likewise for its excellent mustard; large fields of the plant, which produces it, being cultivated in the neighbourhood of this ancient city.

Dursley — has a considerable traffic in broad-cloth, and card-making for clothiers. Adjoining the town is an extensive paper-manufactory. In this neighbourhood is a peculiar rock or stone, without any chap or slit, called Towle stone, which, though soft in hewing, becomes exceedingly durable when exposed to the air.

Easingwold. — The inhabitants are chiefly employed in curing bacon and making butter, which are sent by land-carriage to York, and thence by water to London.

Eastbourne. — In the months of July and August, large flights of birds, called wheat-ears, are caught here by shepherds, who ensnare them into holes cut in the turf; they are reckoned a very great dainty.

Ely. — Eels abound here, as do osiers, of which vast quantities are cut down for the use of basket-makers. The adjacent grounds are chiefly market-gardens, the soil being so fertile, that it supplies most of the neighbouring towns with vegetables, even as far as Cambridge, and is particularly noted for its strawberries.

Epping. — The butter made here, and in the neighbourhood, is in particular esteem, and brings a higher price than any other at the London market; its pork and sausages are also in equal repute.

Etruria. — This is the seat of the most considerable pottery in England, particularly of those kinds denominated *Staffordshire-ware* and *Wedgewood.* The latter is very beautiful, and receives its name from Mr. Josiah Wedgewood, the first manufacturer, whose ingenious imitations of the Etruscan vases have obtained this place the classic appellation of *Etruria.*

Exeter. — A considerable trade is carried on here in the manufacture of serges, perpetuanas, and various woollen-goods; and here is held a weekly serge-market, the greatest in England, next to that of Leeds; it is said that a week's sale here has produced 100,000*l.* There is a large cotton-manufactory here, besides manufactures of coarse and fine hats, and of white Osnaburghs. Exeter maintains, in time of peace, a most advantageous commercial intercourse with the ports of Spain, Portugal, Italy, Holland, and Germany. In the year 1802-3, this city furnished Spain with merchandise to the amount of 200,000*l.* and upwards.

Falmouth — carries on an important pilchard-fishery. Its commerce with Spain, Portugal, America, &c. has, in the course of a very few years, raised it to a level with several of our most thriving and populous ports.

Fareham — has a manufacture of sacking, and ropes for shipping; of which last it supplies great quantities to Portsmouth: it has also a considerable trade in coals.

Farnham (Surry). — In the neighbourhood are many extensive hop-plantations, the produce of which is reckoned superior to the Kentish, both in quantity and quality. Here is likewise a great traffic in Welsh-hose.

Faversham. — This place is noted for its extensive manufacture of gunpowder; several of the mills belong to government. It has also a considerable oyster-fishery, in which nearly 200 families are employed.

Folkestone. — A multitude of fishing-boats belong to Folkestone-harbour, which, during the season, are employed in catching mackarel for the London market, and about Michaelmas in the herring-fishery, on the Norfolk, and Suffolk, coasts, for the merchants of Yarmouth, and Lowestoff. Many curious strata of pyrites, talc, fullers'-earth, and a kind of sulphur, are found here. Contraband trade used to be carried on in this place to an alarming extent, but it is much diminished.

Fordlingbridge. — Upwards of 890 persons are here engaged in the fabrication of ticking, and in calico-printing.

Fowey. — The harbour of Fowey is capable of containing vessels of 1000 tons at all times of the tide. The inhabitants carry on a considerable trade in the pilchard-fishery.

Freefolk. — In this hamlet is a paper-mill, where the finer kind of paper is manufactured, particularly that sort used by the Bank of England.

Frome. — Upwards of 2200 persons are occupied in various trades and manufactures, principally of broad cloths, and kerseymeres, and in an extensive trade in card-making for wool-combers. On the banks of the river Frome are several mills for fulling of cloth, rolling of iron, &c. The ale of Frome is highly esteemed.

Gainsborough — carries on a considerable coasting-trade with the northern parts of Lincolnshire, and inland traffic through Nottinghamshire, by the river Trent.

Gisborough. — This place has long been noted for its alum-works, the mines of which were first discovered in the reign of James I. or Elizabeth, by Sir Thomas Chaloner. The soil in the neighbourhood is particularly fertile, and produces earths of different colours, with a little iron ore.

Gloucester. — Upwards of 2300 persons are employed in trade and manufactures, particularly those of pin-making, wool-stapling, and rope-making; the value of pins sent weekly to London is estimated at 20,000*l.* The cheese, and cider, made in the neighbourhood of this city are too well known to need any eulogium in this place; the value of the former article annually sold throughout the British empire, exported to the continent of Europe, to that of America, the East and West Indies, baffles every attempt at estimation. There are several glass-houses here, in which coarse glass bottles, and glass bells for gardens, are fabricated. A canal has been made from this city to Berkeley, capable of conveying vessels of 200 tons burthen, by which the difficult navigation of the Severn is avoided.

Godalming—has several manufactories for weaving stockings, and one for the patent fleecy hosiery. Wool-combing, spinning of worsted, and weaving of coarse woollen-cloth, also give employment to a number of hands in this parish. On the river are a grist-mill, two paper-mills, and three corn-mills.

Gosport. — This is a place of great trade and business, but more particularly so in time of war, from the number of docks in the King's service. Here is a large iron-foundery, in which various articles are cast for the use of the navy. There are some capital porter-breweries in and about Gosport.

Gravesend. — The gardens round the town are so rich and fertile, that they not only supply the numerous shipping, which stop here, with all kinds of vegetables, but also furnish the London market; this place is remarkable for its excellent asparagus.

All outward-bound vessels are obliged to bring to here, till they have been examined by the proper Custom-house officers, and receive their clearances. The labouring people spin hemp for the making of nets and ropes.

Greenwich, — from its vicinity to the metropolis and to the river Thames, is, of course, the seat of certain manufactures, and of some trade; but its principal claim to celebrity is founded on its magnificent pile of building denominated Greenwich Hospital, for the reception of seamen disabled by age, or maimed either in the king's or the merchants' service; and on the royal observatory, which was erected here before the end of the 17th century.

Grimsby, Great. — The principal traffic of the town is in coals and salt, by the river Humber, here being no manufacture of any note; but it is a place rapidly increasing in importance, from its improved harbour, where the trade of the northern kingdoms is admitted without the heavy dock duties payable at the neighbouring port of Hull.

Halifax. — The woollen manufacture has long been established in this populous town, and from the favourable situation of the place, and the many rivulets, there have of late years been erected numerous mills and machinery. Halifax was noted many centuries ago for the manufacture of woollen goods; it did not, however, attain any considerable importance till the reign of Henry VIII. About the beginning of the 18th century, the manufacture of shalloons was introduced, and about the middle of the same century the manufacture of figured and flowered stuffs. The weavers of the surrounding districts bring their goods undressed to the market, and the following are the principal goods manufactured in and about Halifax: — Shalloons, figured and plain lastings and amens, plain and dyed Russels or Florentines, supebarragans or serge imperial, quilted lasting, serge, moreens, tammies, plain calimancoes, &c. Shalloons are woven expressly for the Turkey market, and are not pressed; they are, for the most part, dyed of a scarlet colour, and are sent by the Turkey merchants of London to the Levant, where they are chiefly used for turbans. Formerly the greater part of the above goods passed through the hands of the London merchants, but now they are mostly exported directly from the port of Hull. In time of peace, large quantities of woollens have always been sent to South America by way of Cadiz; but now they are exported directly from our ports to Brazil and Peru. There are excellent cards for combing wool made at Halifax. For the convenience of the manufacturers, there has been erected an elegant edifice, called the Piece-hall: it is in the form of an oblong square, occupying a space of 10,000 yards, having 315 distinct rooms for the lodgment of goods, which are open for sale once a week, from ten till twelve o'clock. A vast number of woollen stockings, chiefly made from Scotch and North of England wool, are woven in this town and the environs. The Leicestershire, South-down, and Merino, wools are employed in the manufacture of the fine cloths.

Harborough Market. — A considerable manufacture of tammies, shalloons, plain and figured lastings, &c. employs a great number of persons in this town, and its neighbourhood; and in some years it has been computed 300,000*l.* have been returned in tammies only. It is famous for its two great fairs, one on April 29th, the other on October 19th. The last mentioned continues for ten days, and is perhaps the largest for horned cattle in the kingdom. The Irish and Scotch beasts come hither in prodigious droves, and are purchased to be fed in the marshes of the eastern counties, for the winter markets of London.

Harwich. — The harbour here is not only safe and convenient, but of great extent, capable of receiving the largest ships of war, and the greatest number. Harwich carries on a large trade with Holland and Germany. Suffolk and Essex obtain their chief supplies of coals from this town. Several fish-machines run from Harwich in a very expeditious manner to supply the London market.

Hastings. — This is the principal of the Cinque Ports, and had formerly a noted harbour, but now has a road only for small vessels. Here is a regular Custom-house, with an establishment of twelve riding-officers, this place being notorious for a trade in contraband goods. The herring and mackarel fisheries here give employment to a number of hands, and furnish a good supply to the London market.

Hawshead. — This is the principal town in what is called the district of Furness, or woody fells in Lancashire; the woods are chiefly charred here at the growth of about fifteen years, for the uses of the numerous founderies and forges in the neighbourhood. The mountains in the vicinity produce plenty of copper ore and slate.

Helstone. — This is a stannary town, being one of those appointed for the stamping of tin, which creates a good trade here. Near this place the tin ships take in their lading.

Hereford. — The manufacture of gloves, which at one time was carried on to a great extent in this city, has of late years been on the decline. In the neighbourhood all the hedges are planted with apple-trees, and a great deal of excellent cider, which bears the name of the county, is made here, part whereof is sent to London, &c. and the remainder consumed in the city and its vicinity.

Hertford. — The principal commodities of

this place are corn, malt, and wool. It has been computed that 5000 quarters of malt are weekly sent hence to London by the river Lea. Fairs are held here triennially, at which there are generally good shows of black cattle and horses.

Hitchin. — Malting is the chief trade here. The market on Tuesday is very considerable for wheat, which is excellent of its kind, and sold toll free.

Honiton. — Here is a small manufacture of serge, but the principal occupation of the industrious inhabitants consists in making broad lace. Honiton supplies the London market with large quantities of butter.

Horncastle. — Tanning hides is the chief occupation of the working people of this town; but one of the greatest horse-fairs in the kingdom is held here in the month of August. It is professed to be holden on the 21st day of that month, but actually commences from the very first day of it, and sometimes continues for several days after.

Hounslow. — About the middle of the well-known heath, which bears the name of this town, are powder-mills, and not far distant are some copper-mills.

Howden. — On the 25th of September, here commences one of the greatest horse-fairs in the kingdom, which continues till the 3d of October.

Huddersfield.—The chief manufactures of this place consist of serges, kerseymeres, frieze, and narrow, and broad, cloths. There is a very extensive cloth-hall here, which was erected in 1765. The cloth-market is held on Tuesday, commencing early in the morning, and closing at half past twelve at noon: it is very numerously attended by the wool-staplers, &c. from Leeds, Halifax, and Wakefield.

Hull. — The rank which Hull is entitled to hold, in consequence of its extent, its population, and public accommodations, is very considerable; but its chief influence, in the scale of national importance, arises from its increasing commerce. The tonnage of Hull was, several years ago, only inferior to that of London, Liverpool, and Bristol; its customs only to those of the two first. It sends, at present, one-third as many ships to Greenland as London, and, exclusive of London, more than all England together.

By means of the great rivers Humber, Ouse, and Trent, Hull has the import, and export, trade of many of the northern, and midland, counties; its foreign trade is chiefly to the Baltic.

It is difficult to collect authentic information of every variety of manufacture existing in Hull, and the mere detail of the ordinary operations of artisans and labourers would be tedious and unimportant. The most extensive and lucrative manufacture in this town is, perhaps, that of expressing and refining oil from linseed, and afterwards preparing the residue for feeding of cattle. The process is chiefly effected by mills, worked by wind. There are several oil-mills here, however, set in motion by steam-engines, and a few by horses. The knowledge and practice of this branch of manufacture was first introduced into Hull by a native of Holland. The oil thus produced, is, when refined, of singular utility in the clothing business.

An iron-foundery, sugar and soap-houses, several whale-oil yards, a lead-manufactory, numerous dry-docks and ship-builders' yards, where a great number of hands are constantly employed, and several large breweries, are the chief establishments.

The Grand Dock at Hull extends, in length 700 yards, in width 85, and is 22 feet in depth. It is capable of containing 130 sail of ships, of 300 tons burthen. With its wharfs and quays, this dock covers a space of more than 13 acres. Hull boasts of an Exchange and Trinity-house, much on the same plan with similar institutions in the metropolis. The population of Hull is said to be more than 30,000 persons.

Ilfracombe.—This place has a very commodious haven, and a newly-erected pier, and the light-house is so conveniently situated, that vessels can run in here when they cannot make Bideford, or Barnstaple; so that much of the port business of the latter places is done here. The vessels belonging to the port are chiefly employed as coasters in carrying ore, corn, &c. from Cornwall and Devonshire to Bristol, and in fishing. The Ilfracombe fishery supplies the Bristol market with large quantities of turbots, soles, &c.

Illogan.—The copper-mine, called "Cook's Kitchen," in this parish, is esteemed one of the richest in Cornwall. For several years it produced, after paying all expences, a clear profit of 80,000*l.*

Ipswich.—The principal trade of the town is, at present, in malting and corn. Great quantities of ship-timber are sent hence to the different dock-yards, especially to Chatham. Ipswich has a share of foreign commerce, a coasting-trade, and sends ships to the Greenland-fishery. Vessels of large burthen cannot come up to the town. There are some salt-works, but of no great repute, in the neighbourhood.

Kendal.—The manufactures of cottons, coarse woollens, lindseys, druggets, worsted stockings, flannels, and serges, are here very considerable, and there are several small manufactures of hardware. Here are seven trading companies, each having their hall, viz. mercers, tanners, glovers, sheermen, cordwainers, tailors, and pewterers. Wool-cards, fish-hooks, and gunpowder, are made in the town and its vicinity. Kendal has an inconsiderable silk-manufacture, the raw material consumed in which is supplied by the silk-merchants of London. By the in-

land navigation the town has a communication with the rivers Mersey, Dee, Ribble, Ouse, Trent, Severn, Humber, Thames, Avon, &c.

Keswick (*Cumberland*). — Upwards of 300 persons are employed principally in the manufacture of coarse woollens and linens. Some years ago an establishment was formed for the spinning of twist. Keswick has long been noted for its lead-mines, the produce of which is prepared at a smelting-mill on the river Derwent.

Kidderminster. — This populous town was famous for its manufactures in the reign of Henry VIII. for broad-cloths, then for wolseys, and afterwards for bombazines, crapes, and poplins. The Scotch and flat carpet-manufacture, known by the name of *Kidderminsters*, was introduced here about 1735; some years since the cut carpet was wrought here with great skill; and in 1772, the number of looms in the neighbourhood and town amounted to upwards of 250. This manufacture gives employment to more than 3000 people, of which number about one half prepare the yarn for the manufacturers, and also supply that article, in a considerable quantity, to various parts of the kingdom. A silk-manufactory was erected here in 1755, and also one in imitation of Marseilles quilting. Woollen-plush is also made here for the Portuguese market. Hearth-rugs, of very beautiful patterns, and excellent fabric, have within these few years been introduced into this town. The Staffordshire and Worcestershire canal, which passes this place, opens a communication to Hull, Liverpool, Bristol, Manchester, and many other trading towns.

Knaresborough. — There is an extensive manufactory of linen-cloth here, in which 1000 yards have been said to be woven weekly; and the fields are famous for producing liquorice.

Lambeth. — In this extensive parish a vast number of persons are employed in all those handicraft trades which are necessary to supply the wants and desires of the inhabitants of that opulent city, whereto it is adjacent, and of which indeed it may be said to form a part. The manufactures too are various, vinegar, artificial stone, patent shot, hats, boats, ropes, coaches and harness, oil, sugar, &c. &c. not necessary to be further particularized, as Lambeth possesses them only in common with the other environs of the metropolis.

Lancaster. — The principal manufactures here are those of sail-cloth, coarse linens, and cabinet ware. By the inland navigation this town has communication with the Mersey, Dee, Ribble, Ouse, Trent, Derwent, Severn, Humber, Thames, Avon, &c. Lancaster is situated on the river Lime, which forms a harbour of moderate size. The merchant shipping is chiefly employed in the West India, American, and Baltic trades. It has a long fine quay, on which is a range of noble warehouses. The principal exports are hardware, woollen-goods, cabinet-ware, &c. The cabinet-makers of Lancaster are celebrated for their ingenuity.

Leeds. — Above 20,000 persons are here employed for the most part in the woollen manufacture. The trade in woollen cloth, in this town, is perhaps the greatest in the world; and for the accommodation of the clothiers, there are two spacious halls, as well as a third for worsted goods. About six o'clock A.M. in summer, and about seven in winter, the market-bell rings; upon which, in a few minutes, without noise, hurry, or the least disorder, the whole market is filled, all the benches covered with cloth, as close to each other as the pieces can lie lengthways, each proprietor standing behind his own goods: as soon as the bell has ceased ringing, the factors and buyers of all sorts enter the hall, and walk up and down between the rows, as their occasions direct: when they have pitched upon their cloth, they lean over to the clothier, and by a whisper the price is stated; one asks, the other bids, and they agree or disagree in a moment. In little more than half an hour all the business is done: 10 or 20,000*l*. worth of cloth, and sometimes much more, are bought and sold with a whisper only: the laws of the market being more strictly observed here than at any other place in England. That called the mixt cloth hall was erected in 1758, by a voluntary subscription of the clothiers. The white cloth hall is appropriated to the sale of white cloth only. Almost every operation in the manufacture of broad cloths, in, and near, this town, is performed by machinery. This enables the manufacturers to sell their goods at a very low rate, and occasions very few hands to be wanted in the first stages of the manufacture, particularly in carding or scribbling the wool, and in spinning it. Here is also a flourishing manufacture of carpets, besides mills for cutting tobacco, several potteries, &c. The wools employed in the clothing manufactures of Leeds (which are of the coarser kind, usually denominated Yorkshire cloths), are brought from Norfolk, Cambridge, most of the northern counties, and from Scotland. By means of the rivers Aire and Calder, and the canal navigation, Leeds has communication with Wakefield, York, and Hull; from which latter place woollen goods are usually shipped to foreign parts. The carriage of coals to the interior of Yorkshire is also a great source of traffic; these are carried in vessels from 45 to 60 tons burthen, by means of the rivers Aire and Calder; and by the Selby canal, to Selby, York, Howden, Hull, Beverley, and all the intermediate towns lying on the rivers Ouse and Humber.

Leicester. — The principal trade in this town is in the manufacture of *woollen* stock-

ings, as that of Nottingham is of *silk* and *cotton*. Immense quantities are made here, as well for home consumption, as for exportation. It enjoys great local advantages from having wool of every degree of texture, from the coarsest to the finest produced in this and the immediately-neighbouring counties. The combing and spinning of the wool from which the stockings are made, give employment to the poor of the town and its vicinity. It has also a brass and an iron foundery. Leicester is supplied by canal navigation with coals, deals, and groceries, and communicates with all the principal towns of England.

Lincoln. — The corn, and wool, trades are almost the only ones here, and large quantities of both articles are sent into Yorkshire, whence the vessels return laden with coals.

Liverpool. — The second port in the British empire, to which rank it has been raised in modern times, by a concurrence of favourable circumstances. In the beginning of the 18th century, it was an inconsiderable place. In 1700, the number of inhabitants was about 3000; in 1720, above 10,000; in 1730, about 12,000; in 1740, more than 18,000; in 1760, near 26,000; in 1790, nearly 60,000. According to the census of 1821, the population amounted to 118,972.

Originally the trade of Liverpool was only with Ireland; which induced many Irish merchants to settle here. The greatest part of the trade with the Isle of Man was likewise gradually transferred hither. In 1720, some salt was exported; in 1730, we first find it recorded, that *several* ships had sailed from hence for the coast of Africa. The first dock was begun in 1710, which was followed by several others, and at length formed an excellent harbour, which was frequented by the ships from the Baltic and other parts of the north, being more certain of finding a return-cargo here than at Bristol. If disappointed of that, they could at least depend upon obtaining the useful article salt, for ballast or dead weight. The canals and inland navigation opened to Liverpool a most advantageous communication with the manufacturing places and chief towns of the kingdom. The increasing manufactures of Lancashire created a continual demand for raw materials from abroad; and an extended population, in a district which is so little distinguished by the bounty of nature, required a proportionate importation of provisions. From these and other circumstances every thing was in a state of activity and advancement; the canals branched out in various directions; the salt-works of Cheshire, by a more diligent and an improved mode of management, became more productive; the manufactures of Lancashire, Staffordshire, Yorkshire, &c. were carried to the greatest perfection, and the most flourishing condition; Scotland advanced in industry, wealth, and population; as did likewise Ireland. The slave trade, that blasted Africa like a pestilence, came almost exclusively into the hands of the Liverpool merchants; and thus increasing a most lucrative connection, formed with the West Indies, and cemented in blood: the commerce with the Baltic also became more considerable: the trade to the North Sea increased; the exports from Liverpool for the supply of the American market were several millions per annum; and the intercourse between it and Spain and Portugal has proved most lucrative not only to the town itself, but to many of the manufacturing places of England. Liverpool enjoys the twelfth part of the navigation, the fourth part of the foreign trade, and the sixth part of the general trade of Great Britain: half as much of commerce as London: it was polluted with five-eighths of the African slave trade of the United Kingdom; three-sevenths of the same abominable traffic is computed with the rest of the empire and Europe. The rapid progress, and present flourishing state of this place, may in a great measure be ascribed to the commercial and speculative spirit which prevails here. Liverpool is situated on the inlet of the sea, into which the Mersey flows, about three miles from the mouth of that river: the waters of the Mersey are not sufficient to fill the broad channel, and at low water the depth is only 15 feet, at spring tides it is 30; the harbour has been formed entirely by means of large and expensive docks.

On the quay stand large warehouses, among them the extensive tobacco warehouses belonging to government, which will hold 7000 hogsheads, and yet, on some occasions, there has been want of room. Liverpool trades to all parts of the world, now even to the East Indies, since that trade was thrown open, which compensates to a certain degree for the loss of the African trade in slaves. In war-time Liverpool is more enterprising with respect to the fitting out of privateers than any other port in Great Britain: it is on record, that from July 1789 to the end of 1799, there sailed from this port 396 armed ships without convoy; 32 from London, 50 from Lancaster, and 196 from all the other British ports, with exception of such as sailed to the Baltic and other places in the North. The cotton trade of Liverpool is very extensive.

Of the manufactures of Liverpool there is not so much to be said; there are several sugar-houses, manufactories for tobacco-pipes and pottery; some iron founderies; about 50 breweries; watches in large quantities, as well silver and gold as metal, are made for exportation; in the vicinity there has long been a steam-engine for cutting and flattening iron; likewise works for the preparation of vitriol and white-lead, be-

sides many windmills, the most for the grinding of corn, and the rest for cutting of dye-woods. The preparation of snuff and tobacco, the cutting, plating, &c. of which is performed by means of machinery, may be considered as one of the staples of Liverpool. There are, besides, an extensive stocking manufactory, salt, iron, and copperas works. Ships of considerable burthen go up the Mersey, almost as high as Warrington, chiefly for rock-salt and Cheshire cheeses.

London.—It must be acknowledged, that the feature which above all others marks this great capital of the first trading nation in the universe, is the magnitude of its commerce. Situation, a long-continued current of successful accidents, with the genius for gain elevated above, and directing the whole to, its own purpose, although not to the exclusion, yet to the subjugation, of all other objects, have, in London, reared up an emporium, that the merchant of other nations, with all his knowledge of the power of commerce, surveys with inexpressible wonder. The commerce of London has three principal points, 1st, the port of London, with the foreign trade and domestic wholesale business; 2dly, the manufactures; and lastly, the retail trade. The annual value of the imports, and exports, of London has been, long ago, stated at upwards of sixty millions sterling, and the annual amount of the customs at more than six millions: employing about 3500 ships, British and foreign; the cargoes annually entering the port not being less than 13,500, and on an average 1100 ships are in the river; together with 3419 barges and other small craft, employed in lading and unlading them; 2288 barges and other craft engaged in the inland trade; and 3000 wherries or small boats for passengers. To this active scene which the port of London exhibits, are to be added about 8000 watermen actually employed in navigating the wherries and craft; 4000 labourers lading and unlading ships; and 1200 revenue officers constantly doing duty on the river, beside the crews of the several vessels. This scene occupies a space of six miles on the Thames, from two miles above, to four miles below, London bridge and Limehouse. The East and West India trades indubitably constitute the largest and most important branches of the foreign commerce of the metropolis. The West India trade, though less splendid in its form, is equal in commercial importance. The docks and warehouses in the Isle of Dogs, for the accommodation of this trade, are of the most capacious extent, and at once convey a just idea of the value and importance of English commerce. These immense works receive the whole of the ships in the West India trade; and are among the prominent curiosities of the British empire: they were undertaken according to an act of parliament passed in 1799, entitled "The Wet Dock Act;" the entrances into them are at Blackwall and Limehouse-hole; their scite is wholly on the Isle of Dogs, and upon the wharfs and quays adjoining them, all West India ships unload and load their cargoes. The northern dock for unloading inwards, covers a space of thirty acres, and is capable of containing from two to three hundred sail of ships; the smaller dock, situated to the south of the other, covers an area of twenty-four acres, and is devoted solely to the business of loading outwards: both docks are surrounded by immense ranges of lofty warehouses.

Notwithstanding these docks have occasioned a very important trade to be removed to a considerable and even inconvenient distance from the metropolis, yet the advantages to the port of London are, upon the whole, incalculable. The West India trade generally arrives in large fleets, and occasions so much crowding, confusion, and damage in the river, that these ships being disposed of in the docks, the extensive trade of the port may be carried on with pleasure and convenience.

The East India Company have likewise constructed docks at Blackwall, for the purpose of loading and unloading their ships. To convey an idea of the magnificence of these docks, it will be sufficient to observe that they are worthy of the proprietors; besides the East, and West, Indies, London carries on immense traffic with the continent of America, with Russia, Prussia, Germany, Poland, the Netherlands, and the whole of the north of Europe, with France, Italy, Hungary, &c. &c.

A war of unexampled duration wholly impeded, for several years, the old commercial currents; and even the tardy return of peace has not restored all of them to their accustomed channels. On the whole, although there is every reason to believe our commerce is even in a progressive state, yet the abolition of the African slave trade, the increasing manufactures of North America, and the unsettled state of the southern provinces of that continent, set all permanent calculations and estimates at defiance; we shall, therefore, (after observing, that between London and Dublin, as well as with most other ports of Ireland, there is a constant intercourse; and that as the balance of trade is generally in favour of the English metropolis, many of the merchants here derive immense profits from negotiating bills upon the sister country; and that the chief part of the trade between Scotland and London is carried on by means of the coasting vessels, some of which almost daily set sail from the wharfs about Wapping for the Scotch

ports;) proceed in the most acceptable mode, in which we can occupy the remaining space we can dedicate to this single article, to give a succinct account of some of the public establishments in London, in which most commercial men are, in different degrees, interested; as, also, a very general view of the manufactures peculiar to it.

Of the domestic wholesale business of London, it is enough to say, that it is immense; and that a very great portion of the consumption of the whole island passes through the metropolis, as the general mart of the country.

The Bank of England was first established in 1699, and it may justly be styled the grandest institution of the kind in Europe; further particulars on this subject will be found under the article BANK. The Stock Exchange, in Capel-court, was erected in 1801, by subscription, in transferrable shares of 50*l.* each: no persons are allowed to transact business here but those who are ballotted for by a committee annually, and on their election to pay ten guineas: the business transacted here relates entirely to the sale and purchase of stock in the public funds, exchequer bills, India bonds, &c.; it is open from ten in the morning till four in the afternoon, except on bank-holidays, when it is shut.

The Royal Exchange was erected in 1556-7, by Sir Thomas Gresham. Here, between the hours of three and four, most of the merchants of London assemble, and transact business by negotiating foreign bills, &c. Over the Exchange is the noted coffee-house called Lloyd's, frequented by underwriters, and others concerned in shipping. The Custom-house was built in 1817: there is one apartment in this large pile of building, denominated the Long Room, where the commissioners and clerks attend between the hours of nine and three, and in which entries inwards and outwards are passed, duties paid, affidavits made, and cockets received. The clearing office is situated in the lower part of the Custom-house, and here application must be made for leave to ship goods. The Excise-office, in Broad-street, erected in 1768, is destined to the receipt of a branch of the public taxes called the excise duties. The Post-office, at present in Lombard-street, but about to be removed to the east end of Newgate-street, may truly be said to be the most important spot on the face of the globe: it receives information from the poles, it distributes instructions to the antipodes, it connects together more numerous, and distant, collections of men than any other similar establishment: inland letters are here received till seven o'clock P. M.; after that till half-after seven, a fee of sixpence being paid with each letter; and from half-after seven till a quarter before eight, the postage being paid, as well as the fee of sixpence. The postage of all letters for foreign parts must be paid when put into the office. Letters for the East Indies are to be delivered at the India-house. Those for the coast of Africa, or any single settlement in particular parts of the world, at the respective coffee-houses, where bags, which wait the sailing of ships, are kept; or at the ship letter-office. For the two-penny post, or the delivery of town-letters, there are two principal offices, one in Lombard-street, and the other in Gerard-street, Soho.

The Trinity-house, situated on Tower Hill, is appropriated to the use of a corporation, appointed to superintend the interests of the British shipping, military and commercial; this corporation examine the masters of the king's ships; appoint pilots for the Thames; erect light-houses and sea-marks; grant licences to poor seamen, not freemen of the city, to row on the Thames; and superintend the deepening and cleansing of the river.

We shall now proceed to say a few words relative to the manufactures of London. The manufactures of London are often overlooked in the midst of its other, and more prominent, branches of commerce; but, whether they are considered in their magnitude, or value, they are very important: they consist chiefly of fine goods, and articles of elegant use, brought to more than the ordinary degree of perfection; such as cutlery, jewellery, articles of gold and silver, japan-ware, cut glass, cabinet-work, and gentlemen's carriages; or of particular articles that require a metropolis, or a port, or a great mart, for their consumption, export, or sale; such as porter, British wines, spirits, vinegar, refined sugar, soap, &c. Nothing surpasses the beauty of many of the former articles; nor any thing the extent and value of the manufactories of the latter kind. A very extensive silk manufactory is carried on by the inhabitants of Spital Fields, Shoreditch, and Bethnal Green parishes; the persons employed in it amounting to about 7000. In Clerkenwell, about the same number of persons are occupied in the different branches of the watch manufactory. The coach-builders, and harness-makers, are also numerous, and have brought their respective works to such a high degree of perfection, as far to exceed, in point of elegance, those made at any other place in the world. The beaver hats made in London are all of the finest quality, and are highly esteemed both at home, and abroad. The other manufactures of London, most of which are extensive and productive of very lucrative commerce, may be enumerated as follow: copperas-works; calico-printing; distilleries, where are made

a neutral spirit from corn, besides geneva and cordials; glue manufactories; leather-dressers; iron-founderies; oil-mills, of which there is a remarkable one at Battersea; saltpetre-works; vitriol-works; dock-yards for ship-building; cooperages; turpentine manufactories; dye-houses, &c. &c.

The extent and value of the retail trade of London have been already intimated. The shops of this great city are astonishingly numerous, and there is scarcely an article known in Europe that may not be met with in one, or more, of them. London shopkeepers, when industrious, will scarcely fail of accumulating a large property, even on a small capital; yet they impose less advance on their wares, than those of any other metropolis, because the consumption is vast, the quantity of money in circulation immense, and the trader's return of capital, quick.

London is governed by a Lord Mayor, who appears in rank and splendour above that of many European crowned heads, and by a court of 26 Aldermen, including the Lord Mayor, together with a common-council, chosen out of all the wards of the city by the inhabitants; these three constitute the executive power of this great city. There are two classes of freemen in London, who have some different privileges, that is, liverymen of the city, and those who are simply freemen. There are several companies who have no livery, and the apprentices bound to them can only be freemen of the city, and have a liberty to exercise their trade or profession within its liberties, but cannot be of the livery, nor have a vote in choosing magistrates in the city, or members to represent it in parliament, which the liverymen can. An apprenticeship of seven years entitles a youth to the freedom of the city of London. According to the census of 1821, the population amounted to 1,225,694.

National Commercial Companies in London are:

TITLES.	OFFICES.
African Company	Suffolk Lane.
Bank of England	Bank.
British Copper Company	Thames Street.
Commercial Dock Company	Fenchurch Street.
East India Company	India House.
East India Dock Company	Lime Street Square.
Hudson's Bay Company	Fenchurch Street.
London Dock Company	New Bank Buildings.
Russian Company	Royal Exchange.
Scotch Mining Company	Sun Fire Office, Cornhill.
South Sea Company	South Sea House.
Turkey Company	St. Helen's Place.

See further, title COMPANY.

Besides these which have been classed under the description of *National Commercial Companies*, there are many others for the promotion of national interests, and the protection of commerce also, but which come more properly under the notice of *private* companies; such are those for insurance, &c. as follow:

Fire-Insurance Companies.

TITLES.	OFFICES.
Albion	Bridge Street.
Atlas	Cheapside.
British	Strand and Cornhill.
County	Southampton Street, Strand.
Eagle	Cornhill.
Globe	Pall Mall, and Cornhill.
Hand-in-Hand	Bridge Street.
Hope	Ludgate Hill, and Oxford Street.
Imperial	Cornhill, and St. James's Street.
London	Birchin Lane.
Norwich	Birchin Lane.
Phœnix	Lombard Street, and Charing Cross.
Royal	Exchange, Cornhill.
Sun	Cornhill, and Craig's Court.
Union	Cornhill.
Westminster	Bedford Street, Covent Garden.

Life Insurance Companies.

TITLES.	OFFICES.
Amicable	Serjeant s Inn, Fleet Street.
Equitable	Bridge Street.
London	Cannon Street.
Pelican	Lombard Street.
Providential	Southampton Street, Strand.
Rock	Bridge Street.
Gas Light Company	Bridge Street.
Ditto	Dorset Street, Salisbury Square.

Lowestoff.—The principal employment of the poorer class here is the herring-fishery; upwards of 70,000 barrels of herrings have been exported hence in a season. There is also a tolerable mackarel fishery, which supplies London. Lowestoff has a manufactory of coarse china ware.

Lynn Regis.—The harbour is capable of containing 300 merchant vessels; and the advantageous situation of the town gives it a considerable traffic with all the neighbouring counties, in wine, coals, and corn, exclusive of the produce of the country; and it has some export trade to the Baltic, Spain, and Portugal. In the vicinity of Lynn there is a small manufacture of Norwich stuffs.

Macclesfield.—Numerous persons are here employed in the manufacture of buttons, silk twist, cotton goods, hats, hat-bands: on the common adjoining this town are upwards of 40 brick-kilns; the neighbourhood also produces stone and slate; at the bottom of the hills are several excellent seams of coal, which are worked to great advantage.

Maidstone.—Some Flemish refugees who settled in this place in the time of Elizabeth, established a considerable linen manufactory here, which is continued to this day; but the greatest trade of the town arises from the extensive hop plantations in the neighbourhood, and large orchards of apples, and cherries, peculiar to this part of Kent. The tide renders the river Medway navigable here, for vessels of 50 or 60 tons, by which great quantities of timber and corn are conveyed. The manufactures are linen, as before mentioned, and paper; Maidstone is also noted for its geneva.

Malden (Essex).—Vast quantities of chalk-rubbish are brought hither from the Kentish coast, for making lime, and for manure. This town has likewise a considerable trade in salt, brandy, wine, deals, iron, &c.

Manchester.—In this flourishing town 50,000 persons are employed in trade. Amongst the numerous and extensive manufactures with which it supplies most of the European markets, the most important branch is cotton, which, with the intermixture of silk, resembles the manufacture of Genoa, in various articles of foreign traffic. It is also noted for its velverets and checks, and numerous small articles, such as filleting, tapes, laces, gartering, &c. A silk manufactory has been established here. The hatting business is carried on here and in the vicinity to a considerable extent; the hats are chiefly those called plaited hats, and ruffs, which are exported to all parts of the world, principally through the medium of the ports of London, and Liverpool. The fine hats manufactured at Manchester are not at all comparable to those of the London fabric, neither are they so highly esteemed in foreign markets. The linen manufactures of this town are in the highest repute, as are those of fustian, corduroys, nankeens, &c. Manchester may attribute the origin of its wealth and opulence to the establishment and introduction of the famous machines invented by Sir Richard Arkwright, for spinning raw cotton into the finest thread; these machines save a vast deal of manual labour, and enable the manufacturers to sell their goods at moderate prices.

The raw materials employed in the manufactures of Manchester are purchased from different countries, and consist of the following articles:—Flax from Ireland; ditto, Germany and the Baltic; ditto, Scotland; cotton wool from the West Indies; ditto, from North America; ditto, from Turkey; spun cotton, silk, wool, furs, &c.; indigo, cochineal, and other dyes; ashes, and other materials for bleaching.

The foreign trade of Manchester has been so long interrupted by extensive warfare, foreign prohibitions, and forced into such new channels by the return of peace, that it is not yet possible to calculate with any precision its exports.

Marlow, Great.—The principal manufactures here are those of black silk lace, and paper, there being several paper-mills on the river Lodden, between this town and High Wycombe. The Thames conveys hither various goods from the neighbouring towns, especially meal and malt from High Wycombe, and beech from several parts of the county of Bucks. At the Temple Mills, near this town, is an extensive manufactory of copper and brass, and a mill for expressing oil from rape and linseed.

Matlock.—In this parish nearly 500 persons of both sexes are employed in the lead works, and cotton manufactory. At Cromford, on the banks of the river Derwent,

is a cotton manufactory, established by Sir Richard Arkwright. The spars of Derbyshire here form a considerable traffic: which being turned into vases and chimney ornaments, bear a variegated polish, equal to the finest porphyry. They are much esteemed in Russia.

Middlewich. — This town (as well as most of those in this county (Cheshire), whose names terminate with *wich*) has been long noted for the great quantities of salt manufactured from the salt springs, the water of which is said to yield one-fourth of its weight in salt. A tolerable manufacture of cotton has been established here of late years.

Milbourn Port. — About 400 persons are here employed, chiefly in the manufacture of dowlas, ticking, linsey, stockings, and shoes.

Milton Royal — has a port for barges, and is particularly noted for the produce of delicious oysters, called *Milton oysters.*

Mitcham (*Surry*). — Here are some mills for grinding corn, tobacco, dyers' wood, &c. as well as some bleach-fields, and there is also some calico-printing done here. About 250 acres in this parish are employed in the cultivation of medicinal plants.

Monmouth. — There is a considerable manufactory of iron and tin in this town, and many of the inhabitants derive subsistence from the preparation of bark, which is brought from the forests of Wye, and sent to Chepstow. Monmouth carries on some trade with Hereford and Bristol by the Wye.

Namptwich. — This town seems to have been considered as the chief salt-work in the time of the Romans, and is by Ravenna called *Salinis.* The salt springs are 30 miles from the sea, and lie mostly on the banks of the river Wever. Large mines of rock-salt were also dicovered here in the 18th century. The salt quarries extend over several acres. Exclusively of its trade in salt, which is immense, Namptwich is no less noted for its excellent cheese; and the manufacture of shoes forms a very considerable branch of its trade for the London market.

Newark. — Here is an extensive sacking manufactory; but its chief trade is in malting. Limestone abounds within a mile of the town, particularly from an eminence called Beacon Hill; and at the depth of 20 feet from the surface is found a curious sort of alabaster, which is burned upon the brick-kilns, and afterwards ground into a fine powder, which is sent in barrels to the more distant parts as a composition for stucco-works, and ornaments for ceilings; and much used in the neighbourhood for making floors of rooms. There are seven fairs here annually, one in September entirely for cheese. A considerable trade is carried on in corn, coals, and timber.

Newbury (*Berkshire*). — About 2800 persons are here employed in various trades, handicrafts, and manufactures, principally in those of druggets, shalloons, and broadcloths. Newbury has long been famed for its extensive woollen manufactures; and in the reign of Henry VIII. one John Winchcomb, better known by the name *Jack of Newbury*, kept 100 looms in his own house. This place carries on a considerable traffic in malting, by the Kennet and Avon canal, which comes from Hungerford in a line with the Kennet, and is continued to Alderman's wharf, where the river becomes navigable, and communicates with the Thames at Reading.

Newcastle-upon-Tyne. — This place has long been noted for its glass-works, particularly those of the finer sort; also, several soap-works, and some grindstone manufactories. In the coal trade, it is the first port in the world, and has sometimes exported to foreign parts, and coastwise, upwards of 600,000 chaldrons in a year. The river Tyne is here so shallow, that few ships of any burthen can come up to the town; the large colliers are therefore compelled to be stationed below, at Shields, where they take in their lading, at an increased expense, for the metropolis, and other parts of the kingdom. Newcastle has for centuries supplied London and most of the southern counties with coals; and the quantity sent to the former is computed to amount annually to no less than 400,000 chaldrons! The boats destined to convey the coals from Newcastle to Shields, by the river Tyne, are called *keels;* they are measured each year, and are never suffered to contain more than eight chaldrons, Newcastle measure. The number of these boats, thus employed, is upwards of 400; and this species of navigation alone gives employment to 2,600 mariners. Every chaldron of coals sent from Newcastle, for any part of England, pays a duty of one shilling, which was settled by king Charles II. on his natural son, the Duke of Richmond. The pyrites found in the coal-mines in this neighbourhood are sold to the proprietors of the copperas-works, at the rate of 8*l.* per keel. The copperas or green vitriol obtained from those stones, is superior to that made in France and Germany; and, some years ago, large quantities of it were bought up by the Dutch. The vessels which carry the coals to London are sometimes laden in return with chalk, but most frequently go back in ballast. Of the chalk, the inhabitants make what is called Spanish white for painters' use, &c. At the distance of a mile and a half from Newcastle, is a white-lead manufactory, where lead-ore, drawn from the mines of Cumberland, is melted. The litharge, which proceeds from the ore when melted, is of great service to

the glass-blowers, who use it for the purpose of assisting the fusion of the other substances employed by them. There are some founderies in the town, where iron is cast into various forms, and for different purposes; such as the sheathing of carriage-wheels, pots, bodies of pumps, cylinders, kettles, &c. &c. Some very excellent steel is made at Newcastle, and in its vicinity; and the manufacture of earthen-ware, long established here, has of late greatly increased, some of the potteries having upwards of 100 persons constantly employed. Newcastle exports large quantities of lead, salmon, butter, tallow, and grindstones. Ships are sent hence to the Greenland fishery.

Newcastle-under-Lyne. — In the neighbourhood of this populous town, are many coal-pits, the coal of which is much softer than the cannel coal, and is cut in slices; but consumes so fast, that it is only fit for forges. There is a greater quantity of stone-ware made at the potteries near this place, than in any other part of England, 100,000*l.* worth having been sometimes exported in a year. The argillaceous earth used by the potters is of two sorts, and is brought from Devonshire, which county, it is said, is capable of supplying all the potters in the kingdom with this valuable material. The silex, of which the potters make great use, is brought from Gravesend. The clothing trade flourishes here; but the chief manufacture is that of coarse or felt hats, under an incorporated company of felt-makers; of which kind of hats, immense quantities are exported to the West Indies, for the use of the negroes.

Newport Pagnell. — This town being surrounded with excellent corn and pasture land, all kinds of grain are produced here. The manufacture of bone thread lace, carried on in the town and neighbourhood, as well as that of paper, form the chief branches of employment.

Northampton — has some capital manufactures of shoes, stockings, and lace; of these, great quantities are sent to the metropolis, as well as exported. Saddles and harness, of every description, are likewise made here, both for home use, and exportation. There are two annual horse-fairs at Northampton, much resorted to.

Northwich.—The inhabitants of this place are chiefly employed in the manufacture of cotton, and in the salt-works. On the south side of the town are mines of rock-salt, dug to a great depth, and extending over several acres. The salt which these mines yield is dissolved, clarified, and made into culinary salt. At the brink of the river Dan are several brine-pits. Much of the salt is carried to Liverpool, whence it is exported.

Norwich.—The manufactures of this flourishing city are principally those of woollen stuffs, which Mr. Blomefield, in his "Essay towards a Topographical History of Norfolk," seems to imagine were first introduced by the Flemings, so early as the reign of Henry I. It appears that the manufactures, after some time, fell to decay; when, in 1365, the city invited a number of manufacturers from the Low Countries, of whom about 1000 came over, when they set up the making of bayes, sayes, arras, &c. and various works mingled with silk, and linen yarn; and, in 1575, they first made bombazines. Of late years, damasks, camlets, and crapes, have been made here; but, during the late war, the trade of Norwich has declined, in some measure, owing to the restricted intercourse with foreign countries, and the great rivalship of the cotton manufactures. The manufacturing trade is confined to the city itself; but the operation of spinning, and preparing the wool, employ the poor of most of the small towns and villages in the county of Norfolk. The shawls made at Norwich, denominated *Norwich shawls*, are composed of wool, and silk, and are in great repute, not only at home, but in foreign countries. Norwich carries on a considerable trade with Yarmouth, whither its manufactures are conveyed by the river Yare, and thence shipped for Holland, Germany, Sweden, Norway, and other northern countries. The wools chiefly used in the Norwich manufactures, are those of the finest fabricks. According to a calculation of Arthur Young, made some years ago, the trade of Norwich, in woollen stuffs, was considerably more than a million sterling. India is the chief market for them; but South America, where light woollen goods are in great request, presents the prospect of one little inferior.

There are some salt springs near this city, which yield six ounces of salt per lb. avoirdupois. There are eight wardens of weavers chosen annually, and sworn to take care that there are no frauds committed in spinning, weaving, or dyeing stuffs.

Nottingham — has 40,000 inhabitants, of whom above 11,000 are employed in manufactures in this great trading town. It is the principal seat of the stocking manufacture, chiefly of the finer kinds of silk, and cotton; the cotton for which is spun by machinery, worked by water. This town has a considerable export trade to the continent of America, and the West Indies. It has also a good traffic in earthen-ware; and its malt is supposed to be as well prepared as that of any other part of the kingdom. The ale of Nottingham has long been celebrated. The tanning business, for which this town was once noted, is now gone to decay, but the manufacture of frame-work lace rivals that of the whole kingdom.

Ormskirk.—This town possesses a good trade, particularly from its connection with

the inland navigation. Here are spun large quantities of cotton and thread. It is famous for its medicine to cure the bite of mad dogs, but which has, of late, lost much of its former celebrity.

Padstow.—At the mouth of the river Camel is a convenient harbour for vessels of 500 tons burthen at high water, but it is rather difficult of access, having rocks on the east side, and a bar of sand on the west. Padstow has a tolerably good trade to London, and exports great quantities of slate. It has also a small fishery for herrings.

Penryn.—The greater part of the male inhabitants of this place are employed in the pilchard and Newfoundland fisheries. Here are four grist-mills, and a paper-mill; besides several good breweries, which supply the shipping at Falmouth. Penryn is reckoned the granary of the south-western part of Cornwall, having considerable warehouses, generally well stocked with flour and grain, from the Isle of Wight, and Hampshire.

Penzance—carries on a tolerably good trade in the pilchard fishery. Several ships belong to this port, although the harbour will not admit large vessels. The surrounding country abounds in metallic ore, and it is said that the veins of lead, copper, and tin may be discovered in the sea at low water. The different tin-mines furnish a considerable traffic and employment here; that called the Wherry Mine, is 30 fathoms deep. This is one of the tin coinage towns.

Peterborough.—The trade here in corn and timber is very considerable; and the stocking manufacture is carried on to great extent. The river Neu, on which this little city is seated, is navigable for barges; and about 4000 quarters of malt are annually sent, by vessels of this description, to different parts of the kingdom.

Plymouth.—Upwards of 7300 hands are here employed in various trades, manufactures, and handicrafts. This is one of the most considerable sea-ports of the kingdom. Here is a custom-house, and hence a considerable traffic is carried on with the West Indies. The fishery for pilchards extends no further east than this port, from which great quantities are exported to Italy, and other countries. In the range of buildings here, called the Victualling-office, are two bake-houses, each containing four ovens, that in one day can bake a sufficient quantity of bread for 16,000 men. That part of Plymouth called the Dock, which lies about a mile and a half from the town, was first designed as a wet and dry dock, in the reign of William III. and to which two others have since been added, with all the conveniences necessary for building and repairing ships of war; the docks being dug out of a mine of slate, and lined with Portland stone. Near the docks are erected ranges of store-houses for the arms, rigging, sails, &c. The manufactories of Plymouth consist of rope-works, anchor-founderies, ship-yards, and every other object of industry connected with the providing of naval stores.

Ponty-Pool.—This place has long been noted for its manufacture of japanned ware, to which it gives name; but it is now considerably on the decline, owing to the rivalship of Birmingham. Immense quantities of coal, and iron ore, are found in the vicinity. A canal of recent formation, connects this place with Newport.

Pool (*Dorsetshire*).—This town was formerly much resorted to by foreign merchants, particularly those of Spain. The chief traffic here, at present, is in the Newfoundland fishery, which proves an excellent nursery for the navy. The exports in provisions, nets, cordage, sail-cloth, and wearing apparel, for the consumption of the planters and servants, are very great. The imports are cod, salmon-oil, seal-skins, furs, &c. There are constantly employed about 250 sail of shipping, belonging to this port, with 1500 hands; of which about 140 are in foreign trade, and the remainder coastwise. Very large oysters are taken here, in some of which, it is said, pearls have been found. This fish is usually pickled, and sent in small kegs to the metropolis: vast quantities, in this state, used to be exported for Spain and Italy; a great deal is still shipped for the West Indies. The harbour is reckoned the best and safest in the Channel, as the ground is every where soft, and water sufficient at spring tides for vessels of 16 feet draught to come up to the quay. On the Ham side of the harbour there are quays to careen ships, to throw out and take in ballast, with several slips for building. Here is a custom-house. In the neighbourhood are some extensive salt-pans, where salt is made from sea-water.

Portland.—This peninsula affords excellent stone, used in most of the modern magnificent buildings of the country; it was first brought into repute in the reign of James I.

Portsmouth.—About 3000 persons are constantly employed in the dock-yards at this place. The dock-yard containing the warehouses for keeping all kinds of military and naval stores, is the most complete in the world; and possesses all the various manufactures necessary for supplying its different naval equipments. The docks and yards resemble a distinct town, there being particular rows of dwellings, built at the public expense, for all the principal officers, who are under a separate government from the garrison. The principal machinery of the yards, particularly that of making blocks, consists of steam-engines on a very extensive plan. In the yard some hundreds

of convicts are daily brought from the hulks in Langston harbour, and employed in many useful branches of rigging, &c. Portsmouth has some foreign trade, and its coasting trade is very considerable.

Prescott. — This town has long been celebrated for the making of watch-movements, pinion-wire, small files, coarse earthen-ware, and for the various cotton branches. In the vicinity are many coal-mines.

Preston (*Lancashire*). — Nearly 1500 persons, of both sexes, are here employed in the cotton manufacture, which is carried on very extensively. The chief manufactory is so extensive as to present rather the appearance of a town than that of a manufactory. Steam-engines are in general use. The muslin made here is in high repute. The river Ribble is only navigable for small vessels, which come coastwise from Liverpool, and other parts; but, by canal navigation, Preston has communication with most of the principal rivers in England.

Reading. — Great quantities of corn, flour, malt, and timber, are conveyed hence to London, by barges. Its manufactures are sacking, sail-cloth, blankets, ribbons, and pins. Its trade in flour especially is prodigious, and the population much on the increase.

Retford, East. — The environs of this town abound in hop-plantations, and it has a celebrated fair for that article in September.

Richmond (*Yorkshire*). — This place has a good trade in yarn stockings, and seamen's woollen caps. There are excellent lead and coal mines in the vicinity.

Ringwood — has long been celebrated for the excellence of its ale, which it exports: it also trades in leather, stockings, druggets, and some narrow cloths.

Rochdale. — The chief manufactures here are those of woollens, cottons, and coarse hats. The woollen goods made here consist of baizes, linsey-woolsey, serges, &c. The hills in the vicinity abound with excellent coal.

Rochester — has a considerable oyster-fishery on the Medway; and there is a large manufactory for cordage in the city.

Ramsey, or *Rumsey.*—The principal trade of this town is in the manufacture of sacking, of shalloons, and paper; and it has long been noted for the excellence of its ale.

Rotherham.—Upwards of 1000 persons are here employed in the manufactures of iron and steel, and in a very extensive brewery; and in the immediate vicinity are mines of coal, and iron ore, of immense magnitude and value.

Rotherhithe.—The inhabitants of this place are principally employed in boat-building, in the trade of ship-chandlery, and in the various avocations attendant on the navigation of the river Thames.

Saffron-Walden. — A considerable traffic is carried on in malting; but its fame arises from the immense quantity of saffron grown and prepared here, from which it obtained its appellation.

Salisbury. — This city has a considerable manufacture of flannels, and the cloths called Salisbury whites; and an extensive traffic in bone-lace, and cutlery. Druggets and Spanish cloths are, likewise, made here; and the place has, for many years, been in an extremely flourishing condition, owing to its inland navigation, and its well-attended fairs.

Sandwich—one of the Cinque-ports. Here was the staple for wool, removed from Queenborough in the reign of Richard II.; and in the time of Queen Elizabeth, some Flemings set up a manufactory of woollen cloths; but its chief trade now is in malting.

Scarborough — has a very commodious quay, and one of the best harbours in the kingdom; and has, likewise, a number of vessels employed in the coal trade, from Newcastle to London. Corn, dried fish, and other articles, are sent coastwise; and the fisheries for cod, ling, soles, haddocks, herrings, &c. employ many hands. There is, also, a manufactory of sail-cloth, rope-walks, and several ship-yards, in which vessels of 600 tons are built.

Sheerness. — About 1400 persons are variously employed in the royal dock-yard at this place. Here is an ordnance-office, with apartments for the different officers, all ordnance stores being delivered here to the fleet lying at the Nore: here is also a yard, and a dock, intended chiefly for repairing ships that may meet with any sudden accident.

Sheffield. — Above 10,000 persons, of both sexes, are here employed in trade and manufacture, particularly in all kinds of hardware; for which this populous town is celebrated throughout Europe. Sheffield has long been noted for its manufacture of cutlery, there being constantly employed about 600 master-cutlers; and from the convenience of the two rivers, Don and Sheaf, and adjoining coal-mines, the whole of the heavy work has, of late years, been performed by mechanism. Among the curious machines used here may be particularized, the large iron hammers, or mallets, weighing several hundred weight, which, being worked by water, beat large pieces of iron, not only into bars, but nearly to the size of a thin rod or wire, without any manual exertion, except what is required in placing and holding the pieces of metal beneath those immense hammers. The cutlery of Sheffield consists of all kinds of knives, razors, scissars, sword-blades, &c. every species of carpenters' edge-tools, besides scythes, sickles, &c. Near that part of the town called the rock of Gibraltar, is a large

cannon foundery, in which immense pieces of iron ordnance, of the very best quality, are cast. The plated-ware made at Sheffield is in far greater estimation than that of Birmingham; and the late addition of solid silver edges to the plated articles renders them nearly, if not quite, as durable as those made wholly of silver. This branch of manufacture includes side-board services, such as salvers, cups, candlesticks, branches, handles for knives, salt-cellars, &c. &c. as well as mountings for harness and carriages, door-plates, ornaments and securities for portable desks, covers for ink-stands, &c. &c. Plated and gilt buttons, made in this town, are bought up with avidity by the London dealers, who sell them in the metropolis under the hacknied appellation of *town-made*, though, in point of fact, it is scarcely possible that the button-platers, or gilders, of London can excel those of Sheffield. There is a silk-mill, on the model of that erected at Derby, here, in which, for the most part, women and children are employed. The silks wrought here are those of Bengal, China, Turkey, and America. In the town and its environs, large quantities of iron are converted into steel; and, at one extremity of the place, a considerable white-lead manufactory has been established for some years past. The vinegar employed in this business is made upon the spot. The files made at Sheffield have long been in the highest repute; the steel of which they are formed is commonly used in the state in which it comes from the hammer. At a short distance from Sheffield there are coal-mines, which yield abundance of fuel, much of the same kind as the Newcastle coal, though less bituminous, and therefore best adapted to manufacturing purposes.

Shepton Mallet. — Nearly 4400 persons are here employed in various kinds of woollen manufacture, in which this town carries on a great trade, as well as in knit stockings.

Sherborne (Dorsetshire). — This town has two silk-mills, besides manufactures of linen and woollen-cloth, all of which employ upwards of 1100 hands.

Shields, North. — The trade of this place may be said to vie even with that of Newcastle, upwards of 400 vessels, chiefly colliers, loading here annually.

Shields, South. — This place, like the foregoing, enjoys all the advantages of trade and commerce in common with Newcastle, particularly in the coal trade, some of the largest colliers taking in their loading here. A great number of trading vessels are built here. South Shields was noted for its extensive salt-works, upwards of 200 pans being formerly employed. There are several glass-works.

Shoreham, New. — This sea-port has a considerable traffic, and a custom-house, with a collector, comptroller, and inferior officers. Shoreham has a good trade in ship-building, and is celebrated for the excellence of its oysters.

Shrewsbury. — About 6000 persons, of both sexes, are here employed in various trades and manufactures, principally in that of flannels, generally denominated *Welsh flannels.* There are twelve trading companies, all incorporated in charters, in the same manner as in London. The staple trade of Shrewsbury is in flannels and Welsh webs. The flannels are bought at Welshpool, in a market holden for that purpose, most of which are made in Montgomeryshire, though some are made, and more spun, in the neighbouring parts of Shropshire. The flannels in Pool market are in pieces of 100 yards long on an average, and they are chiefly resold to the London merchants, who are the exporters. The webs are fabricated in Merionethshire and Denbighshire, and brought to Shrewsbury, where they are sold in a hall, which none but the members of the Drapers' company can enter; but, of late years, much of this market has been anticipated by buyers in the country, which often obliged the Shrewsbury drapers to send thither themselves. Webs are about 200 yards long. Those made in Merionethshire are about 7-8ths of a yard wide, and are called *high* or *strong country cloth;* those made in Denbighshire are called *small* or *low country cloth:* the former, after they are bought by the drapers, have the wool shorn by men, called Shrewsbury shearmen; or they are sent to the fulling-mill to be thickened, and are then exported, in bales of different sizes, some containing even 2000 yards. The ultimate markets are Germany, Holland, and America. The manufacture in Wales, by means of jennies introduced into farms, and other private houses, is four times as great as it was 30 years ago. A large mill for the purpose of fulling, spinning, &c. was erected about five miles from Shrewsbury; there are, also, houses for dyeing woollen cloth in the county. A large manufactory of coarse linens, more especially of linen thread, has been established in its environs. It also boasts a brewery, a starch manufactory, and an iron foundery. This town is also famous for the excellence of its brawn, (which is sent to most parts of the kingdom;) as it has for many years been noted for its delicate cakes.

Skipton. — The trade of this place has much increased of late years, from the advantage of the Leeds and Liverpool canal running near it; it has a paper-mill, a glazing-mill, and one for the silken twist. In the neighbourhood are extensive cotton-works.

Southampton. — The inhabitants of this town carry on a considerable trade with Portugal for wine and fruit, as likewise with the islands of Guernsey and Jersey. The

port wine imported here is generally of the lighter kind, approaching, in flavour and body, to the fine claret shipped from Bourdeaux, and hence light-bodied port obtained the appellation of *Southampton port* among the wine-dealers. The manufactures here are principally those of silks, and carpets. Near the town is a wood-mill, where ships' blocks are cut, and whence the king's yards are, in some measure, supplied.

Southwark. — The manufactures here are as numerous as, and nearly similar to, those of London. The hatting-business, particularly in the neighbourhood of Tooley-street and Gravel-lane, in the finer branches of the manufacture, is carried on to a great extent, and employs several hundred hands. Here are, likewise, considerable oil-mills, saltpetre manufactories, soap-works, glue manufactories, besides the warehouses of numerous hop-factors, cheesemongers, and, in short, traders of every description. The wharfs on the Southwark side of the Thames are frequented by coasting vessels from almost every port in the kingdom; and at these wharfs, likewise, a great deal of business is done in the Irish provision line. See *London.*

Stafford.—Upwards of 3000 persons are here employed in various trades. This town has a considerable traffic by means of its canal communicating with all the neighbouring counties. Its chief manufactures are cloth, shoes, and boots. Of the two latter articles, large quantities are sent to the metropolis, to Birmingham, Manchester, and the adjacent towns; and much of them exported to foreign parts. The boots and shoes are, generally speaking, neatly made, but they are not considered so durable as those made in London, or in Scotland. The potteries in the vicinity are noted for their productions; and immense quantities of their ware have been exported to Holland, Germany, Spain, Russia, America, and even to France.

Stalbridge. — Most of the inhabitants of this place are employed in the stocking manufacture, for which the town has been long noted. Great quantities of excellent stone are dug in the neighbourhood.

Stilton.—This village has long been celebrated for the excellence of its cheese; the consumption of which is particularly great in the metropolis. It acquired its celebrity from the article being first *sold* to travellers at a large inn here, for it is all *made* at a distance from the place, even in another county.

Stockport. — The population, trade, and manufactures of Stockport, particularly that of cotton, have amazingly increased of late, and trade derives considerable benefit from the canal communication with the Mersey, Dee, Ribble, Severn, Trent, &c. The printed cottons manufactured here are held in the highest esteem both at home, and abroad; and the fustians, dimities, muslins, &c. are in no wise inferior to those of Manchester. Here are, likewise, silk-mills, whose extent and importance are daily increasing. Some fine beaver hats are made in this town, but the number of plated hats is far beyond that of the former. Of the latter, great quantities are sent by land-carriage to London and Liverpool, whence they are exported for foreign parts.

Stockton-upon-Tees. — Here are several manufactures of check, huckaback, damasks, sail-cloth, and ropes; and several vessels, from 40 to 400 tons, are annually built here.

Stourbridge. — This place has long been noted for its manufactory of crucibles, from the peculiar quality of the clay found in the neighbourhood. The iron and glass works, in this town and its vicinity, are much celebrated for the excellence of their different productions. Green bottles, decanters, window-glass, drinking-glasses, chandeliers, chimney-ornaments, plate-glass, &c. &c. are blown and cut in the first style of excellence and elegance. Here is, likewise, a considerable manufacture of frieze. Stourbridge annual fair is celebrated for an excellent show of horses, and for good cheeses.

Stroud. — Upwards of 3700 persons are here employed in trade and manufacture, particularly in the clothing branch, being long celebrated for the excellence of its scarlet, attributed to the quality of Stroud water, and not, as it ought to be, to the ingenuity of the dyers: on the banks of the river are several fulling-mills.

Sunderland (Durham).—It appears from the returns made to the House of Commons that 1431 persons were employed in trade, exclusive of 322 keel-men, or persons employed in navigating the keels (see *Newcastle-upon-Tyne*), and 1249 seamen belonging to the port in the coal-trade. The traffic which this place carries on in coal is, as will be perceived from the foregoing statement of the hands employed, of very great importance. With this necessary article of fuel, Sunderland supplies many parts of England; but Dublin, and some other Irish ports, take off the largest quantities, which are chiefly employed in the sister kingdom in forges and other manufactories. This place has been greatly enriched by the coal trade, and the salt-pans erected here; there are, also, two glass-houses, several small dock-yards, several potteries, and two or more copperas-works. Sunderland exports lime, grindstones, and such like commodities.

Swansea. — The trade of this town has been much improved by its canal; there are two extensive breweries, a pottery upon Mr. Wedgwood's plan, an iron-foundery, two roperies, and a good dry-dock, employing a number of hands; it has a considerable

commerce in the export of coal, stone, iron-ore, and lime-stone, all found on the banks of the river Towy. There are seven large copper-works at some distance from the town, smelting annually 45,000 tons of metal, and consuming 70,000 chaldrons of coals. Vast quantities of lead-ore are, likewise, smelted in this town and its vicinity; and recently some potter's clay has been discovered of which porcelain is made, which is said to excel, in transparency and beauty, any that is produced in the world.

Taunton—has a considerable manufacture of silks, serges, duroys, druggets, &c. and a good trade to Bridgewater by the river Tone. A superior kind of ale is sent hence to Bristol for exportation.

Tewkesbury. — Upwards of 1300 persons are here employed in trade and manufacture, principally those of stocking-knitting, frame-work, and the manufacture of mustard and malt.

Thetford (Norfolk). — This town has a considerable manufacture of woollen-cloth and paper, and a trade to Lynn by the navigation of the river Ouse.

Tiverton. — The chief manufactures are those of serges, kerseys, druggets, and diapers, for which this town has been long famous.

Topsham.—This is considered as the port of Exeter, where all the large vessels lie, and receive and discharge their lading; and here the captains, shipwrights, and officers of the customs and excise reside.

Trowbridge.—This place has some considerable manufactures of superfine broad-cloth and kerseymeres, principally wrought by machinery.

Truro—has a convenient harbour for small vessels. The principal traffic of the place is exporting the ore dug from the neighbouring tin and copper mines.

Tunbridge Wells. — The principal trade here is that of the manufacture and sale of toys, made of cherry-tree, sycamore, &c. and the Tunbridge turnery-ware finds a considerable mart in most parts of the kingdom.

Ulverstone.—By means of a canal, lately cut, vessels of 150 tons can approach the town, carrying on a considerable traffic in the export of the iron-ore, lime-stone, and corn, as well as in blue slate of an excellent quality. In the neighbourhood are several furnaces and smelting-houses.

Uttoxeter. — This town has manufactures of ironmongery in every branch, the town being nearly surrounded with extensive forges. It carries on a considerable traffic by its navigation communicating with the Trent, Thames, Avon, &c.

Wakefield. — This town has long been noted for the first wool market in the kingdom, as well as for its manufactures of woollen-cloths and stuffs, and of late years this branch has considerably increased. The woollen-cloths consist chiefly of plain white broad-cloths, tammies, serges, dozens, everlastings, besides superfine, and coarse, coatings. It has been customary with many of the Yorkshire clothiers, for some years past, to send their cloths hither to be dyed. The wool used here is principally the produce of Leicestershire, mixed with some of the wools of the northern counties. The numerous manufactories at Wakefield, and in the neighbourhood, principally supply the market at Leeds, and Huddersfield. A hall, 70 yards long, and 10 broad, consisting of two stories, has been erected for the sale of stuffs. Down the centre of each floor is a row of stands, facing outwards, for exhibiting the various goods for sale, and the commencement of the market is announced by the ringing of a bell over the hall, similar to the cloth-hall at Leeds. This town has a navigation to Huddersfield by a canal, and to Leeds by the Calder. In the environs of the town are very productive coal-mines.

Walsall. — Upwards of 5400 persons are here employed in trade and manufactures, chiefly in those of buckles, bridle-bitts, and various articles of hardware. Vast quantities of nails are made here, of which the greater part is sent to Birmingham and Wolverhampton. Clock-dials and iron-trays are japanned and painted in Walsall and its vicinity.

Walton-le-Soken. — This place has long been noted for its extensive copperas-works. Walton, as well as Kirby and Thorpe-le-Soken, were so called from their peculiar privileges, originally granted to French refugees, who established themselves here, and introduced several manufactures of cloth, &c. from the Netherlands.

Wandsworth. — The chief manufactories here are calico-printing, bolting-cloths for flour-mills, fine beaver hats, distilleries, an oil-mill, vinegar-works, and iron and white-lead-mills.

Wapping. — The population here consists mostly of those attendant on the shipping of the port of London; such as slop-sellers, ship-carpenters, sail-makers, ship-chandlers, &c. The new docks formed here have been a great improvement in the angle formed by the Thames; the one, called St. George's dock, capable of holding 200 sail of shipping, with sufficient shifting-room; and the other adjoining, called Shadwell-dock, capable of holding 50 sail. At the eastern extremity of the docks are stupendous warehouses, belonging to the Custom-house of London, although rented of the Dock Company for warehousing tobacco, and the cellars thereof are appropriated to housing of wines; there are likewise ranges of warehouses for housing merchandise in general.

Wareham. — The chief traffic here is the digging of pipe-clay in the neighbourhood, and sending it coastwise; of this clay nearly 10,000 tons are annually exported to London, Liverpool, &c. Here is a good salmon-fishery.

Warrington. — The chief manufactures of this place consist of sail-cloth, canvas, fustian, pins, and glass. Besides its manufactures of huckabacks and coarse cloths, Warrington has long been noted for the excellence of its malt, in which it carries on a considerable traffic. Here is also a gunpowder-mill.

Watford.—The Colne, which nearly surrounds this town, has several mills on its banks; but its principal manufacture here is the throwing of silk by extensive machinery.

Wednesbury.—The manufactures here are all kinds of edge-tools, nails, coach-springs, bridle-bitts, stirrups, &c. Here are several iron forges, in one of which the iron is melted from the ore. This place is reckoned famous for its coal, much esteemed for smiths' work, on account of its extreme heat. Besides the different cast, and wrought, iron manufactures, enamel-painting is done in the highest perfection and beauty here.

Whitby (Yorkshire). —This is a considerable town, and carries on a great trade in coals; there are also several alum-works, which employ a number of hands, and it has an important share in the export of provisions, tallow, &c. Many ships of good burthen are built here, and hence some are annually sent to the Greenland fishery

Whitehaven.—It appears from the returns made to the House of Commons, that 1050 persons are here employed in various trades. The coal mines are the source of the prosperity and wealth of this place; they extend 130 fathoms deep, and in many places a considerable way under the sea. The greatest part of the produce of these mines is exported to Dublin, and other Irish ports, where it is principally consumed by private families; being nearly equal to the coal of Newcastle. Here are six yards for ship-building, extensive manufactures of sail-cloth, large roperies, several public breweries, and important copperas-works.

Wigan — is noted for its manufactures of linen, cotton, and strong checks; also for braziery and a pottery, which furnishes fine earthen-ware. In the vicinity is found, in great plenty and perfection, that species of highly inflammable and strongly bituminous coal, denominated *cannel;* it is so soft, prior to being exposed to the action of the air, that it may be easily moulded into any shape, and it is frequently made into snuff-boxes, ink-bottles, and a vast variety of toys and utensils. The collieries adjacent to Wigan furnish many parts of England and Ireland with the article of fuel, and coals are exported hence to the continent.

Wilton — is famous for the manufacture of a peculiarly elegant and fine species of carpet, to which it gives name, and for that of thin woollen-stuffs. The number of hands employed in these manufactures amounts to more than 1500.

Wirksworth. — About 2000 persons are employed here in the avocations attendant on the lead-mines in this neighbourhood. Lead-ore is found here under four denominations; the largest size is called *bing;* the next size, *pesey;* the third is passed through a sieve in washing, and is called *smitham;* and the fourth, which is caught by a slow stream of water, is termed *belcand*, and is as fine as flour, and the most inferior in quality. All the ore, as it comes from the mine, is beaten into pieces, and washed by women. The lead is then melted in furnaces, and poured into moulds of various sizes. There are many laws and regulations for the mines here, the district being under a steward and bar-master. Mill, and grind, stones are found in the vicinity, as well as veins of antimony.

Witney — has been long famous for its manufacture of blankets, which employs a great number of hands. In the reign of Queen Anne the blanket-weavers were incorporated, under the style of the master, assistants, wardens, and commonalty of the blanket-weavers of Witney: they have their hall, in which they regulate all matters respecting the measure, mark, and quality of their staple commodity. Here likewise are manufactured thick woollens, called bear-skins, and kerseys.

Wilveliscombe. — More than 1500 persons are here employed principally in the manufacture of woollen goods, such as shrouds, blanketing, kerseys, and baize.

Wivenhoe. — This town has a tolerably good coasting-trade. Here the Colchester oysters are chiefly barrelled and sent to the London market.

Wolverhampton. — A large and populous town, situate in a parish of 30 miles in circumference, with 30,000 inhabitants. This place produces hardware of every kind, but is pre-eminent above all other places for the manufacture of locks on the most intricate construction. Most of the farmers in the neighbourhood have their forges, where they work when not employed in the field, and take their work to market, as regularly, as other farmers do their corn; whence it is bought up for various ports, and finds a ready market in most parts of Europe. Many of the women are employed upon these manufactures, and work at the file. The chief articles made in Wolverhampton and its vicinity are, all kinds of coarse heavy iron-work, such as ploughshares, locks, hinges, nails, bolts, fire-irons, spades,

shovels, staples, hooks, screws, scythes, sickles, &c. besides japanned wares, such as trays, clock and watch-dials, snuff-boxes, bread-baskets, &c. &c.

Woodstock—is particularly known for its manufacture of fine wash leather-gloves, and steel watch-chains, &c.

Woolpit. — Here is made a species of white brick, similar to the Flanders-brick: it is much esteemed.

Woolwich. — This place is celebrated for being the most ancient military, and naval, arsenal in England, and it has a royal dock-yard. It is recorded in history that men of war were made here as early as the reign of Henry VIII. The whole of the works at this place are encompassed with high walls. The ropery here is very extensive, where the larger cables are made for the men of war. In the park or gun-yard is a repository of cannon of all sizes and dimensions, having upwards of 8000 pieces laid up at one time. In the warren the artillery is all cast, and proved. Here is also a laboratory, where the matrasses are employed in making cartridges, charging bombs, &c. for public service. The royal dock-yard contains two dry-docks, three mast-ponds, a smith's shop, with several forges for making anchors, extensive storehouses, a mould-loft, sheds, workshops, &c. It employs upwards of 1000 persons, and first-rate men of war are frequently built in this yard. The rope-walk for making large cables is a quarter of a mile in length.

Worcester. — The principal manufactures here are those of china, and carpets. The china-ware made in this city is beautiful beyond description, exceeding in colour, and decoration, the finest production of the French manufactories. The quantities of china-ware exported from Worcester to the Continent of Europe, the East Indies, and America, are almost beyond calculation. The services vary in price from five guineas to five hundred. The carpet manufacture excels also in similar qualities; viz. colours, and beauties of design. The texture and appearance of the best, resemble true tapestry more than any others made in England. Worcester has a considerable manufacture of gloves; and a large market for hops is holden in the city. Cider is likewise an article of traffic here.

Workington. — The inhabitants of this town are principally employed in the salt-works, salmon-fishery, and coal-trade, there being upwards of 100 vessels engaged in the latter, to, and from, this port. The coal is chiefly sent to Ireland. Sail-cloth and cordage are manufactured here.

Worsted. — This place is remarkable for having the first introduction of the manufactory of twisted yarn, called *worsted.* It has now a small manufacture of stockings and stuffs.

Wrexham—is a grand mart for flannel, and the manufacture of this article is the chief employment of the neighbouring poor in the environs.

Wrington. — It is here that teasels or thistles, sold to the cloth-manufacturers for the dressing of woollen-cloth, are grown.

Yarmouth, Great. — The situation of this town is very favourable to commerce, and there are many ships belonging to this port in the foreign trade; but the most considerable employment here is in the fishery, there being 60,000 barrels of herrings generally taken and cured here within the year. The season commences at Michaelmas, and lasts all October. The greater part of these herrings are exported from London and Yarmouth for Italy, Spain, Portugal, and the West Indies. In the northern seas the Yarmouth fishermen catch immense quantities of what is called *North Sea cod.* From Norway and the Baltic, Yarmouth imports deals, oak, pitch, tar, hemp, canvas, sail-cloth, &c. which are used in the construction of vessels, of which several are annually built in this port. Yarmouth exports much grain to Holland, as also the cloths of Leeds, Wakefield, Halifax, and other towns of the West Riding of Yorkshire, besides lead, smelted in the midland, and northern, counties, to Holland, Bremen, Hamburgh, &c.

York. — This is not a very trading place. Vessels of 70 tons can come up the Ouse, on which this city is seated, and thus York has a tolerable coasting-trade. At one period, clothing to an immense amount, the produce of the county, was shipped hence for the use of the Dutch, Flemish, and German troops; and at this time Russia clothes her army with the produce of the county, shipped from here and other ports of it.

We have now concluded our promised catalogue of the chief commercial cities and towns of England, and of the few in the principality of Wales which stand particularly pre-eminent. Of others in the last-mentioned part of the island, it is only necessary to add, that large quantities of flannel are manufactured in most of the towns and hamlets of South Wales, and are, for the most part, sent to the market of Shrewsbury for sale. There are many copper, iron, and lead-mines and works, both in North, and South, Wales, besides vast quarries of slate. The produce of these mines, works, and quarries, gives rise to a considerable coasting-trade, and abundance of slate, in particular, is exported to Ireland.

Although perhaps unnecessary for information, for uniformity's sake we must observe, that accounts are kept in pounds sterling, that each pound consists of 20 shillings, and each shilling of 12 pence.

France, even since the dismemberment of some of its possessions, as well in the

Netherlands, as in the East, and West, Indies, is both extensive and powerful. The productions of France are various, and plentiful, and many of them of great commercial importance; these we shall enumerate, classing each of them under a distinct head, in order to convey that information, with regard to the extensive traffic of this country, which is absolutely necessary.

Grain—of every kind, but especially wheat, forms one of the chief riches derived from the soil. The other sorts of grain produced in France are, rice, barley, rye, oats, &c. Potatoes may be classed under this head; a vast quantity of a tolerably good quality are grown in the provinces of Poitou, Normandy, Limosin, Gatinais, and the Isle of France.

Wines. — Burgundy, which by many is accounted the choicest of French wines, is of a lively red colour, and possesses an agreeable flavour: the best is made in Baom, Nuitz, Romanèe, Premeau, and Vougeot. The wines of Beaujolais keep extremely well; much of them are sold under the name of Mâcon. The wines of Anjou and Orleanais are thick and heady. Auvernat, commonly called Casse Telle, is made at Orleans, and is a full, good wine. Another Orleans *white* wine in Genetin. At Epernay, in Champagne, two-thirds of the surrounding country, such as Ay, Cumieres, Pierry, Disy, Haut Villiers, &c. are laid out in vineyards, where the celebrated wine called Champagne is made. Poitou produces a tolerably good white, which resembles Rhenish. The wines of Haute Guyenne and of Gascony, under the names of claret, and Bourdeaux wines, are much esteemed; they are distinguished by dealers under the general titles of Medoc, Haut brion, de Saint Emilion, de Grave, &c. The best Medoc wines are, Lasitte, Latour, and Margaux; those of *Vins de Grave* are Haut brion, Haut Talence, Merignac, Pessac, Laugon, Villenave, &c. There are other sorts in various districts, such as, Saint Julien, Saint Mambert, Pouillac, Saint Estepho, Saint Laurent, Ludon, Macau, &c. which, without enjoying an equal reputation, are frequently in no wise inferior to the first-mentioned. Those, which hold the first rank among the white wines, are Carbonnieux, Serons, Barsac, Prigniac, Sauterne, Baume, and Saint Croix du Mont. Languedoc has excellent dry wines, as well as some of a luscious kind. Hermitage is a red wine, the vine producing which is grown upon the banks of the Rhone, between Valence and Saint Valliere. Luscious wines, or liqueurs, are common in France: the most esteemed are those of Ciotat and of Saint Laurent, in Provence. Frontiniac is, of all the luscious wines of France, the most perfect and the best adapted for keeping; it is made in Languedoc. The muscadine of Lunel is of a more delicate flavour than Frontiniac, but it will not keep so well. That of Rivesaltes is richer than either Frontiniac or Lunel, and comes very near the Cape wine. Besiers is of a quality inferior to Frontiniac, Rivesaltes, and Lunel.

Brandies. — The brandies made in France are esteemed the best in Europe. They are distilled in every part of the empire where vines are grown; and in the distillation of these valuable spirits, not only wines of inferior, but also those of the best quality, are used. The brandies which conduce to the commerce of France are those of Bourdeaux, Rochelle, Cogniac, Charente, Isle of Rhe, Orleans, the country of Blesois, Poitou, Tourain, Anjou, Nantes, Burgundy, and Champagne. Brandy is also made in Provence, where it is sold by the quintal. The brandies of Nantes and Poitou, whose qualities are pretty nearly alike, are the best made in France, and the most esteemed throughout Europe, being uncommonly well flavoured, fine, and strong. It is from these places that the largest quantity is exported. The English, the Dutch, the Irish, the Flemish, and Hamburghers, take off the greater part of the brandy, but the Dutch in particular obtain larger supplies than all the other nations of Europe collectively.

Vinegar. — The Orleans is esteemed the best of French vinegars. The commerce in this article is very considerable. The English, the Irish, and the Dutch, traffic largely in that of Guyenne, which they procure at Bourdeaux; in those of Orleanais, Blesois, Anjou, Aunis, and Brittany, through the ports of Rochelle, Nantes, and Saint Malo.

Oils—are of two sorts, namely, those made by pressing almonds, nuts, and olives, and essential oils made by distillation. Few of the latter description are exported, being chiefly used in the composition of perfumes, and in pharmacy. The best oils are those of Provence, and Languedoc; there are vast quantities made in Lower Dauphiny, in the county of Nice, of Aramount, and Oneille. The oils are chiefly exported to Holland, England, the North of Europe, and Germany.

Soap—is manufactured at Marseilles, Toulon, and other towns of Provence, and Languedoc. There are two sorts of soap, viz. white, and marbled. A good deal of common soap is manufactured in Picardy, Flanders, &c.

Hemp—is cultivated in Flanders and Picardy, and supplies the cloth manufacturers of these provinces with materials for working. In the territories of Rennes, Saint Malo, and Dol, in Brittany, hempfields occupy a space of twenty-five leagues. A great deal is also grown in Upper

Languedoc, and particularly in Auvergne, where the soil is peculiarly adapted to its culture.

Flax. — A large quantity is grown in Flanders, and serves for the manufacture of cambric. The seed is brought from Dantzic, and Riga. Flax is also raised in the provinces of Rouen, La Maine, Anjou, Brittany, and Languedoc.

Wood — is an object of great commercial importance to France. Mr. Arthur Young computed that 24,537,285 acres of land in that country were covered with wood, divided into six classes, viz. 1° For shipbuilding. 2° For the use of house carpenters. 3° For the construction of carriages. 4° For joinery. 5° For vine-props, &c. 6° For fuel. Oak is chiefly used for the first class; for the second, oak, fir, linden, and aspen-trees; for the third, ash, oak, maple, and especially elm; for the fourth, fir, beech, elm, pear-tree, apple, cherry-tree, cornil-tree, aspen, poplar, linden, &c.; for the fifth, osiers, and branches of various trees; that destined for the sixth class is divided into new and old, and is distinguished by the titles of *bois perdu*, *bois carnard*, and *bois en train*. The cork-tree flourishes on the French side of the Pyrenees, as well as on the Spanish side, and produces the finest cork-wood in the known world.

Wax. — There is some good bees' wax to be met with in Normandy, Sologne, Auvergne, and Brittany.

Silk. — The quality of the French silk, and particularly that of Languedoc, is good; it is made into woof, and even very beautiful organzine. Since the establishment of the silk-mills at Vaucanson, the French organzine has obtained a superiority over that of foreign countries. As to the woof, that of Alais and Languedoc is preferred to all others. It is made of every degree of fineness.

Sugar. — Strange as it may appear, this enterprising nation has attempted to domesticate the sugar-cane, as well as to extract sugar from various indigenous roots and plants. In both they have succeeded in a small degree, but not to such an extent as to occasion great apprehension to those who are interested in West Indian traffic.

Mines and Minerals. — Coal-mines are found in many of the provinces. In French Hainault there are some at the villages of Fresne, Condè, Awzin, &c. which have been worked for some time back. There are also coal-mines in Bombonnas at the village of Feins, in Forez, Boulonnais, Rouergne, at Decise, and in Nivernais, where coal is found within three feet of the surface; also at Carmeaux, in Albigeois, in Burgundy, between Beaune and Autun; in Anjou, near Saint Georges, Chanteloisin, and Concourson; in the same province, adjacent to St. Aubin de Luignè, Chalonne, Chanclefort, and Montjean; in Brittany, near Chapelle, Montrelais, and Niort; at Livry, in Lower Normandy, at Luisaiche, and, finally, in the neighbourhood of Paris. Besides coal, France possesses other combustible substances, such as petroleum of Gabian and Orthès, asphaltos of Lampertolock, in the Lower Rhine, and of Caupenne near Ax; rosin is procured along the banks of the Rhone, from Seyssal to Fort-Ecluse. France is abundantly supplied with iron from its mines. The ore is not unfrequently found in large lumps upon the surface; and the strata are most commonly but a few feet below it. The Pyrenees abound in large banks containing iron ore. It is also found in Franche Comtè, Champagne, Berri, Roussillon, and Lorrain. There are some rich copper-mines in the Pyrenees. There are also several of trifling note in other parts of France, the principal of which are those of Chessy and Saint Bel, near Lyons, and of Sainte-Marie-aux-mines in Vosges. Lead is much more common in France than copper. There is hardly a metalline part of the soil in which it is not found in abundance. Gold and silver are not by any means so common in the French mineral world, as any of the above metals, though the soil is not totally divested of those precious metals; and even the Rhone, the Rhine, the Doubs, the Gardon, as well as some other rivers, and many of the Pyrenean rivulets, have golden sands. Silver is found in the mines of Allemont and Sainte Marie; but it is most commonly attached to the lead and copper ore; and the former metal is particularly rich in this respect, containing, for every quintal of lead, nearly sixteen ounces of silver. The only mine of mercury is in the department of Calvados, at Menildot. Zinc is the most abundant of French semi-metals. It is found in three states in the mines, namely, in blende, white vitriol, and lapis calaminaris; the blende and lapis calaminaris are very common in France; the latter is found in abundance at Saint Sauveur, Cevennes, Pierreville, in the department of La Manche, at Montalet, district of Unez, near Bourges, near Saumur, and other places. Cobalt, a semi-metal, is found in the silver, and bismuth in the lead, mines. Cobalt is mostly to be met with in the Alpine mines, and bismuth in those of Brittany, Saint Sauveur, &c. France possesses mines of antimony, which might suffice for supplying all Europe with that commodity; the principal ores are those of Creuse, Cantal, Haute Loire, Vendèe, &c. Manganese is not less abundant in France. Nickel, fire-stone, and vitriolic earth, are spread throughout every province. Common salt has not hitherto in France, as in England, Poland, and Spain, been discovered in a solid state. France, however,

carries on an extensive traffic in sea-salt The provinces in which it is made are Brittany, Saintonge, Aunis, Normandy, Franche. Comtè, Lorraine, Languedoc, and Poitou.

Manufactures. — Having thus surveyed the principal productions of the French soil, we shall turn our attention to the various manufactures, to which these productions give life.

Linen-Cloth. — All the provinces, in a greater, or less degree, manufacture this article, but those, in which the largest quantity is made, are Normandy, Picardy, Hainault, Cambresis, Brittany, La Maine, Dauphiny, Auvergne, Gascony, Champagne, and Beaujolais. Normandy, however, ranks first in this line. The principal articles of linen-cloth made in Normandy are those called tow-cloths, made in the neighbourhood of Fecamp, and Bolbec; hemp tow-cloths, made in the valley of Longueville, and in the villages of Limery, Parillè, near Barentin, and in the neighbourhood of Rouen; *toiles d'ourville,* made at Ourville, and in some parts of the country of Caux; this sort is frequently used in the formation of oil-cloths, and umbrellas; *blancards,* made at St. George's; these are often sent to Cadiz, and thence to the Brazils; also into the French American colonies; *toiles à vestes,* made in the neighbourhood of Bacqueville, and sold in the market-place at Rouen; and strong flaxen-cloths, composed entirely of flaxen fibres, and of different widths, made in the neighbourhood of Bolbec, and Fescamp, Dieppe, Havre, &c. In Lisieux and its neighbourhood are made linen-cloths of various qualities, particularly that called *cretonne;* Saint Lo, and Canisy in Lower Normandy, furnish a vast quantity of ticking of various sizes; all the above, as well as many of the linen-cloths of Picardy, are sold in the market-place of Rouen. In the neighbourhood of Saint Laurent, Bacqueville, and Saint Vallery, are made *montbelliards,* or coverings for matrasses; at Saint Laurent, Sassetot, Genetot, and Toqueville, are made linen-cloths with blue and white grounds, which are used as shirts and breeches by the negroes and sailors. Damasked linen, also called marbled ticking, is made at Rouen, Saint Vallery, and Bolbec; brown ticking of Caux, in the environs of Bacqueville, and Saint Vallery; ticking, in the manner of that at Brussels, at Evreux; lindsey-woolsey at Rouen; striped linens, and cotton and linen stuffs, are made in and about Rouen, and in some villages of Caux; thread and cotton handkerchiefs at Bolbec, Yvetot, Saint Laurent, and in the environs. Besides the above articles, there are also made in Normandy and the other provinces already named, open-worked linen-cloths, for table-linen, called *feuilles de laurier;* ditto for napkins; as likewise druggets, canvas, sail-cloth, *crets,* linens called Brittany cloths, *Saint Jean, Auxonnes, rouleaux de Beaujean, tarares, burgeoises,* velveteens, muslins, cambrics, lawn, gauze, &c. &c.

Laces. — *Blonde* lace is made of silk, point and other laces of black, and white, thread. The principal parts of France, in which laces are made, are Brussels, Malines, Valenciennes, Dieppe, and Puy. At Dieppe about 4000 women, chiefly wives and daughters of the seamen and fishermen, are employed in the manufacture of laces, and at Puy about 6000. Each of these women gains from eight to fifteen sols *per diem.* At Paris are made black, and white, laces; also at Caen, Lisle, (those made here are in imitation of Valenciennes laces,) Armentiers, and Bailleul (similar to those of Lisle). At Arras are made *minionette* and *entoilage* laces. Alençon's point lace has long enjoyed a reputation throughout France, England, Germany, &c. The manufacture of this lace employs about 8000 women in Alençon and its neighbourhood: the quantity of this article exported in the year 1802-3, amounted to 1,200,000 francs. There is also a very considerable manufacture of point lace, called *point d'Argentan,* at the village of Argentan.

Paper. — There are many paper manufactories throughout France; where are made three classes of white paper for writing, and printing, each class being divided into eight, or ten, different sorts. Besides these, are made the following: yellow, and blue paper, for drawing; a greyish sort called *papier à patrons,* blue sugar paper, blue paper for covering books, paste-board for bonnets, &c. brown and whitish brown, *joseph,* for printing; ditto pasteboard painted red, green, yellow, &c.; *joseph à soie* for wrapping up silk goods; brown pasteboard, for the inside of playing-cards; unicorn-paper for wrappers, &c. &c.

Cotton Stuffs. — There are nearly 120 cotton manufactories in France, which produce articles more, or less, perfect; in Normandy they are most numerous, and considerable.

Woollen Manufactures. — We shall divide these into two classes, viz. cloths; and camlets and baizes, &c. In the first class may be enumerated the cloths of Gobelins, Sedan, Abbeville, or *Van Robais,* of Louviers, Elbeuf, Rouen, Darnetal, Andelis, Montauban, and the various fabrics of Languedoc and Champagne: These are fine cloths. The coarser sorts are made at Chateau-Roux, Issodoun, Aubigny, Romorantin, Saint Aignan; at Roybons are made rateens, and also at Crest and Saillans; at Romans, cloths and rateens; at Saint Jean-en-Royans, cloths for billiard tables; cloths are also made at Grenoble, Valence, Die, Tulin, Chabreuil, Troyes, Beauvais, Dreux, Valogne, Vise, Saint Lo, Bayeux, Lodève, Loches, Beaulieu, Montresor, Amboise, Niort, Coulanges,

Monchamp, Fontenai-le-Comte, and Lusignan. In the rank of coarse cloths may also be placed the woollen-stuffs of Aix, Apt, Tarascon, Nay, Oleron, Rebenac, Orthès, Bagnères, Pau, Auct, Saint Godens, Saint Martory, and the valley of Aure; the cloths of Cevennes, Gevaudan, Castres, Mazanè, Brassac, Sommieres, Limoux, Saint Afrique, Mende, Ascot, &c. The greater part of these cloths bear the names of the various places in which they are fabricated; but these distinctions in regard to names operate in a very small degree with respect to the qualities of the articles. In the second class are comprised camlets of different descriptions, bolting-cloths, baizes, kerseys, serges of Aumale, Blicomt, &c. callimancoes, turquoises, knaps, silesias, malboroughs, &c. There are besides wool, and hair-plushes made in various parts of France; the chief of these are made at Amiens. The fairs of Saint Germain at Paris, of Saint Denis, Reims, Caen, Guibray, and Beaucaire, are the principal cloth-markets of France.

Silk Manufactures. — The most considerable are those established at Tours, Lyons, Nimes, and Avignon. That of the latter has for some years past been very inconsiderable; at present, however, there are thriving manufactories for Florentine taffetas, English taffetas, and damasks here. Nimes manufactures silk of a quality far inferior to those of Tours, and Lyons (which are excellent), and at a much lower rate. The best gold, and silver, laces are made at Paris, and Lyons, and some of inferior qualities at Montmorency, Sarcelles, Estrepagny, &c. Ribbons are chiefly made in Paris and Lyons, but there is also a large quantity fabricated at St. Etienne, and St. Chaumont, which are sold as the manufacture of Lyons.

Stockings. — There are at Paris, Lyons, and some other parts of France, considerable manufactures of thread, worsted, and cotton stockings, ribbed and plain; but the chief manufactures in the stocking line are those of silk, which are manufactured at Paris, Lyons, Nimes, Montpelier, Dourdans, &c. There are also made at the said places silk gloves, mittens, &c.

Tan Yards. — The best hides of France are those of the oxen of Auvergne, Limosin, and Poitou; those of Normandy do not afford good leather. Leather is prepared at Bayonne, Lectoure, and Saint Germaine. Those of the last-mentioned place are imitations of the Russian skins, and have been brought to a high degree of perfection, as have those which are made near the hospital at Paris, called *tannerie des guifs*. There are also hides tanned at Paris, and made into a species of leather called *enir des Hongrie*. Its repute is good. The best tan-yards of France are situated at Paris, Troyes, Coulommiers, Reims, Mezieres, Laon, Soissons, Rouen, Caen, Bayeux, Monascoint, Verneuil, Perche, Mantes, Vernon, Chartres, Orleans, Tours, Provins, and Beauvais. Curriery is also a branch of French industry, which may be included under this head. The following are the various sorts of leather manufactured in France by curriers, viz. sleek-leather, made from the hides of oxen and kine; *curis en suif*, or greased leather for harness; *vaches d'Angleterre*, for harness, made at Nemours and Louviers; *vaches grasses*, for trunks, bellows, and pump leather; *vache blanche*, for shoes; calf-skins for various uses; goat-skins made at Paris, Rouen, &c. under the title of *maroquins*; sheep-skins; chamois-skins, made at Niort, Strasbourg, Grenoble, Annonay, Maringue, Nantua, &c.: besides these, buffalo hides are manufactured in France. Parchment is prepared at Paris, and a vast deal in Poitou, Glevaudan, Languedoc, Flanders, and Alsace.

Hats. — The manufacture of beaver hats is very considerable in France, particularly at Paris, whence they are not only sent to the provinces, but also to Spain and Spanish America by way of Cadiz. Those destined for Spain are generally black or drab-coloured, lined with satin of various colours. The other hat-manufactories of France in which hats of various descriptions are made, are in number about seventy.

Nails are made in almost every province of France, but the most considerable forges are in Normandy, Champagne, Limosin, Le Foret, and Charleville.

Cards for wool, &c. — form a very considerable branch of French traffic; the best are the Parisian; after which come the cards of Rouen, Dreux, Romorantin, Orleans, Troyes, Tours, Poictiers, &c.

Pins and needles — are made at Paris, Rouen, Evreux, and Aigle, and form no trifling articles of traffic.

Steel—is chiefly manufactured at Amboise, Saint Etienne, Colmar, and Grenoble, but there is likewise a great deal made in various other parts of France. The manufactures of the above-named places, are, however the most esteemed.

Tin. — There are four manufactories of tin in France, namely, at Massvaux, Bain, Morancourt, and Nevers.

Clocks and Watches — are made in many parts of France, but Paris boasts of the most considerable and esteemed manufactures in this line. The coarse movements are made at Dieppe, and in its neighbourhood. There are at present in St. Claude, and its environs, 155 watch-makers, and about 91 clock-makers.

Jewellery — although forming a branch of considerable industry in many of the towns of France, is chiefly confined to Paris, where

every article in this line, as well as gold, and silver, toys, &c. are carried to a pitch of perfection which cannot be equalled by any nation on the earth, if we except the English.

To these manufactures may be added others of importance, into a detail of which our limits will not permit us to enter; we shall, however, enumerate them; viz. fire-arms, ironmongery, wax, bleaching, wax-candles, cordage, delft, and pottery, leather-gloves, porcelain, glass in the highest perfection, and of every description, salt-petre, sugar-refineries, &c. &c.

The soap, and wash-balls, made in different parts of France, especially those of Marseilles, and Paris, are highly esteemed all over Europe.

Commerce.—Having already stated, under the heads of *Productions* and *Manufactures,* the articles of French traffic and commerce, little more remains to be said than what relates to the various countries, with which this great nation trades. The internal commerce is chiefly carried on by means of the fairs, which are appointed to be held, upon stated days, during every month, at places too numerous to be here set down, and whither the merchants from all parts of the country resort, to purchase the articles of the various provinces in which those markets are held.

Commerce with Spain. — The following commodities are brought into France from Spain, viz. wool, kali, horses, mules, eatables, as well animals, as vegetables, brandies, liqueurs, wines, and various manufactured articles. The exports of France consist of manufactured articles, wine, brandy, fruits, &c.

Commerce wish Portugal. — The articles brought from Portugal are hides in the hair, Brazil tobacco, olive-oil, and dried fruit. There are also occasionally brought from Portugal Indian commodities, spices, raw cotton, dye-woods, inlaid work of the East and West Indies, and luscious wines. The exports are manufactured articles, eatables as well vegetables as animals, &c. There is annually a balance in favour of Portugal, which balance is paid in money by the French.

Commerce with Italy, Piedmont, Savoy, and Switzerland. — The contiguity of Piedmont and Savoy to France, Italy, and Switzerland, is sufficiently indicative of those states being the channel of intercourse between the said countries; we shall, therefore, without further comment state, that the imports of all those places amount annually to more than eighty million francs, and consist chiefly of silken ribbons of Padua, thick crapes of Bologna, stuffs, and silken velvets, of Genoa and Florence, raw-silk, white and painted cottons of Switzerland, various articles of animal consumption, olive-oil, and wines. The exports of France for Italy consist of manufactured articles, cotton thread, destined for Switzerland, vegetable, mineral, and animal commodities, wines, brandies, and the commodities of the French West India islands. *See* Italy.

Commerce with England, Scotland, and Ireland. — The commerce of France with England, Scotland, and Ireland, particularly with the latter, is very considerable: they consist of manufactures, beer, vegetables, and animals of England; the same, and dried fish, &c. of Scotland; butter, salt provisions, linens, &c. of Ireland. The exports of France for the said countries consist of wines, brandies, vinegar, laces, cambrics, fruit, &c. &c. This statement, it is to be understood, only refers to legal commerce, and it is generally fettered reciprocally by very heavy duties, the policy of which may be extremely doubtful.

Commerce with Germany, Poland, Prussia, &c. — The imports from these countries are manufactured merchandise, the tapes, mercery, and hardware of Germany; coal from Austrian Hainault, brass-wire, and potash from Hungary, Poland, and Prussia. The exports of France for these countries are, 1st, manufactured articles, especially silk stuffs, embroidered with gold, and silver, lawn and woollen stuffs; 2dly, raw wool, coal, &c. for Austria and Germany; 3dly, wines, brandies, and vinegar for Germany, Poland, and Prussia; 4thly, West Indian commodities, particularly sugar and coffee, for the States of Austria, and the ports belonging to the king of Prussia, at the entrance of the Baltic; 5thly, and finally, vegetables, minerals, and animals.

Commerce with the North. — The French do not carry on a very active commerce with the northern nations. The amount of the exports for all the aforesaid countries is small, viz. 1st, manufactured articles for Russia, and the Hanse Towns, and a small quantity for Sweden, and Denmark; 2dly, various raw and unmanufactured commodities, such as indigo and other dyes, cotton, &c. for the Hanse Towns, Sweden, and Denmark; 3dly, wines and brandies to the Hanse Towns, Denmark, and Russia. 4thly, vegetables, minerals, and animals; 5thly, and finally, sugar and coffee, the produce of the French West Indies, nearly three-fourths of which articles are purchased by the Hamburghers, the remainder being nearly equally divided with Denmark, Sweden, and Russia. The imports from these countries generally consist of the principal articles of commerce of each of these countries, which will be found under their respective heads.

Commerce with the United States of America. — This commerce owes its existence to the rupture between North America and

England. Previous to the French Revolution, it was carried on with spirit, and is reviving; the laws of French commerce with respect to the importation of American commodities, giving every encouragement to the intercourse of the two nations.

Commerce with the Ottoman Empire, and the Nations of Barbary. — The greater part, indeed we may almost say the whole, of this commerce is confined (on the part of France) to the port of Marseilles. From Marseilles are sent to the ports of the Levant the cloths of Languedoc, (principally those manufactured at Carcassonne, Clermont, and Lodève,) dye-woods, such as log-wood, &c. sugars, coffee, and indigo, cochineal of Cadiz, cinnamon, pepper, cloves, lead, iron, pewter, tin, writing-paper, liqueurs, syrups, fruits, mercury, tartar, vermilion, millinery, silken stuffs, lace, silk handkerchiefs, linen-cloth, toys, mercery, and sequins, or Spanish dollars. In return, Marseilles receives raw and spun cotton, wool of every description, gum, wax, silk, galls, madder, opium, goats' and camels' hair, raw and dressed hides, tallow, brass, carpets, coverlids, some linen, scammony, kali, coffee, incense, myrrh, rice, saffron, sal ammoniac, tamarinds, senna, ostrich-feathers, corn, barley, beans, split-peas, millet, and olive-oil. The trade to the Levant, before the Revolution, employed four hundred vessels.

Commerce with India and China. — This commerce was established in the year 1664, and vested in a company similar to that of England. Various revolutions took place in its government before the French Revolution, when the National Assembly passed a decree for unlimited commerce with India and China: in consequence of which, the intercourse has continued free, and the trade open to the French merchants in general to the present day.

France, before her revolution, possessed many colonies in different quarters of the world, but by the peace of Paris in 1814, she only retains Martinique, Guadaloupe, and Mariegalante, in the West Indies; in South America, Cayenne; in the East Indies, Pondicherry, and an insignificant territory; and some small factories on the western coast of Africa.

Paris, though from its inland situation incapable of being a greatly commercial city, has an indirect foreign trade through the northern ports, and an extensive inland commerce. The exchange business done in it is very great, and every merchant in the interior has a banker at Paris, and bills from foreign countries are usually made payable there.

It is much beyond our proposed limit to notice the particular cities and towns of other countries, as we have done those of England, but it may be necessary to observe upon a few of the principal commercial ports of France.

Bourdeaux—is 75 miles from the sea on the river Garonne, has a good harbour, is capital of the department of the Gironde, and abounding in manufactures. It has a great trade, especially in claret, and brandy.

Havre,—in the province of Normandy, is the port by which most of the colonial produce and British manufactures go to France, the expenses being less than by Bourdeaux.

Calais,—the key of France from England, carries on a considerable smuggling trade, but not any other to any degree of commercial importance.

Rheims,—and *Troyes*, both on the Seine, are famous for the wine called Champagne, which is exported to all parts of the world.

Dijon, — in Burgundy, is famous for its commerce in the wine which takes its name from this province.

Marseilles, the principal place in Provence, has an extensive trade to the Levant, and indeed to almost all parts of the world. It has been declared a free port by royal ordinance.

Accounts were formerly kept in livres Tournois, each livre consisting of 20 sols, and each sol or sou of 12 deniers. They are now kept in francs, each franc consisting of 100 centimes.

Germany. — The ancient division of this country into *circles* was entirely obliterated when Austria renounced the supremacy of the empire, at the requisition of Napoleon Buonaparte. Germany, therefore, now consists of a confederation of independent states, of which Austria is indeed the principal and head, having for her confederates Prussia, Bavaria, Wurtemburg, Hanover, Saxony, Hesse Cassel, Baden, Hesse Darmstadt, two Mecklenburgs, Oldenburg, the Netherlands for the sovereignty of Luxemburg, Denmark for Holstein, some inferior provinces, and the free cities of Hamburgh, Lubeck, Bremen, and Francfort.

This country is very favourably situated for trade, being nearly in the centre of Europe, and having easy communications with the Baltic, the North Sea, and the Mediterranean, by means of many navigable rivers which flow through its whole extent. Vienna, the old capital of Germany at large, now of the empire of Austria, is the centre of all commercial transactions in that kingdom, as payments at the port of Trieste, and other commercial places, are generally made by bills on Vienna. The most important part of the trade of Vienna is that carried on with Turkey. This is all that it is thought necessary to say of Austria individually, except that there are two commercial companies which are advancing the trade of this country with activity, viz. the Bohemian Linen Company, who make ship-

ment to South America, and the Egyptian Company, who have an establishment at Smyrna; that the territorial extent of the Austrian dominions is calculated at more than 12,000 square miles; the population, in round numbers, at about 28,000,000; the capital 20 English miles in circumference, with a population of 300,000 inhabitants.

Productions.—The soil of Germany is rich, and fertile in all sorts of natural productions. Those parts regarded as the best, in this respect, are the palatinate of Westphalia, Saxony, Franconia, and Bavaria. Of vegetable productions, Germany furnishes rye, wheat, maize, Turkish corn, spelt, barley, oats, peas, beans, vetch, lentils, millet, and buck-wheat; a great part of these productions is exported. Rice is cultivated in Moravia, and throughout the country are gathered manna, hemp, flax, hops, aniseed, cummin, tobacco, madder, saffron, truffles, potatoes and vegetables of various kinds; fruits, such as apples, pears, cherries, plums, chesnuts, almonds, olives, medlars, figs, peaches, apricots, oranges, lemons, limes, filberts, and nuts of various sorts. Finally, vines of different species are cultivated here. Germany produces such abundance of grain, that Franconia, Thuringia, the duchy of Magdeburgh, and its environs, Pomerania and Holstein, not only supply their neighbours, but also foreign countries, with almost every kind. The corn passes by way of Hamburgh and Bremen upon the ocean, into the ports of the Baltic, where the Dutch and Swedes are in waiting to receive it. The Swiss also procure their grain from that part of Germany which borders upon their country. Wine is one of the productions of Germany, which contributes most to the commerce of the country; according to a Swiss writer, the most celebrated wines of Germany are those of the Rhine, and more particularly those of Hokum, Laubanum, and Riedesein, in the environs of Mentz. The wine of Moselle comes next, and after it the red wine, called *Pleiker*, which is grown between Mentz and Rinfeld upon the Rhine. The wines of the palatinate and of the margravate of Baden possess a considerable share of reputation. The wine of Neckar is thin, but very palatable. The *Liebfrair melk* of Worms is a strong, full-bodied wine. In Franconia is grown a quantity of wines, but none of them, if we except that of Steinhard, near Wurtzburg, are esteemed. Busching tells us, that there are in Germany wines which might be put in competition with those of France and Hungary. The best are made in the circle of the Lower Rhine, namely, the Rhenish wines, or hock, (amongst which that of Rhinojar is esteemed the best,) and the wines of Moselle. There are also some passable wines to be met with amongst those of Franconia, Neckar, and Kocher; the Germans have likewise red wines and clarets. Austria produces excellent wines. Those of Bohemia, Moravia, and Lower Lusatia, and those of Upper Saxony, are much inferior to the foregoing. Germany may justly be termed a magazine of hemp and flax; nevertheless, Germany does not export much hemp. Heretofore Germany was covered with forests, of which there are to this day very valuable remains. The number, however, visibly decreases, and more than one province is already in want of wood for fuel and for carpenters' work. The forests of Germany, in general, furnish oak, beech, different species of fir, birch, aspin, alder, linden, ash, larch, and maple. Franconia, and particularly Bamberg, furnish a great deal of liquorice; the lower palatinate contains whole forests of chesnut-trees, olives, and particularly fine walnut-trees. The forests of oak and beech afford excellent fodder for pigs. A quantity of pearl-ash and pitch is made in various parts of Germany. The principal forests are situated in the palatinate of Franconia, in Wirtemberg, Hesse, and Saxony. In Germany are fed a vast number of oxen, kine, sheep, horses, goats, and pigs. Holstein and Oostfrise, together with the duchy of Bremen, furnish cheese and butter of the best quality; and wax and honey are abundant throughout Germany. The wool of this country is far inferior to that of England, Spain, and even France. The parts in which the most wool is to be met with, are the borders of the Rhine, Austria, Saxony, Mecklenburgh, Pomerania, and Bohemia: these wools are generally named from the place whence they come, such as the wool of Rostock, Gripswald, Stralsund, Anclam, Stetin, Thorn, &c. They also have names which denote their particular qualities, as Rhenish, little spark, summer wool of Poland, heath wool of the Rhine, &c. Many counties of Germany breed fine and beautiful horses, such as Holstein, Oostfrise, Oldenburgh, Wirtemberg, Anspach, Bamberg, Wurtzburgh, and the hereditary lands of the houses of Austria, and Hanover. From the latter, his majesty the king of Great Britain procured those beautiful cream-coloured horses which he uses on state-days. Mineral productions are very abundant and various in Germany, viz. potters' earth, terra sigillata, porcelain earth, and tripoli. Among the fossils are marble, alabaster, slate; divers kinds of agate, namely, carniola, chalcedony, onyx; also jasper, lapis lazuli, jasponiæ, crystal; the precious stones are diamonds, rubies, sapphires, topazes, emeralds, chrysolites, amethysts, granites, hyacinths, and rock-crystals; amongst the salts are vitriol, alum, saltpetre, sulphur, and finally, common salt, wherewith Germany is more abundantly supplied, than any other

part of Europe. The demi-metals are quicksilver, red-lead, leaden ore, antimony, cobalt, bismuth, and arsenic; and the metals consist of iron, steel, copper, lead, silver, (with which the empire abounds,) pewter, and gold; which last is found not only in mines, but in the rivers, such as the Rhine, Oder, &c. The principal mines of Germany are, in Westphalia, those of iron, lead, and lapis calaminaris; in Saxony, silver and gold mines, three of the former, and one of the latter, and likewise two of copper; in Austria, mines of copper and iron; in the palatinate, mines of iron and copper, and lapis lazuli; in Carinthia, gold, silver, and lead mines; in Bavaria, six gold mines, two silver mines, one of quicksilver, iron, copper, alum, and antimony; in Franconia, four copper and lead, and one of iron and lapis lazuli; in Hesse, two gold, one silver, two copper, one iron, quicksilver, alum, and salt, and two lead mines; in Liege, are mines of iron, copper, gold, sulphur, saltpetre, and coal; in the bishopric of Trent, are mines of gold, silver, lead, pewter, and iron; in Wirtemberg, mines of silver, copper, and iron. The Black Forest of Suabia is remarkably rich in iron ore, and some mines are worked here with considerable effect. There are considerable salt-works in the Tyrol, Austria, the duchies of Magdeburgh, and Lunenburgh, and in Thuringia.

With the exception of those carried on by the small towns situated upon the German ocean, and the Baltic, the only fisheries in Germany are those of the rivers. The Elbe, the Danube, the Oder, and the Weser, are the most productive rivers.

Manufactures. — Linens are made in almost every part of the empire, but principally in Austria, Saxony, Lusatia, Silesia, and Upper Germany. A great quantity of these articles is exported *viâ* Hamburgh. In several parts of Germany are made damask table-cloths, coloured linens wrought in squares, also oil-cloth, ticking, tapes, and lace, the latter of a very fine fabric. All sorts of paper, such as writing, lapping, marbled, and gilt paper, are made in Germany. Woollen manufactories are spread throughout the empire, but they are mostly for the coarser kinds of goods, and furnish very little to the export-trade, unless, indeed, we except the cloths of Silesia. There is also a small quantity of woollen goods exported from Westphalia and Hesse. Austria, Saxony, and Brandenburgh, contain manufactories for silk goods of every description. The mineral substances afford matter for the exercise of industry in the manufacture of earthen vessels, pipes, porcelain, and delft. The porcelain of Saxony is celebrated; there is also some made at Frankendal, but it is of a quality far inferior to that of the former. There are many iron-works at Nuremberg, and in Silesia, Saxony, and Holstein; the tin and files made at the first-mentioned place are much esteemed: at those places there are likewise copper-works, the produce whereof is, in part, exported. Augsburg, and Nuremberg, have manufactories of gold and silver articles, of which the Poles, and the Russians, purchase large quantities.

Commerce. — Germany carries on commerce, more, or less, extensive, with the other European nations, by the following modes:—With England, by Holland, the Rhine, the Weser, the Elbe, Bremen, Embden, and Hamburgh; with France, by Alsace, the Rhine, the Moselle, the Meuse, &c. and by Holland; with Italy, by Triest; with Spain, by Holland; with Holland, by the Rhine, the Elbe, and the Weser; with the Northern Nations, by Holland, the Rhine, the Elbe, the Weser, and the Baltic; with Russia, by Holland, the Elbe, the Weser, and the Baltic; with Turkey, by the Danube and the Black Sea. Since, however, the communication between Servia and Austria has been opened, a great quantity of merchandise daily arrives in the Austrian territory, on its way to Vienna. In a short time that city will become a depot for the produce of the Levant. It also receives quantities of goods by the way of Brody and Galicia; these goods are shipped from the port of Odessa, in the Crimea, to Brody: the expenses of land-carriage from the banks of the sea to Brody are very trifling. The chief commercial towns of Germany are, Frankfort on the Maine, Leipsick, Nuremberg, Augsburg, Vienna, Fiume, and Triest, which is a free port. An East India Company was established at Embden in 1750, and another association for carrying on trade with Bengal in 1754, neither of which has been successful. Germany is celebrated in the annals of commerce for the Hanseatic League, which was entered into by several of the maritime towns, for the protection of trade. The exports of Germany consist of cloths of all sorts, woollen and cotton, East and West Indian produce, hard-ware, cutlery, tin, and lead.

Since the partition of Saxony at the last definitive treaty of peace among the European powers, the king has found it necessary to make several new regulations for the greater encouragement of trade in the remnant of his dominions which are left to him. By an ordinance bearing date the 20th January, 1816, many prohibitions and restrictions are removed, and the duties on the import, and export, of commodities modified and altered.

The accounts of this extensive country, comprehending so many different independent governments, are kept in a great variety of monies. At Vienna, the capital, in guldens, each gulden consisting of 60 kreutzers, and each kreutzer of 4 pfenings.

At Berlin, and in the whole electorate of Brandenburg, in thelers or rix-dollars, each consisting of 24 gute groschen, each groschen of 12 pfenings.

Hamburgh, and the other free cities of Lubeck, Bremen, and Francfort, deserve a separate consideration. The first mentioned of these is situated on the river Elbe, which is here six miles broad, and will bring vessels of 14 feet draught up to the town. The principal trade of this place consists in exporting the produce of Germany, and supplying it, in return, with all kinds of foreign goods from every quarter of the globe.

All merchandise imported, or exported, by sea (with certain exceptions, too numerous to be inserted conveniently) pay a duty of 1½ *per cent.* currency, *ad valorem* banco, which must be paid before landing. If goods arrive for immediate re-exportation, they may be bonded on arrival, and pay no duty. The coin of Hamburgh is called currency; it is all of silver. The bank of Hamburgh affords a great convenience; most of the merchants of the place depositing their funds in it, and making their payments through it. The exchange business done here is prodigious.

Lubeck is situated between Holstein and Mecklenburgh, on the river Trave, and connected by other rivers with Holstein, Hamburgh, and the ports of the Baltic. It has some manufactories of leather, linen, tobacco, soap, &c.: it has no direct exchanges, but bills are drawn and made payable at Hamburgh.

Bremen is situated on the river Weser, 45 miles from the sea; it has, nevertheless, a good trade with the interior of Germany, from the charges of receiving, forwarding, selling, buying, and shipping of goods, being exceedingly moderate. A great quantity of manufactured goods from England find their way into Germany through this place.

Francfort is a place of celebrity from its two great fairs at Easter, and Michaelmas. At them merchants from every part of the continent attend, and sell, and barter, the commodities of their respective countries.

The importance of these free towns to the trade of Great Britain is immense; especially since the establishment of the kingdom of the Netherlands. Such heavy duties have been imposed by the last mentioned government on the transit of English manufactured goods, that they are no longer sent to Germany through Holland, but through these free towns, especially Hamburgh, from which they can even be conveyed by land-carriage to the interior of Germany cheaper than through any of the Netherland ports. Accounts are kept here in marcs, each marc consisting of 16 shillings, and each shilling of 12 pfenings.

Hungary has been in possession of the Austrian monarch ever since 1597, and was finally settled on the heirs male of that house in 1687, and in 1723 upon heirs female, in case of failure of heirs male. The ordinary revenue of the kingdom arises from mines, duties on cattle, royal demesnes, salt-works, customs, &c. Presburg is the capital, but a place of little trade, and less manufacture. It is, however, the principal market for the wines of the country, which may be called its staple commodity.

Productions. — This kingdom is amply provided with every thing which can contribute to the wants or comforts of humanity; the flat country produces abundance of grain, hay, vegetables, wood, tobacco, saffron, medicinal herbs, melons, hops, millet, &c. &c.: indeed so great is the fertility of the Hungarian soil, that the inhabitants, not being able to find room for the whole of its produce in their houses and barns, are obliged to pile it up in the fields, and cover it over with stubble. To the gifts of nature just enumerated may be added the excellent fruits and wines, the produce of this country: the latter are preferred to the wines of Spain, and are made in such vast quantities, that the inhabitants cannot oftentimes find vessels to hold them. In commerce the wines of Hungary are divided into two classes, viz. the wines of Upper, and of Lower, Hungary. Those of Upper Hungary are Tokay, Muschlac, Misckoz, and Erlan. Those of Lower Hungary are Edinburg, Buda, Neusidel, Goldberg, and Saint George. From each of these wines are made four different qualities or degrees, viz. 1st, Essence, made from picked and half-dried grapes. 2dly, Ansbruch, made from the grapes which have been used for the making of essence; this is what is exported as Tokay. 3dly, Muschlac, made from the husks of Ansbruch. 4thly, Landvein, made from the worst sort of grapes. Hungary also furnishes excellent beer; that of Cabsdorf, Karserstadt, Lentschow, Presburg, and Newsol is the most esteemed. Tobacco is another considerable production of Hungary; a pretty accurate conception of the extent of its cultivation may be formed from the statement of Hungarian exports in 1800, when 100,759 lbs. of snuff, and 3,278,137 lbs. of leaf-tobacco of native growth were exported.

The Hungarian horses are strong, and capable of undergoing great fatigue; the oxen, of which a great number are annually exported, are for the most part of a mouse-colour. The race of buffaloes is improving; they serve for tilling the ground.

Manufactures—are not numerous in Hungary. Here is made a sort of felt, which is not only close, but pliant; moreover, it so durable, that no rain, however heavy, will penetrate it. Among the manufactures may be mentioned those of sole-leather, and

potash, the former whereof is prepared at Presburg. There is also a cotton-factory in Holitsch, which was founded in 1754 by a merchant of Vienna.

Commerce.—The exports of Hungary consist of wines, saffron, oil, metals, minerals, oxen, skins, leather, wool, tallow, honey, and wax; and the imports of spices, pewter, silk, and some other sorts of foreign merchandise, such as silken and cotton stuffs.

The Empress Maria Theresa took great pains to promote manufactures and commerce. She sent for weavers, and other artificers, from Flanders, and established a manufactory of cloth. The Hungarians are naturally proud and fierce, and more addicted to the service of the field, than to the sedentary employment of the loom; but recently a mercantile spirit seems to have arisen, which may, in time, lead them to rival other countries in manufacturing and commercial industry.

Accounts in Hungary are kept as in Austria.

Ireland. — *Productions.* — These principally consist of black cattle, sheep, hogs, butter, cheese, &c. of salt, wood, honey, wax, furs, hemp, flax, linen, wool, and metals, and minerals. The Irish horses are, generally speaking, smaller than the English; but their strength is by no means conformable to their size, and the apparent ease with which these little animals carry great burthens, must excite the surprise of such as have been accustomed to see the large horses of other countries. The oxen pastured in Ireland are extremely fat, and their flesh more delicate than that of any other oxen in the world. A great portion of the commerce of Ireland arises from her abundant stores of black cattle, which have been within the last fifty years much improved by crossing with the English cattle of Leicestershire, and Staffordshire. Immense quantities of beef, pork, &c. are annually cured in Ireland, and exported principally to the West Indies, and in time of peace to France and Spain. The Irish bacon is not so fine as the English, but it is nevertheless in high repute in foreign markets, and a great deal of it is imported every year into Great Britain. The hides of the oxen, slaughtered for exportation, give rise to another branch of commerce: they are sent, as well raw and salted, as dried, to England, to the West Indies, and to the continent of Europe. Irish butter keeps better, when salted, than the English, or the American; it is exported to Spain, Portugal, Germany, the Baltic, to the West Indies, and even to Asia; much of this article is likewise sold in the London market, after having the salt washed out. The horse-hair of this country is much esteemed, and it is said that no part of Europe furnishes larger quantities of this commodity than Ireland. The best wools are of a quality approaching that, which is the produce of the Leicester breed, by the recent introduction into Ireland of English sheep. Besides these, there are other species of wool, whereof a great deal is sent to England, and the remainder made into friezes, and different kinds of coarse woollens, for the wear of the lower classes of Irish. The soil of Ireland is peculiarly adapted to the cultivation of saffron, and some of very excellent quality is grown in different parts of the country. The culture of hops is very circumscribed; some individuals, however, have grown a few hops, which were found to be, in point of quality, a sort of medium between the Kentish, and Worcestershire hops. Scarcely the semblance of a forest remains in Ireland, though several formerly existed; their place is unhappily usurped by the moors or bogs, which form a remarkable feature of the country, being, by a report made to parliament, more than one million of acres.—These bogs furnish an abundant supply of good fuel, and even add to the durability of the timber, which is found universally buried beneath their surfaces; and, from the tanning principle of the bark, they have the property of converting to a sort of leather, the skins of men and animals who have the misfortune of being lost, and remaining in them for any length of time. The soil and climate are extremely favourable to the cultivation of flax, the land being rich, and the air mild and temperate. The humidity of the atmosphere is another auxiliary to the advancement of this branch of agriculture; and hence Ireland produces flax, which, as to quantity, and quality, may be put in competition with the flax of most other parts of the world. The greater part of the flax-seed sown in Ireland is brought from America, and the government of England has, by premiums and bounties, given great encouragement to this highly useful species of cultivation. Potatoes constitute the chief article of food among the poorer classes of the Irish, and are grown in almost every part of the island. The Irish potatoes are of the very best quality, and large quantities of them are not only sent to England, but to foreign parts. The early (about the year 1600) and exclusive (at that period) European use of this vegetable in Ireland, has occasioned much conjecture respecting the first introduction of them, The most probable account is, that they were brought by Sir Walter Raleigh to his estate at Youghal, from America, where they were called by the natives *badatas.* The soil, however, of Ireland must be especially congenial to the production of this root, for certain it is, that in every other part of Europe they degenerate, if not occasionally replenished from this, emphatically denominated, "Land of Potatoes." The grain of Ireland is much of the same sort with

that grown in the midland shires of England: immense crops of barley are annually gathered for the consumption of the distilleries; and very little of any species of grain is exported. The fisheries give rise to a considerable export trade, as well as to internal commerce, more especially those of herrings and salmon; the last is principally exported from Dublin, Waterford, Limerick, and Galway; the herrings of the last mentioned place are larger than those of the other towns. Herrings are exported from Ireland to Spain, Portugal, Italy, the West Indies, North America, and France. Londonderry, Colerain, Dublin, Waterford, Limerick, and Drogheda, are most noted for producing fine salmon; at these places, and in their vicinities, the fish is smoked by means of turf fires, which communicate a delicious flavour to it, and render the Irish salmon a most valuable and desirable commodity in many foreign markets. The coasts of the island abound in almost every kind of fish known in the European seas, and it may with truth be said, that there is no metropolis better supplied with fish than the city of Dublin. The Carlingford oysters are the finest flavoured of any caught in the British dominions: the demand for these oysters is so great in Ireland, that none of them are left for exportation. Since the reign of Elizabeth, iron mines have been worked in this country, and there are still some of these, which afford very excellent ore. Copper ore is found in various parts, and many of the mines contain evident marks of having been wrought at a distant period. Lead is found in great abundance, and yields a large proportion of silver: a mine in the county of Antrim is said to yield a pound of silver from 30 pounds of lead. White lead ore, grey cobalt ore, manganese, and blende, are found in various parts of the country. The county of Kilkenny is noted for the production of its coal, which makes no smoke in burning, and when completely ignited resembles a mass of melted glass; it is carried to distant parts of the kingdom. Marble, as well red, as black, white, and elegantly veined with particoloured streaks, is found in many parts of Ireland; the red, and veined, marble are not so common as the black, of which large quantities are dug in the neighbourhood of Kilkenny; and this town is even paved with it: when taken at first from the quarries, this species of marble appears of a greyish colour, but on being polished it assumes a fine black surface: of this valuable stone no inconsiderable quantity is exported, and a great deal of it is sent to Dublin, and other populous cities and towns throughout the kingdom of Ireland. Fossils, minerals, and semi-metals of various kinds, abound in most parts of the island; but as they are not much sought after, and give rise to no species of commerce, we deem it unnecessary to enumerate the different species.

Manufactures.—Ireland was distinguished, at an early period, for her manufactures of woollen stuffs, yet the spirit of industry made little progress, and the chief Irish manufactures are of recent institution. The linen manufacture was not unknown in Ireland in more early times, as appears from acts of parliament, in the reigns of Henry VIII. and Elizabeth; in that of William III. it became an object of consequence, and in 1699 such high duties were imposed on Irish woollens, that the manufacture was nearly abandoned, and the efforts of industry directed to the linen trade; in 1780, the annual produce of the linen manufacture was computed at about 2,000,000*l.* sterling, and in the year ending January 1799, the value of the Irish linen exported to Great Britain, exceeded 2,500,000*l.* exclusive of that sent to America, and consumed at home, and since it has considerably increased each succeeding year: the Irish linens are not subject to the payment of any duty, on being brought into England: this important branch of industry is principally confined to the province of Ulster, which produces linens, the fineness of whose texture, and excellence of its bleaching, are not to be equalled by the linen manufactures of any other nation. Linens are likewise made in other parts, besides the north of Ireland, but in very small quantities. In Dublin there is an extensive edifice called the Linen Hall, which is entirely devoted to the reception of linen cloth; here the linen factors have apartments, and hither linen merchants repair from all parts of the united kingdom, and even from foreign countries, for the purpose of purchasing this great staple commodity of Irish trade. Linen yarn, the greater part whereof is likewise spun in the north of Ireland, is kept on sale in another building adjoining the Linen Hall, and of this article immense quantities are annually bought up, as well for home consumption, as for exportation. The linens of Ireland are chiefly of that description called shirting; but there are also other kinds made here, especially damask table-cloths of the most beautiful kind, besides sheeting and towels: the author of this work had the honour of purchasing a complete suite of table linen, of the Irish manufacture, by the order of the late unfortunate queen of France, which was so much admired abroad, that several of the French nobility procured table linen of the same fabric for their own use. In Ulster, and some other parts of Ireland, there are considerable manufactures of cambrics, lawns, and muslins: the two former are accounted no wise inferior to the produce of the Flemish manufactures, and great quantities are exported to Eng-

land, to America, to the West Indies, and to the continent of Europe. At Limerick there is an important manufacture of leather gloves, esteemed superior to any thing of the kind in the united kingdoms. Cotton and thread stockings are woven in many parts of Ireland, and some of them are exported to England, and to foreign countries. Very little fine woollen cloths are manufactured here; but of friezes, flannels, serges, and other sorts of coarse goods, large quantities are made in many parts of the kingdom, especially in the counties of Wicklow, Wexford, Kilkenny, and Waterford. In the neighbourhood of Dublin, calico-printing is carried on to a great extent, and in that city an earthen-ware manufactory has been in a flourishing state for several years past. In the Earl of Meath's Liberty, which is the name of a certain quarter of Dublin, the different branches of the silk trade are carried on with a vigour, and have been brought to a pitch of perfection, which do high credit to the active spirit, taste, and ingenuity of the Irish nation. Woollen and worsted manufactures are also conducted with the same laudable activity, in the same quarter of the metropolis, and in other parts of the city and its suburbs. Heavy iron works are the principal sorts of hardware manufacture in Ireland; there are, nevertheless, many other small articles in this line made in different parts of the country. Immense quantities of kelp are prepared all along the coasts of Ireland, as well as in many of the small islands adjacent to this kingdom, such as Lambay, Ireland's Eye, &c. &c. For a considerable period, indeed until within these few years, Ireland was in the habit of procuring nearly all the porter and other kinds of strong beer consumed in the country, from London, and Liverpool. Porter breweries have, however, been established at Dublin, and Cork, and the best proof we can give of their produce being, at least, as good as that of the London breweries, is, that there has been very little imported of late years. The distillation of whisky from malt, constitutes an amazing branch of manufacture and commerce, as well external, as internal. The following information, with respect to the Irish distilleries, was presented to the House of Commons within the year 1808. "There are upwards of 3000 private distilleries in Ireland. In one day, from seven o'clock in the evening till four the next evening, were seized and destroyed 101 distilleries in the month of October 1805, in the barony of Ennishowan, in the county of Donegal, where, by information, there were upwards of 1300, also a considerable number of private malt-houses." There are very few distillers *of capital* in Ireland. The private distillers make a greater quantity of spirit from malted oats, than from barley. They malt oats in the north of Ireland, in bog-holes, in sacks wetted, and then they bring them up to their barns, where the process is carried on, and they are afterwards dried upon what they call corn-kilns. The Irish whisky is exported to England, America, and the Baltic. There are glass-houses at Dublin, Cork, and Waterford, the produce of which, particularly that of the last mentioned city, is so excellent, as to be exported in large quantities. There are likewise some sugar refineries in many large cities and towns, but they are not of sufficient magnitude to answer the demand for refined sugar, and therefore considerable quantities are imported from England. The manufacture of snuff is carried on to a great extent at Dublin.

Commerce.—The commerce of Ireland had long been shackled, and the spirit of commercial enterprise damped, by the severity of the restrictions which English parliaments had laid upon the import, and export, trade of the country. In the year 1780, Ireland was placed nearly on the same commercial basis with Great Britain. From this epoch, not one of the least glorious in the annals of Irish history, foreign trade has rapidly increased, and this country, at the present day, participates in most of the commercial advantages formerly monopolized by England. With France, in time of peace, Ireland carries on a more extensive commerce than Great Britain itself. The wines of French growth are bought up with avidity, and are not only consumed by noblemen and persons of rank, but by the merchants and other traders of the kingdom. Claret is the wine mostly drunk in Ireland. Portugal draws large quantities of provisions, principally butter, besides linen cloth, &c. from Ireland, and in return supplies her with port wine, of which there is an immense consumption throughout the kingdom. The species of port wine which, in flavour, comes nearest to claret, is the only sort imported into this country; she likewise imports from Portugal the same kinds of merchandize which England procures from that country. Between Spain and Ireland there is a very flourishing trade; the commodities imported are similar to those, with which Spain supplies England; and the exports are of the same description, as the articles sent hence to Portugal. To Cadiz immense quantities of butter are annually exported. The Italian trade is generally tolerable, and Ireland draws almost every species of Italian commodities, as well as Levant merchandize, from Leghorn, and other parts of Italy. The returns are most of the exportable articles of this kingdom, particularly provisions, butter, and the like. The specification of the articles which constitute the commerce between Great Britain, and Ireland, will be found under the head of English commerce. Ireland has no export trade to the Baltic, and the vessels which are destined to procure the commodities of the ports on this

sea, are invariably sent out in ballast. There is scarcely any direct commerce between Germany and this country, and the German merchandize which finds its way into the Irish markets, passes, for the most part, through the ports of London, Liverpool, and Bristol. The vessels which proceed directly from Ireland to Holland, are usually in ballast; they bring home the same kinds of merchandize as England procures from the Dutch: the same may be said of the trade with Hamburgh, Denmark, and Norway. With North America the trade is very extensive, more particularly as it regards the imports; for, if we except large quantities of linens, very few goods are sent from Ireland to America: one of the chief commodities imported from North America is flax-seed, of which Ireland purchases more than England herself; exclusively of provisions, butter and the like, the other imports from America are similar to those which will be found enumerated under the head of English commerce. Some small adventures, consisting for the most part of linens, have been sent to South America lately. The trade which Ireland carries on with the West Indies, is one of the most important branches of Irish commerce, and since the union of the kingdoms of England and Ireland, has been rapidly increasing: Dublin enjoys a great portion of this lucrative traffic. This city boasts one of the finest custom-houses in Europe; it is inhabited by most opulent and respectable merchants and traders of every description, and its places of commercial resort, such as the Exchange, Commercial Buildings, &c. are in point of magnificence and commodiousness, not to be excelled, or perhaps equalled, by similar institutions in any other part of the British dominions. The linen and hempen manufactures are carried on to some extent in this metropolis, the prosperity of which has been much promoted by the board of trustees, established by act of parliament, and by the National Bank, which was founded in 1783. Dublin has likewise manufactures of fine, and superfine broad, and narrow, woollen-cloths, calimancoes, serges, stuffs, poplins, tabinets; all sorts of silk articles, as lustrings, sarsnets, persians, silk handkerchiefs, &c.; all kinds of ribbons, tapes, and small wares: here are several sugar-houses, glass-houses for fine glass wares, as also for bottles, &c.; several distilleries; brewhouses for making porter, ale, and table beer; houses for slaughtering cattle intended for exportation to the West Indies, &c.; large manufactories of soap and candles, for home consumption and exportation; large iron mills in the vicinity, and several manufactories of coarse iron ware; several manufactories of toys, and all kinds of Birmingham wares; calico-printing; paper mills; manufactures of room papers; hosiery; musical instruments of all kinds: wax-candles, and superior kinds of wafers, are also made here, besides cutlery equal to any in the world. The manufacture of cotton goods, established at Prosperous, near Dublin, has been in a thriving state ever since 1785, when Parliament granted 25,000*l.* to the proprietors. The greatest improvement to the trade of Dublin, is in the grand canal and floating dock, which form a water carriage from St. George's channel into the river Shannon, which falls into the Atlantic ocean, at the western side of Ireland, completely intersecting the whole kingdom; by this plan Dublin is enabled to supply almost every county in Ireland with the commodities which she imports, as well as with her manufactures, &c. The Dublin society is an institution, incorporated in the year 1749, for improving husbandry and other useful arts, and its establishment reflects honour upon the citizens; it triennially bestows premiums on such meritorious claimants as apply for them for useful improvements in arts, manufactures, and agriculture. Dublin is remarkably well supplied with flesh, fowl, and fish; the latter in much greater perfection than any other capital in Europe. It is supplied with coals chiefly from Cumberland, Scotland, and Wales.

Cork—is a great trading place; its principal export is salt provisions: during the slaughtering season, from August till January, there are about 100,000 head of black cattle killed. The wealth and grandeur of Cork arise from its capacious harbour, where almost any number of ships may lie with ease and safety; ships from England bound to the West Indies, take in here a great part of their provisions, and on the same account the haven of Cork is also visited by those of most other nations. Besides beef, Cork exports butter, candles, raw and tanned hides, linen cloth, pork, lambs' and rabbits' skins, tallow, wool, and worsted. The merchants of Cork carry on a very extensive trade to almost every part of the known world, and the number of ships that they now employ is treble what it was forty years ago, so rapid has been the increase of their commerce.

Waterford—employs upwards of 70 ships in the Newfoundland trade, and it is computed that 3000 hogs have been killed here weekly, and cured, chiefly for the supply of the royal navy. About 70,000 casks of butter are annually exported; besides which, the commerce in beef, corn, linen, &c. is very great.

Limerick. — The quays are roomy; the Shannon is navigable up to them for ships of 500 tons; at about 1½ mile farther down to Pool, for ships of 900 tons; four miles above the city, the cataract of Doonass interrupts the navigation, but a canal has been made to open a communication with Killaloe, where the Shannon is navigable for small vessels 100 miles further.

In very early times, Limerick was visited

by foreign merchants, and from the invasion of the Danes to the 12th century, this city was the centre of an important commerce, and continued to be the second city in Ireland, till Cork, by a more convenient situation for foreign trade, acquired a pre-eminence.

The *Exports* consist chiefly of provisions, such as beef, butter, &c. besides raw hides, oats, some rape-seed, feathers, some checks, linens, linen-yarn, and hemp.

Imports. — Sugar, rum, timber for building, wine, coals, tobacco, glass from Scotland, salt from Liverpool, &c.

Formerly immense quantities of shoes were made here for the supply of foreign markets; but now the hides are exported raw.

Beautiful gloves continue to be manufactured here, which are celebrated in other places with the name of *Limerick Gloves*, in the town they are called *Chicken Gloves;* they are for the use of ladies, and notwithstanding the very high price of them, are worn in general only one night at fashionable balls; they are prepared to such fineness, that a pair may be drawn through a finger-ring. Similar articles are now made in Dublin, and perhaps in other places in Ireland, as likewise at Worcester, and sold under the name of Limerick Gloves.

Limerick or Irish *hooks*, are small and thin, with a peculiar curve; they are dearer than the common ones. In the English manufactories, the same sort of hooks are made, and called Limerick hooks.

Belfast has considerable manufactures of cotton, cambric, sail-cloth, and linen; and others of glass, sugar, earthen-ware, &c. Hence, too, large quantities of provisions and butter are exported.

Newry has a good export trade, as has *Drogheda;* and *Lisburn* is noted for its linen manufactory.

Clonmell has a considerable manufacture in the woollen branch, chiefly carried on by the Quakers, who are very numerous here.

Drogheda has a good export trade.

Dundalk, there is a considerable manufacture of muslins, linens, and cambrics: here is carried on a good inland and export trade.

The salmon and herring-fishery is carried on at *Galway* with great spirit, and employs several hundred boats; it has also a considerable trade in making and exporting kelp, and of late years, the linen manufactures have been considerably improved.

At *Hillsborough* considerable quantities of muslins are made.

Kinsale may be called the Plymouth of Ireland; ships of war are sometimes repaired at the docks of this port; it is much frequented by West Indiamen, and exports considerable quantities of grain.

Many important branches of the linen manufacture are carried on at *Longford*, whence a great quantity of hemp is sent to the other manufacturing towns.

Sligo carries on a large trade with the northern parts of Europe.

Londonderry has also a good export trade, and some linen manufactures.

Wexford has several extensive woollen manufactures; and exports much corn: this town has not a good harbour.

The inhabitants of *Youghall* have a tolerable inland trade; and a manufactory of earthen-ware, some years ago established here, is in a thriving condition; the external commerce is not of any great importance, and the harbour is difficult of access.

Dungarvon supplies Dublin with large quantities of fish; as also with potatoes and birch-brooms in abundance, which are sent to the capital in boats; the latter articles are jocosely called *fruit, and timber.*

Carrick on Suir has long been noted for its manufactures of broad woollen cloths, and ratteens, which at the present day are in a flourishing state.

The inland trade of Ireland is of very great importance, and is principally carried on by means of the fine rivers which intersect the country; and by the navigable canals, of which there are two in this kingdom, that branch out in different directions, commencing their course at Dublin.

The following is the official account of the value of Irish imports and exports for the year ending January 5, 1821: —

	Imports.	*Exports.*
Including trade with Great Britain -	5,167,014	7,179,222
Exclusive of same -	924,542	608,406

The following article is extracted from the Irish union act, and exhibits the footing upon which the trade between England and Ireland at present stands; together with the alterations decreed by parliament, to be made in the structure of the existing trade, as well as the periods, at which such alterations are to take place.

1st January, 1801.

"Article VI. His Majesty's subjects of Great Britain and Ireland shall be entitled to the same privileges, and be on the same footing as to encouragements and bounties on the like articles, being the growth, produce, or manufacture of either country respectively, and generally in respect of navigation and trade, in all ports and places in the United Kingdom and its dependencies; and in all treaties made by his Majesty with any foreign power, the subjects of Ireland shall be upon the same footing with British subjects; all articles of export to and from either country, without any bounty or duty upon the same, and all former prohibitions and bounties on the export of articles, the growth, produce, or manufacture of either country, shall cease and determine; all articles, the growth, produce, or manufac-

ture of either country, not particularly enumerated as subject to specific duties, shall be imported into either country respectively, free from duty, other than the countervailing duties on the several articles enumerated in a schedule annexed to the act, or to such other countervailing duties as shall hereafter be imposed by parliament; and for 20 years from the union, the articles enumerated in the above schedule shall be subject, on importation to either country, to the duties specified therein; and the woollen manufactures known by the name of the *old and new drapery*, shall pay on importation into each country, the duties now payable on importation into Ireland; and coals, on importation into Ireland from Great Britain, shall be subject to burthens not exceeding those to which they are subject at present. Calicoes and muslins shall, upon their importation into either country, be subject and liable to the duties now payable on the same, on the importation thereof from Great Britain into Ireland, until the 5th of January, 1808; and from that period the duties shall be annually reduced in equal proportions, so as that the said duties shall stand at 10 per cent. from the 5th of January 1806, until the 5th of January 1808; and thenceforward shall be so reduced annually, that after the 5th of January 1816, all the duties on the said articles shall cease. Any articles of the growth, produce, or manufacture of either country, subject to internal duty, or duty upon the materials of which they are composed, shall be made subject, upon importation to either country respectively, to such countervailing duty as shall appear just and reasonable; and the articles specified in the schedule, shall be subject to the duties therein specified to be taken off, diminished, or increased, in the manner herein specified; and upon the export of the said articles from each country to the other respectively, a drawback shall be allowed, equal in amount to the countervailing duty now payable on such articles, on the import thereof into the same country from the other; and a drawback equal to such countervailing duty, in amount, shall in like manner be given on the export of every such article respectively, from the same country to the other. All articles, the growth, produce, or manufacture of either country, when exported through the other, shall be subject to the same charges as if they had been exported directly from that country of which they were the growth, produce, or manufacture. All duties charged upon the importation of foreign or colonial goods into either country, shall, upon their export to the other, be either drawn back, or the amount (if any be retained) shall be placed to the credit of the country to which they shall be so exported, so long as the expense of the United Kingdom shall be defrayed by proportional contributions. Nothing in this act shall extend to take away any duty, bounty, or prohibition, which exists with respect to corn, meal, malt, flour, or biscuit; but all duties, bounties, or prohibitions, relative to the said articles, may be from time to time varied or repealed, as by the united parliament shall be deemed expedient."

Accounts are kept as in England, but the English coins are of value in Ireland as 13 is to 12; that is to say, the English shilling is of value 13*d*.

Italy, for many centuries the mistress of the world in *arms*, became so latterly in *arts;* but the injury, which a war of unexampled continuance had inflicted upon her, seems to have been converted into confirmed ruin by the provisions of peace.

Venice and Genoa, which by means of their republican freedom had elevated themselves to the first rank of commercial cities, have been delivered over, bound hand and foot, to the capricious protection of a despotic power. The consequences are well depicted by the accounts of an intelligent traveller, recently written from these places respectively. Of Venice, he says, "the splendid place of St. Mark is no longer thronged by Venetian nobles, the cassinos are deserted, the famous Rialto bridge has ceased to be distinguished for its rich shops with their matchless brocades, the Bucentaur is rotten, and there is no longer a Doge to wed the Adriatic. The long-continued blockade of the English during the war annihilated the commerce of the port, and proved disastrous to the Venetian vessels. During many days, lately, only two vessels cleared out at the Custom-house, while several small craft were lying waiting for cargoes, with but little expectation of obtaining them. Under these circumstances the Venetians cannot but despair of the revival of commerce in this once celebrated emporium."

Of the commerce of Genoa, he writes, "the new government has established an increased tariff of duties here, on the effects of which I need make no observation. Many articles of consumption are to pay even six times more than they used to do. By virtue of the new regulations, all woollen cloths are to pay by weight, so that a coarse cloth of 3*s*. 6*d*. per yard, will have to pay as much as one of 36*s*. per yard; white cambricks, and cotton stuffs, which paid from four to five per cent. *ad valorem* duty, will now have to pay 15 per cent.; India long cloths which paid 3*l*. 6*s*. per piece, will now pay 13*l*. per piece. The duty on sheet iron is raised from 2*l*. to 15*l*. 10*s*.; and on other qualities of iron from 1*l*. 10*s*. to 13*l*. 15*s*."

Productions.—Italy is one of the finest and most beautiful countries in the world, and has been styled the garden of Europe. The

air is pure and serene, except in the Ecclesiastical State. The soil is, throughout, fertile, and produces exquisite fruits, and vegetables: it abounds in rice, corn, wine, olives, and oil.

The quantity of mulberry-trees cultivated here affords nourishment to an immense number of silk-worms, from which so much silk is obtained, as to constitute the chief article of the Italian export-trade.

Neither wool, flax, nor hemp, are scarce: mineral riches in general, and the finest marble in the world, are abundant.

Manufactures. — The industry of the Italians is principally exercised upon silks, stuffs, laces, confectionary, perfumes, and pastes of various kinds. In Sicily, Bologna, Genoa, Milan, and Piedmont, large quantities of silk are gathered. The sale and manufacture of the Sicilian silk rest entirely with the Florentines, the Genoese, and the Luccese. The silks exported from Italy are partly raw, and partly wrought. Milan furnishes wrought silks; Genoa raw silks; Bologna silks prepared for dyeing, called Bologna organzine, and raw silk; Parma, Modena, Lucca, and Reggio, raw silk. There is a sort of silk drawn from Bologna and Milan called *Miliorati*, in which the merchants of Amsterdam traffic. In Genoa are manufactured damasks, plain and figured velvets, tabbies, satins, taffetas, &c. The silk manufacture of Naples is in tolerable condition, and the mirrors of Venice still retain their credit for superiority.

Commerce.—The Venetians, and Genoese, long enjoyed the commerce of the southern coasts of Europe, and the Levant. Venice, Leghorn, Genoa, Trieste, and Naples, are the chief trading ports of Italy. Milan, Florence, Bologna, Modena, Reggio, Parma, and Lucca, also carry on some trade; but as these are inland towns, they must necessarily send their commodities for foreign export to the ports, through which likewise their returns must come. Some commerce with France, and the aforesaid inland towns, is however carried on by means of mules, which convey the commodities over the Alps to Lyons. Besides the merchandise peculiar to some parts of Italy, a quantity of others are to be met with in this country. The principal are dried fruits, raisins, figs, almonds, lemons, limes, aniseed, alum, sulphur, steel, rice, manna, amber, turpentine, cream-of-tartar, fine lac, paper, soap, essences, perfumed gloves, different sorts of snuff, white marble in squares and tables, also marble of various colours.

Of *Venice* and *Genoa*, as ports, we have said sufficient.

Leghorn—has a fine harbour, and still enjoys considerable trade. It supplies the interior with the produce of the Levant, and of Europe and her colonies generally. The principal imports are spices, dye woods, coffee, tea, bark, alum, salt-fish, flour, flax, hides, iron, lead, rum, rice, sugar, tin, tobacco, tar, and woods.

Trieste—carries on a considerable commerce, as most of the foreign produce for the consumption of the Austrian states is drawn from thence. It is also a great depôt for the produce of the Levant. The imports and exports are much the same as those of the other ports of Italy.

Naples—imports vast quantities of salt-fish, colonial produce, and linens principally from Germany.

The exports are oil of the finest quality and in the greatest abundance, wine, wool of Puglia, staves of oak, and silk, both manufactured and unmanufactured.

At Rome, accounts are kept in scudi Romani, each scudo consisting of 10 paoli, and each paolo of 10 bajocchi.

At Naples, in ducati di regno, each ducato consisting of 100 grani.

At Venice, in lire, each lira consisting of 20 soldi, each soldo of 12 denari de lira.

Netherlands, *Kingdom of the.* In the distribution of dominion which was made by the last peace, the Stadtholder of Holland was placed at the head of a new kingdom, comprising French and Austrian Flanders, and the United Provinces, under the title of "The Netherlands," of which Brussels is the capital. This is altogether one of the finest countries in Europe for commerce, producing all the necessaries of life in abundance, and having the means of conveying them to all parts of the Continent. It has now within its limits four of the greatest commercial cities and ports in the world, *viz.* Antwerp, Ghent, Amsterdam, and Rotterdam, besides several inferior ones, as Ostend, and others.

Antwerp—was 200 years ago the first commercial port in the North of Europe, but was reduced by the shutting up of the Scheldt, on which river it is situated. It is likely to recover all its ancient lustre; its central situation being convenient for supplying France and all Germany, and having a port capable of receiving ships of any burthen. The principal articles of export now are wheat, beans, clover-seed, and linens. Of import, all West India and American produce, rock-salt, French wines, and British manufactured goods; the duties on which latter, however, are oppressively high. That the trade is rapidly increasing, may be collected from the circumstance that the number of ships which arrived in the port in 1817 was 999.

Ostend—is a considerable town and port, and favourably situated for trade, as it communicates by means of canals with all parts of the Netherlands. The trade is much the same as that of Antwerp, but inferior in quantity. Tallow and hides may indeed be articles added to the export, as English

calicoes may to the import, trade. There is a constant communication between the ports on the southern, and eastern sides, of Great Britain, and Ostend, as well by public, as by private, packets.

Productions.—The Low Countries are, in general, well cultivated; the soil produces grain, flax, hemp, hops, barley, fruit, and wool; and the mines yield coal. Rape-seed, or *colza*, is one of the richest productions of Flanders or Brabant. A vast quantity of oil is made from this seed at Brussels. Tobacco is also a production of these countries, as well as oak-bark, or tan. Several parts of the soil are well adapted to the manufacture of delft and tobacco-pipes. Coal-mines, of an apparently inexhaustible nature, are found in the Netherlands, the coals drawn from which are readily bought up by the different manufacturers residing in the towns and cities.

Although the riches of Holland originate rather in its commerce, than its soil, yet agriculture is flourishing in some of the provinces.

Corn. — There is not a sufficient quantity of grain grown in Holland to answer the hundredth part of the demand of the inhabitants, nevertheless this country is denominated the granary of Europe, and in fact it furnishes Spain, Italy, France, and occasionally even England, with corn. The places whence the Dutch draw their grain are Poland, Elbing, Konigsberg, Flanders, and what they call the High Countries.

Flax. — There are three sorts of flax in Holland, *viz.* the flax of the country itself, that of the High Countries, and that of foreign countries. All these kinds are either raw or spun, and they are all subject to different duties, according to their respective species and qualities.

Wool. — Very little wool is exported from Holland, and what is obtained from the sheep of the country is chiefly consumed in the manufactures. The ancient race of sheep of the seven United Provinces has totally degenerated since the introduction of Asiatic sheep.

Wax. — A vast quantity is annually gathered in Holland · and the bleaching of it forms a considerable branch of industry among the poorer classes. A great deal of white wax is sent hence to Spain; it is packed in large cases, each of which weighs from 400 to 500 lbs. The best kind of this wax is called royal wax.

Fish — without exception, gives rise to the most important and ancient branch of commercial industry in this kingdom. The principal fishery is that of herrings. The Dutch herrings are more tender, of better flavour, and are less salted than the English. They are divided into three classes, namely, herrings prepared in fine salt; herrings cured in coarse salt; and empty herrings, as they are called, which sell for one-third less than the last-mentioned sort. The time of departure for the fishery is about the 24th of June. The cod-fishery commences in October, and ends in April; it is carried on upon the Dogger Bank. This fish is prepared and salted at sea; it is somewhat similar to the Newfoundland fish, and not only serves for the consumption of Holland, but forms one of its chief exports. The whale-fishery was formerly vested in a company, called the Northern Company; at present it is free, and is chiefly carried on upon the coasts of Nova Zembla, as far as Davis's Streights, and upon those of Spitzbergen, Greenland, &c. Each vessel takes with it four, five, six, or seven boats, and to each boat are allowed six or seven men. The vessels destined for Davis's Streights depart about the end of February, and those for Greenland about the end of April, or the beginning of May. They distinguish the whales into two sorts at Amsterdam; namely, finned, and cut whales.

Manufactures. — At Amsterdam are made stuffs, embroidered with gold and silver, damasks, brocades, taffetas, mohair, silks, velvets, velverets, velveteens, &c.; at Haarlem are made stuffs in imitation of those of Lyons; at Leyden and Utrecht woollen stuffs are manufactured, and in many parts of the kingdom linen-cloths of various qualities. Flanders lace continues unrivalled, and Brussels carpets and tapestry are too well known to need panegyric.

The following article, which we extract from "A Report of the Minister for the Interior, to the King of Holland," dated Utrecht, June 28th, 1808; after a public exhibition of sundry specimens of national industry, produced in Holland, will convey a tolerably just idea of the present state of the woollen manufactures in that part of the Netherland kingdom.

"The amelioration of Dutch wool is, without doubt, an object of the utmost importance to the cloth-manufactories in this kingdom. The advantage arising to these manufactories in being able to procure this article (at least a great quantity of it) within the country itself, added to many proofs of its good quality, must certainly tend to eradicate those prejudices, which are still maintained by a great many persons, against using Dutch wool. Several land-owners apply themselves more and more to improve the wool of their sheep, by crossing their breed with the Merinos, the result of which experiment fully answers expectation. The specimens sent from the greater number of cloth-manufactories in the kingdom, give the most incontestible proofs that this branch of national industry, formerly so flourishing, continues to be of the greatest importance. A larger consumption of fine wrought Dutch wool, with the introduction of improved machinery, will restore

to this part of our manufactories all its former lustre, in which case our cloths will easily vie with those made in foreign countries, as well in respect to price, as to quality. In this exhibition, so truly honourable to the Dutch nation, the Leyden cloth-manufactories certainly deserve the first place. The durability, beauty, and excellent quality, of the Leyden cloths, have been universally acknowledged during a number of years. The beautiful pieces of cloth, as well as of kerseymere, which have been sent to the exhibition by the manufacturers themselves, and also by the commissioners of the cloth-hall, confirm and even increase the old and well-founded celebrity of those manufactories. They are moreover so many proofs, that even, at the present time, cloth is manufactured in that city, which is comparable to the best that is made in this, or in any other country. These manufacturers having sent in the produce of their manufactories collectively, have rendered the distribution of prizes among them extremely difficult; and the commissioners have therefore been constrained by necessity to content themselves with simply mentioning the Leyden cloth-manufactory, in a most distinguished and honourable manner. But although the city of Leyden is justly to be considered as the emporium of the woollen-cloth manufactories, there are, nevertheless, places in other parts of the kingdom, where this branch of national industry is in a very flourishing state; and which possess manufactories, the produce whereof has attracted general notice.

"The blanket and frieze-manufactories, which particularly belong to this country, and wherein no other nation will readily dispute with us the precedence, continue still to be in a flourishing state. The different specimens sent in by the manufacturers of Leyden, in which city this important branch of Dutch industry is particularly established, are sufficient proofs that those manufactories, far from falling into decay, continue to maintain their ancient reputation, and have even increased it by new inventions. They are the more important, as the raw material is the produce of our native country; to which cause the continuance of their prosperity may be justly attributed."

The remainder of this important official Report, which consists of a statement of the present condition of the manufactures of carpeting, floor-cloth, hats, wrought silks and velvets, hemp, flax, cordage, thread, calico, paper, leather, iron, copper, wrought silver, &c. presents a most favourable picture of the progress made in these different branches of industry by the Dutch.

Amongst the manufactories of Holland may be enumerated the sugar-houses, as well as numerous manufactories of camphor, vermilion, sulphur, borax, lapis lazuli, pitch, tar, rosin, spermaceti, salt, tiles, and clinkers, which are spread throughout the country. Those of salt supply the Austrian provinces, the country of Liege, and some other parts of Germany. The oil-mills, and mills for cutting wood, are very numerous. A large branch of Dutch industry consists in the construction of ships. The yards for ship-building belonging to the Admiralty, and to the East India Company, are very considerable, and those of Saardam, in which Peter the Great served his apprenticeship, are still more so. The cordage made in Holland is very good, nevertheless the Dutch draw from Memel, Riga, Konigsberg, and Russia, great quantities of the article. The manufacture of paper is immense, as is the export of that article. Porcelain is made at Weish; but though it is very beautiful, it does not contribute to the commerce of the kingdom. The delft, made at Delft, has formerly been celebrated throughout Europe, yet what is made here now barely serves to supply Holland, and a few of the neighbouring States. The preparation of diamonds, that is to say, the cutting, polishing, and grinding of these precious stones, is confined to Amsterdam, where many artists are employed for the said purposes. The manufacture of skates is also of some consequence in this country. That species of spirits, so well known under the denomination of Geneva, or Hollands, is distilled from corn, and the quantities of it which are annually exported from Holland, for Germany, England, &c. are indeed immense.

Commerce. — The commerce of Holland is so very extensive, that we shall class each branch under a separate head. Formerly the East India Company of Holland might with justice be denominated the first, but at present it is nearly annihilated.

A West India Company was established in 1621, which has lasted till the present time. This company sends to its settlements coral, crystal, looking-glasses, knives, scissars, hatchets, coarse laces, linen, strong liquors, &c. and in exchange receives ivory, skins, gums, and a large quantity of gold, &c. &c. This company also engrosses the Dutch commerce with Africa, whither it sends hardware, in return for which it receives gold, ivory, skins, gums, and rice. Another advantage which it possesses, is that no vessel can bring salt from St. Ubes, without the permission of the company.

Commerce with the Levant and the Mediterranean. — The merchandise, which the Dutch send to the Levant and the ports of the Mediterranean, are, all sorts of spices, cocoa, ginger, tea, porcelain, painted linens, silks, satins, damasks, muslins, cambrics, fine Holland linens, besides those of Silesia and Osnaburgh; Dutch and English cloths, camlets, serges, white thread of Haarlem

and Flanders, tapes of Haarlem, narrow woollen-stuffs, vermilion, all sorts of dye-woods, elephants'-teeth, madder, Russian skins, whale-fins and oil, copper, brass, iron, lead, pewter, pitch, tar, rosin, musk, amber, mercery, hardware, salted and smoked herrings, salmon, tin, steel, &c. In return, the Dutch receive, from the Italian ports, all the various produce of that country (*see title* ITALY); from Palermo, the capital of Sicily, silks, sulphur, cream of tartar, fine sponges, &c.

Smyrna is the most trading, and the best peopled, port upon the Mediterranean; hither the Persian caravans and the vessels from the Islands of the Archipelago come, and hence the Dutch draw silks, muslins, cottons, camels' hair, rhubarb, Tartarian scammony, galbanum, tutty, various kinds of gum, and a vast quantity of other kinds of drugs; also maroquins, Cyprus cotton, currants from Zante and Cefalonia, mastic, corn, Angora goats' hair, opium, senna, coffee, yellow wax, alum, raisins, fine camlets, coarse Turkey grain, fine Metelin wool, buffalo-hides, sponges, mastic, saffron, galls, ashes for bleaching, shagreen, box-wood, aniseed, fustians, carpets, and various other kinds of merchandise. In return the Dutch send to Smyrna fine green, purple, scarlet, crimson, and violet cloths, all sorts of spices, ginger, cochineal, indigo, copperas, quicksilver, wire, Dantzick steel, English pewter and lead, yellow amber, tartar, morse-teeth, lapis lazuli, loaf-sugar, cassonade, red-lead, logwood, tin, Russian skins, Hungarian ducats and pieces of eight. From Constantinople the Dutch draw (either directly, or *viâ* Smyrna and Leghorn) goats' hair, camels' hair, silks, salted hides of oxen and buffaloes, sheep-skins, box-wood, aniseed of Gallipoli, spun and raw cotton, alum, rhubarb, scammony, camlets, benjamin, mastic, caviar, beautiful carpets, &c. &c.; from Alexandretto and Aleppo, galls, fine Turkish and Persian wools for the manufacture of hats, pistachio nuts, dates, yellow wax, spun and raw cotton, coloquintida, all sorts of silk, shagreen, painted linen, Persian carpets, ambergris, pearls, goats' and camels' hair, senna, adracanth, and gum-arabic, calamus, labdanum, galbanum, and drugs of various sorts, soap, kelp, incense, myrrh, maroquins, painted and embroidered handkerchiefs, Mecca balm, &c.; from Alexandria, coffee, dried ox-skins, linens, fustians, flax, incense, myrrh, saffron, gum-arabic, spun and raw cotton, sal ammoniac, curcuma, &c. &c.; finally, from Grand Cairo and Rosetta the same sorts of merchandise as from Alexandria.

Commerce with the North and the Baltic. — The Dutch vessels, for a considerable period, frequented the ports of Revel and Narva, in order to traffic with the Russians: at present they chiefly visit those of Archangel. These vessels set out in the following order, *viz.* five or six about the beginning of May, returning towards the end of September; the remainder depart about the beginning of June, returning in October. The Dutch vessels generally contrive to reach Archangel about the time of the fair, which commences on the 1st of September. The species of merchandise carried thither are, golden ducats, rix-dollars, paper, silk-stuffs, woollen-cloths, Canada beavers, spirits, wine, pewter, lead, white-lead, indigo, dyeing-woods, incense, sulphur, copperas, spices, mercery, hardware, herrings, pearls, diamonds, gold and silver wire, laces, toys, &c. The returns are, all sorts of skins and furs, masts, corn, rye, pitch, ashes, Russian skins, salted and dried hides, tallow, candles, bees'-wax, hogs'-bristles, whale-oil, seal-skins, isinglass, caviar, anchovies, salted and smoked salmon, &c. &c. The Dutch also carry on a similar traffic, but to a less extent, with Petersburgh, and indeed with all the ports of the Russian empire. The Dutch commerce with Norway is considerable, and 150 vessels are annually cleared from Holland for that country. The principal sorts of merchandise brought from Norway are masts, deal planks, pitch, tallow, ship-timber, goat-skins, dried fish, wood for fuel, cinders, &c. The commodities, for which the said returns are made, are golden ducats, rix-dollars, wine, spirits, vinegar, salt, spices, sugar, rice, almonds, raisins, prunes, tobacco, cheese, woollen-cloths, baizes, serges, some silken stuffs, woollen and cotton stockings, dye-woods, &c. The commerce with Denmark is less considerable than the foregoing; the commodities sent thither are similar to those exported to Norway, and the returns consist of masts, planks, pitch, tar, tallow, ox-hides, goat-skins, dried fish, flax, hemp, copper, iron, ashes, corn, and a large quantity of lean Jutland oxen. The Dutch send to Sweden the same kinds of merchandise as to the two foregoing States, and the returns are copper, esteemed the best in Europe, iron, brass-wire, warming-pans, copper basons, iron pots and plates, brass and iron ordnance, bullets, balls, steel, fire-arms, lead, copperas, pitch, tar, masts, planks, beams, rafters, and small vessels built of fir. Besides Denmark and Sweden, the commerce of the Baltic includes the trade with Livonia, Courland, Prussia, Pomerania, Mecklenburgh, and the duchies of Holstein and Sleswick.

Commerce of the Elbe, the Weser, the Ems, the Rhine, and the Meuse. — The Elbe is celebrated on account of the commerce carried on with Hamburgh, which is situated at a distance of twenty leagues from its mouth. The Dutch carry to Hamburgh, spices, drugs, mercery, sugar, olive-oil, herrings, &c. and receive in return wood, corn, honey, wax, tin, brass-wire, copper in sheets,

&c. &c. Bremen, which is situated upon the Weser, engrosses the commerce of all the countries which this river waters. The Dutch carry thither cloths, stuffs made from wool and silk, dye-woods, drugs, herrings, wines, brandy, &c. In return they receive iron-furnaces for the sugar-houses, &c. ironmongery of almost every description, wood, potash, honey, wax, coarse cloths and serges, Brunswick beer, or *mum*, wool, aniseed, down, writing-pens, linens, and grain. The whole commerce of the river Ems is carried on by Embden, which is a mercantile town of good repute, has an excellent port, and furnishes Holland with lean oxen, horses, Westphalia hams, linens of Munster and Paderborn; in return for which it receives the same kinds of merchandise as the Dutch send to Bremen. The Rhine, and the several rivers which communicate with it, afford the Dutch an opportunity of supplying the greater part of Germany, and even Switzerland, with spices, drugs, refined and raw sugar, herrings, dried fish, olive-oil, woollen and silken stuffs, ribbons, gold and silver lace, silk, thread, dye-roots, cheese, butter, dried fruits, soap, cottons, muslins, cambrics, coffee, tea, chocolate, and porcelain. The returns to Holland are, the wines of the Rhine and Moselle, iron-cannons, balls, grenadoes, carcasses and bombs, beams and planks of oak, earthen-ware, slates, and square stones for roofing the houses. The town of Coblentz, situated at the confluence of the Rhine and Moselle, furnishes Holland with wine, wood, Lorrain iron, &c. Cologne is the chief commercial port of the Rhine. From Frankfort on the Maine a considerable commerce is carried on with the Dutch, who send thither plain and embroidered stuffs, silks, cloths, and woollen stuffs, lace, ribbons, gold and silver lace, thread, hats, gloves, pins, needles, all sorts of Indian commodities, spices, drugs, dyes, pewter, lead, copper, &c.; and in return for which they receive wool, Italian silks, leaf-tobacco, potash, tartar, sulphur, &c. A commerce nearly similar to the foregoing is carried on between Holland and Leipsic. The commerce of Berlin is conducted through the medium of Hamburgh, and consists, on the part of the Dutch, in the export of silken stuffs, cloths, gold and silver lace, dyes, spices, drugs, muslins, cambrics, painted linens, laces, &c. and on the part of Prussia in steel and mirrors. Liege is the chief commercial place on the Meuse; the Dutch send thither woollen and silken stuffs, muslins, painted linens, dyes, spices, drugs, wines, spirits, and some other kinds of merchandise; in return for which they receive serges, coarse cloths, ribbons, horse-hair, alum, iron in bars and rods, iron-nails, screws, fire-arms, iron cannons and mortars, bullets, balls, iron pots, all sorts of mercery, steel, and hardware, sole-leather, slates, and coal.

Commerce with Spain. — The Dutch carry on a considerable traffic with Spain, particularly with Cadiz, whither they carry linen cloth of every sort, table-cloths, sail-cloth, twine and cables, muslins, cambrics, laces, gold and silver lace, woollen cloths and stuffs, silks, gauzes, ribbons, sewing-thread, fans, hogs'-lard, velvet, silken and woollen stockings, mercery, ironmongery, spices, drugs, cocoa; and (occasionally) grain, wood for ship-building, pitch, tar, ships built and rigged, paper, playing-cards, Russia skins, all kinds of military stores, herrings, salmon and other salted fish, butter, cheese, &c. &c. From Cadiz the Dutch draw gold and silver in bars, logwood, cochineal, cocoa, tobacco, quinquina, sarsaparilla, balsam of Peru, and a quantity of other sorts of Peruvian drugs, dried hides, precious stones, wool, wine, fruit, olives, olive-oil, salt, soap, kali, iron, steel, &c. From Bilboa the Dutch procure a quantity of Spanish wool, besides wines, brandy, chesnuts, prunes, hams, turpentine, rosin, pitch, honey, bed-feathers, and flax-seed. From Lyons, gold, silver, and silken stuffs, ribbons, and taffetas. From Marseilles, wines of Saint Laurent, brandy, olives, olive-oil, capers, anchovies, virgin-honey, almonds, figs, Zante currants, tunny, all sorts of Levantine and Arabian drugs, coffee, white and marbled soap, verdigris, perfumery of Montpelier, laces, silk-stockings, silk, cotton raw and spun, Angora goats' hair, camels' hair, and various other sorts of merchandise.

We have been the more minute in noticing particularly and specifically the countries with which the subjects of the Netherland kingdom carry on their commerce, as well as the articles of which it is principally composed, because they have been the great commercial rivals of the English, and are making extraordinary exertions to become so again.

Accounts are kept at Antwerp and Brussels in guldens or florins, each consisting of 20 patars, and each patar of 12 pennings. At Amsterdam in guldens, each consisting of 20 stivers, and each stiver of 16 pennings.

Norway, after having been united to Denmark for 500 years, was allotted to Sweden in the distribution of territory awarded by the last peace of Europe. Christiana is the present capital of Norway, but Bergen is the first commercial city. Drontheim was formerly the capital, but is much declined; however, it is now in some degree recovering itself, and has lately become somewhat celebrated for its trade in stock-fish, herrings, fish-oil, skins, and copper, which latter article abounds in the immediate neighbourhood, at a place called Rocraas. The lichens flourish particularly about this part of Norway, and the people have been lately taught to extract from them a valuable colouring material.

The *productions* are grain, wood, fish, beasts, and minerals; but the wood, fish, and produce of the mines alone contribute to the external commerce of the kingdom.

Wood, the chief source of riches to the inhabitants of Norway, and by supplying fuel for the working of the produce of the mines, and materials for the construction of the fishing and other vessels, may be said to form the basis of its commerce and industry, and to be the cause of attracting the vast number of vessels which frequent the Norwegian ports. Sydenfeld produces the most wood of any part of Norway. The trees which are cut down here for export trade have been estimated at an annual sum of 500,000*l.* sterling; in which computation are not included those cut down for home consumption, or for ship-building, and the construction of houses. The red fir-tree is the most common, and the most useful, of Norwegian trees; its close and resinous fibres render it supple, and at the same time durable, whilst the air, so far from injuring, indurates it. It is from Frederickstadt that those enormous beams, known by the appellation of *lod bielker*, are drawn, as are other round and flat pieces, from 50 to 100 feet in length, and deal planks an inch to three inches in thickness, from 10 to 14 feet long, and 8 to 12 inches in width. Christiana furnishes the best planks, but from all parts of Norway wood is exported. The qualities of the Norwegian wood render it peculiarly useful to the Dutch, who make use of it for piles, and in the construction of their dykes. It is at Christiansund and Acudahl that oak is met with; it is well adapted for ship-building, and is justly esteemed the best of the northern woods. Arendahl is the chief place for the construction of vessels made from this wood, which forms the sole object of its inhabitants' industry; insomuch that the whole town wears the appearance of an immense dock-yard.

Mines. — There are several; those of iron and copper are the principal. There are also some silver mines; and a gold mine at Egswold, from the produce of which some very beautiful ducats have been made. Copper is one of the principal articles of Norwegian merchandise: the mines whence it is drawn are situated seven or eight leagues from Drontheim, adjacent to the village of Steckbi. Iron, next to wood, is the most important of Norwegian commodities.

Commerce. — The Dutch carry to Norway grain, wine, brandy, vinegar, salt, all kinds of spices, sugar, rice, almonds, raisins, plums, tobacco, cheese, cloths, and every description of woollen and silken stuff. The returns are masts, deal planks, tar, tallow, goat-skins, ship-timber, cleft-wood for making casks, dried fish, copper wood for buildings, &c. and potash, alum, and vitriol, as also woollen stockings.

Poland. — *Productions.* — Many forests of fir, pine, beech, and oak, are to be met with in Poland, and this country also produces honey and wax. The feeding of oxen is an important object with the Poles, and these useful animals constitute one of the chief articles of their export trade. The kingdom abounds in horses, which are strong, swift, and beautiful.

Mines and Minerals. — Antimony is found in the Crapaak mountains, but not in large quantities; indeed the major part of that which is made use of in Poland comes from Hungary. Quicksilver runs spontaneously at certain seasons of the year from the mountains, situated six miles from Cracow; as likewise from those in the vicinity of the town of Baligrod in the palatinate of Russia. Iron-mines are very numerous in this kingdom; the most famous are those in the neighbourhood of the town of Kouskia, and near Stomkorgow. At Kouskia beautiful pistols and muskets are manufactured; and a vast deal of lead-ore is dug and melted both at Olkusz and Ziel. The Polish lead is more brittle than the German. There are a great many kinds of earth in Poland, such as yellow earth, brown ochre, red ochre, and chalk. Poland also produces marble, alabaster, onyxes, agates, chalcedony, opal, jasper, rock-crystal, amethysts, granites, topazes, and sapphires. The mountains of Crapaak contain rubies and diamonds, which resemble those of Bohemia. A great deal of salt-petre and alum is prepared in Poland, and sent to Dantzick. Vitriol, naphtha, and asphaltos are found in several parts of the kingdom. There is likewise a sort of yellow amber found in the earth, and a still greater quantity of it in the lakes. Coal is to be met with near Tenin, and near the town of Dobrin, on the borders of the Vistula; but no use is made of it. There are inexhaustible mines of salt in the palatinate of Cracow, near the town of Wielitska, in which the salt is hewn down in large pieces. Two kinds of salt are found here, namely, brown opaque salt, and that which is white and transparent, called crystal salt. It is reduced to small lumps, and packed in tons for exportation.

Manufactures. — There are but few manufactures and handicrafts; indeed scarcely any, if we except a little pottery, a few woollen cloths, and a fabric of coarse linen-cloth, which serves as clothing for the miners, and at Dantzick cordage and cables. There are glass-houses in the Palatinate of Cracow, and in other parts of the kingdom. At some places situated upon the confines of Russia, Russian skins are prepared, and at Dantzick ox-skins, and particularly sole-leather, which is sent to foreign

countries. In various places upon the borders of Turkey are manufactured maroquins, which come very near those of Turkey, and are generally known under the name of *Turkish maroquins.*

Commerce. — The exports of Poland are grain, particularly rye, oats, and millet, which are conveyed by the Vistula to Dantzick. This forms the chief traffic of the town. The other Polish exports are hemp, flax, flax-seed, hops, pitch, rosin, pot-ash, masts, planks, beams, wood of all sorts, horses, oxen, sheep, pigs, ox-hides, the skins of elks, roe-bucks, sheep, and goats, Russian skins, maroquins, bear-skins, tallow, wool, feathers, wax, honey, mead, beer, distilled waters, mineral salt, saltpetre, vitriol, lapis lazuli, lapis calaminaris, lead, iron, copper in small quantities, coal, glass, pottery, &c. All these species of merchandise, small in number or value, do not bring much money into circulation in Poland, in consequence of their being paid for by means of other manufactures and commodities of England, Holland, Spain, France, Italy, Hungary, Denmark, and the Baltic. What money the Poles *do* receive, is expended in the purchase of wines, particularly those of Hungary, which they highly esteem. They receive these wines by way of Mount Crapaak, in large tubs, drawn by oxen, which convey them to Cracow, whence they are sent to other parts of the kingdom. Some of the wines of Italy are also consumed in Poland; and, by the Baltic, small quantities of French and Rhenish wines are brought hither. The other merchandise brought into Poland are, spices of all sorts, vast quantities of which the Poles consume; English and Dutch cloths; woollen stuffs, stuffs made of goats hair and of silk, manufactured at Brandenburgh, in France, Italy, England, and Holland; the linen-cloths of Holland, Silesia, Lusatia, and other places, besides precious stones, gold and silver articles, valuable furs, salted fish, olive and whale oil, brass, steel, copper, pewter, with different articles made from these metals, and finally East, and West, India produce. The coffee trade there as in Poland is almost wholly in the hands of the Jews. After a time it is probable every thing relative to the commerce of this country will follow the fortunes of those states to which its different provinces are now become appendages, viz. Russia, Prussia, and Austria. The Russian portion, in which is Warsaw, the ancient capital, still preserves the name of a kingdom, of which the emperor of Russia is the sovereign. That part allotted to Prussia is called the duchy of Posen, from a considerable town of that name. The Austrian part is denominated the kingdoms of Gallicia and Lodomiria. Cracow belongs not to any of these divisions, but is made a free city under the guaranty of all the three powers. The emperor of Russia, in his quality of king of Poland, has instituted two annual fairs at Warsaw, one in May, the other in November, which may be the means of promoting some commerce in the kingdom. In Poland Proper, accounts are kept in zloti or florins, each florin consisting of 30 grosz, each grosz of 12 pfenings.

Portugal. — *Productions.* — The soil of Portugal is tolerably well cultivated. It produces wool, silk, wines, oil, grain, cork-wood, and excellent fruits; but the country is so mountainous and rocky, that many parts will not repay the pains of the cultivator.

No land remains fallow in the valleys; nevertheless there is but little corn grown throughout the country. The culture of the potatoe is rapidly spreading.

Wines — are the most important of Portuguese productions. The only wine which forms an article of considerable export from Portugal is that called Port wine; great quantities whereof are shipped from Oporto, principally for England. An idea of the extent of this traffic may readily be formed from the following statement of the quantity of wine shipped from Oporto in 1800, before the vineyards had suffered from the devastations of war, 54,210½ pipes were shipped, whereof 53,511½ pipes were for the British dominions. From Lisbon are annually shipped about 10,000 pipes of Lisbon and Calcavella wines, both of which are the produce of Portugal.

Brandy — is made in many parts of Portugal, and large quantities are used in the making up of the wines; and for some of it they get a vent in Africa; but European nations seldom, if ever, purchase any, on account of its indifferent quality; neither do their own settlements in America consume much of it, being amply provided with an excellent substitute in their rum and arrack.

Oil. — Almost every part of Portugal produces oil, whereof a vast deal is consumed in the preparation of food, and the manufacture of soap. The oils of this kingdom are in general inferior to those of Italy and France: a considerable quantity is bought up by the English. It is estimated, that between 2 and 3000 tons of oil are annually exported from Oporto, as well for England, as for Brazil, &c. A small quantity is also exported from Lisbon and Aveiro.

Fruit. — The sorts of fruit exported from Portugal are figs, oranges, and lemons. The growth of figs is almost entirely confined to the kingdom of Algarva, where that species of fruit is very abundant, and in quality far superior to those of Spain and Barbary. The English, the Dutch, and the Hamburghers, repair to Faro and Larghos, where they purchase figs in large quantities. Almonds grow in Algarva, but very few are

exported; the Portuguese use them principally as fodder for their pigs, and to this mode of feeding, the hams of Portugal owe their celebrity. The oranges and lemons are inferior to those of Spain, their rinds being thick, and their substance but small, nevertheless great quantities of these fruits are sent to England, Holland, and France. The greater part of the oranges and lemons grow spontaneously throughout the country, situated between Aveiro and Lisbon, from both which ports, as well as from Oporto, they are exported.

Honey.—A great deal is collected in the environs of Evora, Torres Vedras, and Abrantes, in the province between the Douro and Minho, and in the country around Orique.

Silk.—For the purpose of rearing silk-worms, mulberry-trees are cultivated in most parts of Portugal. The silk is in general of good quality, and in order to give life and encouragement to that trade, the export of the raw material is prohibited.

Mines and Metals—are numerous and abundant in Portugal; there are very few of the rivers in which grains of gold are not to be found, and as few mountains which do not contain mines. In addition to many gold mines, Portugal formerly possessed several diamond mines, which disappeared during the earthquake of 1755. This kingdom produces a great deal of salt, which is exported from Saint Ubes to most of the northern nations. In a creek upon the western coast, near Aveiro, much is manufactured for exportation. The Portuguese salt has the peculiar quality of preserving provisions better than that of any other nation. Iron ore is very scarce in Portugal; the only mine known is that situated in the province of Tra-los-Montes. A species of flint of excellent quality is found, in loose pieces of a foot, or a foot and a half, in thickness, in a reddish sand, in the neighbourhood of Azenheira, in Estremadura. This stone is made into musket-flints, of which vast quantities are bought up both by the government of Portugal, and that of Spain, for the use of the armies. They are carried on mules, like all other goods, and are sent as far as the interior provinces of Spain.

Manufactures.—There are cloths made in several towns, particularly at Lisbon, but they are very coarse; and indeed Portugal procures almost all her fine cloths from England. There are some silk manufactures in Portugal. The silken-stuffs of this country, though inferior to those of Spain, are far from being bad, in respect to quality. Hats are made at Lisbon, but this manufacture is not very extensive; the Portuguese furnish themselves, for the most part, with hats from England. The manufacture of soap is of some importance. The Portuguese not only make a sufficient quantity for their own consumption, but likewise for that of Gallicia and the other neighbouring Spanish provinces; they also export a great deal of soap to Brazil, and to their African, and Asiatic, settlements. There is a large glass manufactory in the province of Beira, but it produces very indifferent glass.

Commerce.—The commerce of Portugal is of two sorts, namely, that carried on with its own possessions, and that with the other European nations. The Portuguese do not carry on any considerable traffic with the different nations of Europe in a *direct* manner: the English, the French, Dutch, Germans, Danes, Swedes, Spaniards, and Italians, have houses and consuls established at Lisbon. The English have likewise a factory at Oporto, and inferior establishments at Ucana, Figeira, Favo, and in the island of Madeira.

With England, Portugal has hitherto carried on her greatest trade; on the part of England, that principally consists in the exports of baizes, shalloons, Norwich, Manchester, and Coventry goods, linens, printed callicoes, silken and woollen stockings, water-tabbies, the hardware of Birmingham, Sheffield, and Wolverhampton, manufactured silver, pendulums, watches, clocks, lead, shot, copper, pewter, coal, salted beef, pork, fish, and butter, grain, flour, biscuits, hoops, pipes, and all sorts of English manufactures. The commerce with England is far from being disadvantageous to Portugal, because the vast quantity of wine, lemons, and oranges, which the latter furnishes to the former, causes the balance of commerce in favour of England to be trifling. The English merchants enjoy many privileges in Portugal, and exemptions from the payment of many duties for the articles consumed by themselves and families.

The commodities brought to Portugal from the Baltic, are hemp, flax, Russia skins, Russia sheetings, sail-cloth; manufactured, bar, and cast iron, copper, wood for ship-building and other purposes; corn, rice, and barley in large quantities, wax, stockfish, pitch, tar, &c. The exports for Hamburgh and other northern ports, consist of salt, sugar, tobacco, whale-fins, wine, lemons, oranges, figs, cocoa-nuts, coffee, cork-wood, &c. The balance of trade is unfavourable to Portugal.

The Portuguese have possessions in Africa, India, and America. Formerly their African colonies extended from Tangier and Ceuta to the Red Sea. At present their settlements in Africa are Mazagan, in the kingdom of Morocco, factories upon the coast of Guinea, and in the kingdom of Congo, some forts at Melinda, Mozambique, &c. the latter being the place of residence of a Portuguese Governor Gene-

ral. They are the only Europeans, who, in conjunction with the Arabs, carry on commerce with Sofala, Mozambique, and Melinda, upon the eastern coast of Africa: this traffic yields immense profits, particularly that of Mozambique, which is rated at nearly cent. per cent., and hence it is not inaptly called the Peru and Chili of Portugal. It is here, too, that the gold of Monomotapa is exchanged for European and Indian commodities. The Island of St. Thomas, on the coast of Guinea, furnishes them with sugar of good quality. Besides their possessions on the African main, the Portuguese possess the Islands of Madeira and the Azores, Cape de Verd Islands, and those upon the coast of Guinea, whence they draw wine, fruit, &c. &c. In Asia the Portuguese possessions are the towns of Goa and Diu, extremely well situated for commerce, Macao in China, and some inconsiderable settlements upon the coast of Malabar. Only one or two vessels of about 200 tons burthen annually depart from Lisbon for Goa: the greater part of the cargo is money. The same sort of cargo is sent to the other parts of India, together with some corn, brandy, iron raw and manufactured, laces, hats, skins, &c. &c.

For the Portuguese kingdom of Brazil, *see title* AMERICA.

Accounts in Portugal, as well as in Brazil, are kept in Reis, and Milreis.

Prussia.—*Productions.*—Eastern Prussia is fertile in grain of all sorts. Bristles and wax form not only part of its productions, but likewise of its exports: but the most valuable commodities of Eastern Prussia are horses. Here is an immense stud of them, whither many people repair to purchase stallions. Sheep are likewise bred here, but the exportation of their wool is prohibited. The culture of silk is prosperous in Pomerania, and some is also gathered in Neumark; this last province also furnishes wool, which is made use of in the manufactures of the electorate of Mark. Besides the ordinary productions of grain, fruit, &c., Silesia produces madder of a middling quality, saffron in small quantities, with tobacco and wood. But these are as nothing in comparison to the flax, which this vast province produces, and of which is made linen-cloth, the sale whereof proves highly productive of riches to the kingdom. The wools are a no less precious production of Silesia; and it is computed that two millions of beasts, yielding wool, are bred in this province. The exportation of flax is not permitted, unless the crop prove very abundant, and that of wool is totally prohibited. This province likewise contains immense forests, in which grow pines and other trees, whence are procured pitch and tar; beech grows principally in the territory of Jagerndorf, and hence large quantities of turpentine are likewise drawn: the oak flourishes upon the banks of the Oder, and is principally made into pipe staves and tun heads. These articles, in addition to some wood for building, and potash, afford a very extensive and profitable export-trade; silk worms are likewise reared, and wax gathered in this province. The duchy of Magdeburg is extremely fertile, and produces grain in abundance. Salt forms one of its most precious commodities. The principality of Minden, and the county of Ravenburg, the latter especially, are fertile in hemp and flax. Rape-seed oil is exported from the principality of Ostfrise, which also furnishes some fat beasts and butter; but the most valuable of its commodities are its horses, a great number of which it exports; sending some to France, and others to Italy. White clay is found here, and manufactured into tiles; some flax is likewise gathered in this principality, of which are made very excellent linen-cloths. Mark contains considerable mines of coal of the best quality: there are besides immense salt-works, which supply the states of the king of Prussia with this necessary article; the surplus is sent to the northern nations. The greatest salt mines are at Unna. Most of the Prussian territories are rich in iron, copper, &c.; and from those contiguous to the Baltic sea, Europe is principally supplied with that singular bituminous substance, called Amber; the revenue from which single article to the state has been estimated at nearly 30,000 dollars.

Manufactures.—Tan-yards are very numerous in Eastern Prussia, but one of the greatest manufactures of this province is ship-building, not only for the Prussian merchant service, but for the use of other nations. Pomerania contains many manufactories of fine cloth, and other woollen-stuffs, part whereof are exported. The linen-cloth of Silesia forms a large branch of its industry, and gives rise to a very lucrative traffic; for these cloths are known, esteemed, and sought for, throughout the continent of Europe: they pass principally into Spain. At Berlin, and Potsdam, there are many silk-looms; the first of these cities boasts the exclusive possession of woollen, and cotton, factories. The manufactures of the rest of the province consist of silken velvets, ribbons, silk, and mixed silk goods of various kinds, dimities, fustians, skins, tapestry, embroidery, delft-ware, &c. Magdeburgh has some silk manufactories, besides some fabrics of cotton, and wool; but the starch and hair-powder made at Halle and Glauchau form its principal branches of industry.

Commerce.—The principal exports of Prussia are grain of every kind, masts,

planks, &c. tar, potash, the skins of stags and elks, leather, hides, yellow amber, wax, honey, manna, linseed and hempseed oil; flax and hempseed; thread, hogs' bristles, deers', elks', and stags' horns, oatmeal, flour, smoked salmon, stock-fish, sturgeon, caviar, lampreys, salted provisions, hogs' puddings, butter, tallow, fat of elks, and pullets. All these species of merchandise are conveyed, during the spring, by rivers and navigable canals, to Konigsberg, which is the depôt of Prussian commodities. About 600 vessels annually sail from this port, laden with the aforesaid articles, and in return bring home, as well for the consumption of Prussia, as of the Grand Duchy of Lithuania, wine from France and Halle; besides spices, cloths, silken stuffs, herrings, pewter, iron, copper, lead, tobacco, sugar, syrups, rice, box-raisins, coffee, tea, almonds, indigo, Brazil wood, fruits, &c.

The present extent of the Prussian territory is said to be 5000 square miles, with a population of more than 10,000,000.

Pillaw — is the harbour of Königsberg and Elbing, and is safe and commodious.

Memel — is situated on the river Dange in the Cornish Bay, by which it is united with the Baltic.

Dantzic — one of the first commercial cities in the north of Europe.

By means of these harbours almost all the trade of Prussia is carried on.

Accounts are kept at Dantzic in guldens or florins, each florin consisting of 30 groschen.

Russia. — It is altogether impracticable to give any thing more than the merest outline of the productions and commerce of this immense, and diversified, empire, in a work of this description.

Productions. — The soil of Russia is as various as the extent, and number, of its provinces are great. Those to the southward do not produce the same commodities as those to the northward; and in general this vast country is not cultivated as it ought to be. Livonia and Esthonia furnish corn, hemp, and flax, and Finland, planks, wood for carpenters' use, masts, and tar. The province of Smolensko produces oatmeal, corn, flax, and hemp. Ukraine, from the fecundity of its plains, and the temperature of its atmosphere, may be regarded as the paradise of the empire, as Siberia may, on the contrary, be considered the hell: the former furnishes corn, wax, honey, tobacco, flax, hemp, &c. Its soil is susceptible of every kind of culture. It affords pasture to large herds of cattle, and annually sends forth 10,000 oxen, which pass into Silesia and Saxony; and it is even pretended that some of these are sent to Paris. Although Ukraine produces no wine, the soil is very fit for the culture of vines, mulberry-trees, and olives. The provinces of Bielsgorod, Simbirsk, Penza, and Alatyr are, in conjunction with the preceding province, the granaries of Russia, and in them the culture of corn experiences a daily increase. Tallow, which is an important branch of Russian commerce, is brought from Kalumna and Tula, and other towns in the government of Moscow; but the greatest part comes from Orenburg, a new-built town at the mouth of the river Or, bordering upon a country inhabited by hordes of wandering people, who rear large flocks of sheep, the flesh of which they set no value upon, regarding only the skins, tails, and tallow, as capable of yielding them a profit. Orenburg is surrounded by melting-houses, where the fat of the sheep is boiled down in large cauldrons, and formed into cakes. The Baschirs, one of these tribes, take advantage of the snowy season to transport their commodities to Archangel and to Moscow, whence they pass to Petersburgh. The Russian tallow is divided into two sorts; the difference between these being, that one is browner, softer, and dirtier than the other. The prices vary according to their respective qualities. The government of Archangel produces tar, isinglass, wood, and beasts; its kine and oxen are of the Dutch race, and are larger than those of the ordinary species. The calves of Archangel are much esteemed on account of their size, and the delicacy of their flesh. Archangel also furnishes sheep, whose flesh is excellent, but their numbers are less than those brought to Orenburg. Siberia is, without doubt, one of the most useful parts of this empire, on account of its salt, its wood, its skins, and its mines. The province of Nertschinsk is the most fertile part of Siberia, and, if we may give credit to the assertion of a Russian writer, it is inhabited by no less than 25,000 agricultural labourers. Furs and minerals are the richest productions of Siberia. Its principal kinds of fur are beaver, sable, fox-skins, of various colours, those of squirrels, bears, rats, white and brown hares, &c. The best furs are sent to China, and the remainder to Europe, and throughout the empire. Siberia is justly denominated the Peru of Russia, for it possesses mines of silver, copper, and iron. The most considerable mines are those in the territory of Catharinenburg, in the neighbourhood of Buccaria and Argun. In the thirteenth volume of the "Acts of the Imperial Academy of Sciences, at Petersburgh," is an excellent memoir on the mines of Siberia, by M. Herman, under the title of "A Description of the Celebrated Silver Mine of Zmeof, in the Mountain Altai, in Siberia." This mine has only been worked since 1745, at the expense of the crown. It yields yearly 1,200,000 pouds of ore, and the whole produce from 1747 to 1793 was

34,441 pouds of silver, among which were also found about 1000 pouds of gold; so that the product may be estimated at 44 millions of roubles, or nearly one million sterling per annum.

The silver mines of Nertschinsk contain some veins of gold, as do the copper mines of Kolyvan. The Siberian copper is of a very good quality, and its iron little inferior to that of Sweden: this last metal is so abundant, and the mines are so numerous, that independently of the quantity which is made use of in the empire, about three or four millions of pouds are annually exported by way of Petersburgh. Solkamskoi and Permia produce the best salt of any parts of Russia: the salters of Archangel and Kola make use of it occasionally, but as it is of a corrosive nature, they in general prefer that of Ivica and St. Ubes.

Manufactures. — Manufactures in general are rather in a torpid state in Russia. Those which consist in the preparation of skins are the most flourishing. There are silk manufactories at Moscow, Jaraslou, and Jamburg. Cloths and other woollen stuffs are manufactured in Russia: but, the cloths, besides being of a very middling quality, are not sufficient for the consumption of the empire itself. The manufacture of coarse linen-cloth and sail-cloth is in a better condition than that of woollens, and great quantities are exported. Cambrics are made at Jamburg; and persians, printed calico, porcelain, and delft, at St. Petersburgh. Exclusively of these fabrics, there are also in Russia glass-houses, sugar-houses, salt-works, soap manufactories, tar-works, and founderies for all sorts of metal.

Woollen Manufactures. — There is but little manufacture of fine cloths, and the principal workmen are foreigners. Spanish wool only is employed in the fabric. The manufactories of ordinary cloths are numerous, and they employ the wool of the country, principally that of the Ukraine. Besides these, there are several other woollen manufactories, in which are made the coarsest kinds of cloth for the wear of the peasants and common people. It is in the Ukraine that these last-mentioned manufactures are principally situated.

Manufactures of Linen-cloth, Cordage, &c. —The chief of these are sheetings, white linens, sail-cloth, ropes, twine, and cables. The manufactories of sheetings of the best quality are three in number; two of which are situated at Jaroslou, upon the Volga, and one at Moscow. The two first employ 4000 artificers of both sexes; that at Moscow belongs to the descendants of the Dutch, born and naturalized in Russia. The white linens are much esteemed, and besides those which serve for home consumption, considerable quantities are exported to England, Holland, and some to Spain and Portugal. It is almost universally known that in Russia sail-cloth and cordage are its principal articles of commerce, and with these it furnishes all the maritime nations of Europe, France excepted. In the empire are also made shirts, trowsers, &c. for the use of seamen, from species of linen called *calamine*, *ravindok*, and *wlams*. The export of these articles is carried on by the Dutch and by the English, the latter of whom send them principally to the West Indies.

Silk Manufactures. — At Moscow and in its neighbourhood are made cut and close velvets, shags, petty-druggets, mohair, damasks for furniture, streaked and close taffetas, handkerchiefs, and stockings, but all these stuffs are of a middling quality. St. Petersburgh has manufactories of gauze. A great deal of blond lace is made in Russia, but it is far inferior to that of France. We should not omit to notice the manufacture of tapestry, which is established at St. Petersburgh, in imitation of the gobelins at Paris, from which it has borrowed its name. This manufactory produces pieces of silk ornamented with portraits of extraordinary beauty.

Maroquins, Red Skins, or Youfts. — This species of manufacture is one of the most important in the empire, and the best of the kind in Europe. The number of the manufactories is 100; the best and most esteemed are those of Vasil, Serpukow, Below, and Tula; and those of Casan, Schabaksar, and Jaroslou, situated on the Volga. The annual exports of *youfts* amount to 1,000,000 roubles. They are only exported from St. Petersburgh and Archangel. The skins of Russia are of six sorts, viz. 1. superfine skins; 2. ordinary fine skins; 3. middling skins; 4. ordinary middling skins; 5. skins of refuse; 6. *Rosswall*. The two last are the worst kinds. The best skins are those of Kostroma and Jaroslou; the next are those of Wologda, Novogorod, Moscow, Pleskoff, and Luga.

Iron-works. — The manufactory at Tula is the only one that Russia boasts in this line; here are made all sorts of iron and copper utensils, which find so ready a sale, that the better articles of English fabric are beginning to lose that reputation which they formerly enjoyed in Russia.

Masts — of a large size are the produce of the forests upon the borders of the Volga, the lesser ones are found near the Volkow. The sale of masts is the exclusive privilege of the crown, and none are exported unless by particular orders from the senate, when they are sent from St. Petersburgh and Riga. As to planks, a vast number come from the cutting mills situated along the banks of the Neva as far as Schlusserburg; but principally from those of Carelia, in the neighbourhood of Olonetz. They are all brought by small vessels through lake

Ladoga, and the Neva, to St. Petersburgh and Cronstadt. Potash at one time formed a principal article of Russian export, but the trade in this article is at present inconsiderable.

It would seem that the Russian government is anxious to improve the state of manufactures in the empire; for it has published an invitation to all manufacturers of cloth and weavers, in foreign parts, to resort to Russia, on advantageous terms; and gives them leave to settle either in the old cities of Russia, or in the newly acquired provinces. Government offers to pay the expenses of the journey; to furnish them with houses, looms, with their appurtenances, wool, and six months' maintenance. The workmanship of every piece of cloth to be paid prompt. When they have proved their ability, further advantages are proposed for them; and while they work for government, no advances made to them will be expected to be repaid: but if they work for their own account, they must make good those advances. By the ukases of the last three years promulgating the tariff duties, with the lists of articles prohibited from importation and exportation, an additional evidence is obtained of the prodigious interest which the present government of Russia takes in the advancement of manufactures and commerce. Our limits do not admit of any enumeration of these articles, or of any comparative estimate of the trade of Russia previous to, and since, the publication of the new regulations. All we can have room to add to the general statement we have given of the productions and manufactures, will be a classification of its different descriptions of commercial relations.

Russia, we know, is situated partly in Europe, and partly in Asia; and the European part divided into Great, Little, and White Russia. In such an immense country, the manner in which trade is carried on, must be very various: it will be best divided into five parts: 1. The trade with China, through Siberia; 2. The trade with Persia; 3. The trade with Turkey; 4. The inland trade; and 5. The foreign European trade.

1. *Russian trade with China through Siberia.* — Siberia is divided into two governments, Tobolsk and Irkutzk, with the exception of the district of Catharinenburg, which is a government of itself. The peninsula of Kamschatka belongs to the government of Irkutzk. The chief articles of the trade with China are furs, iron, copper, and other minerals.

Tobolsk— the seat of the governor on the river Irtisch, which near this town joins the river Tobol: it has an extensive trade: the merchants bring here leather, coarse grey cloth, linen, and all kinds of European merchandize; taking in return furs, iron, musk, beaver-skins, &c. During winter, the Calmucs bring cattle, provisions, and sometimes gold and silver. The Bucharians come in caravans in winter with wool, East India silks, and precious stones; also Bucharian cotton stuffs, which the merchants of Tobolsk either buy, or take in exchange for other goods, and afterwards sell at Samarcand. Tobolsk is the depôt for all furs delivered to the Russian government. — *Irkutzk* and *Tomsk* have nearly the same trade as Tobolsk, but not so extensive. — *Kiachta* consists of two factories; one for the Russian, the other for the Chinese merchants. The Russians exchange chiefly furs for Chinese silks, tea, aniseed, musk, tiger skins, &c. Formerly the trade to China was carried on by caravans sent annually by the Russian government; but it is now an open trade, on payment of certain duties: the amount of this commerce is between three and four millions of roubles annually. In the government of Catharinenburg are thirty-four copper mines, of which thirteen belong to government. The commerce of Kamschatka is not very important, consisting chiefly in the exchange of furs for European articles; the principal of the latter is brandy, which is, however, a monopoly of government.

2. *Russian trade with Persia.* — Besides Siberia, of which we have already spoken, the Asiatic part of Russia consists of great part of Tartary, which is divided into the governments of Astrachan, Orenburg, and Casan.

Astrachan — capital of the government of the same name, is a very populous town, and has a considerable trade; there are above 5000 foreign merchants resident here, of whom many have ships in the Caspian Sea: the principal commerce is with Persia, to which country woollens, furs, iron, steel, lead, linen, and other Russian products are exported; the imports are silk, from Ghilan and Samarcand, cotton from Mazenderan and Ispahan; drugs, tapestry, gold, pearls, and diamonds; which articles also constitute the trade of *Orenburg* and *Casan* (or Kazan), capitals of the above-named governments. The extension of this commerce with Persia seems a subject of particular interest with the present government of Russia.

3. *Russian trade with Turkey.* — The Cossacks inhabit one of the richest and most fruitful parts of Russia, comprising the governments of Kiew, Belgorod, Woron, and Asow. The country produces grain, tobacco, honey, and wax, with which a great part of the Russian empire is supplied. The principal places are *Kiew* and *Neschin*, in the government of Kiew. They have a considerable commerce with cattle to Poland and Silesia; a great smuggling trade in furs is also carried on to Königsberg and Dantzic, by way of Poland and Lithuania.

Tscherkask, the capital of the Don Cos-

sacks, may be considered as the centre of the Turkish trade, which has, however, much declined of late. The imports are wines from Greece, olive-oil, rice, &c.; the exports caviar, soap, leather, iron, and other Russian produce. A similar trade is carried on with the Cuban, and Crimean Tartars.

4. *Inland Commerce of Russia.* — Leather is a principal staple article of Russia, The tanned leather (youst) is the finest in Europe: the Russians are so jealous of keeping their pre-eminence in this article, that nothing certain has been ascertained respecting their mode of tanning. One of the chief distinctions of genuine Russian leather is a smell like burnt leather, which cannot be imitated. The best tanneries are at Serpuchow, Below, and Tula. There is but one manufactory of fine cloth in Russia, viz. at Iamberg; but there are considerable manufactories of coarse cloth, chiefly used for clothing the army, and a kind still coarser, for the peasants and poor people. Of hemp and flax are made linens, sail-cloth, cordage, &c. At Moscow, and other places, are silk manufactories; and in Tula so much hardware is made, that it supplies a great part of the empire. The manufactories of sail-cloth and cordage furnish one of the most important branches of commerce; tallow scarcely an inferior one, as it is the produce of distant provinces, whence little else comes. These form the chief articles of the *internal* commerce of Russia; and the two last-mentioned become, after their arrival at her sea-ports, the principal objects of her *external* commerce with Europe. Strangers residing in Russia are not permitted to engage in the inland trade, which is therefore entirely in the hands of the Russian merchants: these may be divided into those resident in some fixed place, who generally confine themselves to certain articles, and into travelling merchants, who go from one place to another, buying and selling; they often make journeys through great part of the empire, which last from five to ten years, and they seldom fail to acquire great fortunes. In the government of Moscow are the following places:—

Moscow, — the ancient capital, and the centre of the inland commerce, has extensive manufactories of silken and woollen stuffs, some tanneries, &c. There is here a great interchange of the several Russian articles of commerce, and extensive purchases are often made for Petersburgh, or Archangel account, of tallow, leather, &c. which the merchants from the more remote provinces bring to this market. *Jaroslaw* contains tanneries, silk, woollen, and cloth manufactories, several oil-presses, &c. *Tula*, (noticed before,) besides its manufactories of hardware, has also some tanneries.

The province of Novogorod is fruitful in flax, hemp, timber, wax, pitch, and leather. The three large rivers, Wolga, Dnieper, and Duna, as also the Ilmen lake, render the inland navigation easy; and Peter the Great, by uniting the rivers Twerza and Mista by means of a canal, united the Caspian and Baltic Seas. — *Novogorod*, the capital of the province on the river Volchova; as also *Vischnei*, *Wologok*, or *Wolotschock*, *Pleskow*, and *Twer*, have a good inland trade; *Novogorod* and *Smolensko*, each the capital of a government, are considerable places; *Makeriew* has a great annual fair in July, which is one of the most frequented, and the most important, in the Russian empire. It is in no respect inferior to the most celebrated fairs in Europe, such as those of Francfort and Leipsic, and is frequented by very great numbers of merchants, both Russians and foreigners, who bring goods to the amount of several hundred millions of roubles. In the summer of 1816, a great fire destroyed the buildings appropriated for magazines and shops. The consequence of this misfortune has been a determination to remove the fair to Nizni-Novogorod. The Russians, it seems, were much divided in their opinions on this subject, most of them thinking that as St. Marcarji was the founder and patron of Macariew, the fair could not be removed without offending the saint. Notwithstanding this superstitious idea, the removal of the fair to Niznei-Novogorod is determined on. The unoccupied ground there will be rendered proper for the purpose, canals dug, better landing places constructed, and a large stone building erected, containing all the requisite magazines, and measures will also be taken to facilitate the communications both by land and water. All these arrangements have been confirmed by the emperor. The works for the purpose of carrying them into effect are to be completed in 1821.

Inland Fishery. — The river Ural is one of the best stored with fish in the whole world, and the Russian government has left the fishery in it entirely to the Cossacks, under the condition of their sending to the army, when they are required, a certain number of regiments, which are equipped and mounted at their expense. The Cossacks are very rich, and they are indebted for their wealth chiefly to the fishery in this river, and the sale of the fish. The river Ural flows into the Caspian Sea; when winter approaches, the fish seek refuge in the river from the storms, which at that season visit the Caspian. They ascend the river in such immense numbers, that it is hardly possible to form an idea of it, and stop at different places where they find sufficient water, and food. The Cossacks carefully observe, before-hand, all the places, where such a mass of fish is collected, and

wait there patiently till the river is frozen over. On the 1st of January the fishery begins upon the whole river, from the capital town, Uralski, down into the Caspian Sea. Above, and below, the several banks of fish, the Hetmann first causes the river to be blockaded by means of large double nets extended across its whole breadth, which is effected by cutting in the ice a ditch, if it may be so called, two feet broad. As soon as it is certain that the fish cannot escape, the governor of Orenburg, and the Hetmann of the Cossacks, repair to a certain place on the bank of the river, and on both sides of it above 30,000 Cossacks are ready, each in his own sledge, drawn by a strong and swift-footed horse, and armed with a harpoon and an axe. By the order of the governor, a cannon is fired as a signal for beginning; hereupon the Cossacks all rush upon the river, and drive full speed to the fish-bank enclosed with nets, which is usually some wersts distant. Those who arrive first, are praised not only for the swiftness of their horses, but also for their courage, for this racing is attended with no little danger, because, if any one should be so unskilful or so unlucky as to overturn his sledge, all those that followed would infallibly drive over him. As soon as the Cossacks reach the place where there is such a bank of fish, they immediately cut a hole in the ice with their axe and thrust in their harpoon, and the quantity of fish is so great. that they never fail to strike one every time. The terrible noise caused by the driving of 30,000 sledges over the frozen river, naturally terrifies the fish, which try all to escape at once, but are hindered by the nets. The greatest difficulty for the fishermen, is to draw out the fish, and they are often obliged to call their comrades to assist, for they sometimes spear fish weighing 150 or 200 pounds; but in such cases they must divide the fish with him who assists them. This fishery continues the whole winter, during which the Cossacks dwell in tents on both sides of the river. They proceed successively from one bank of fish to another, down to the mouth of the river. During this time, the river affords a very peculiar spectacle; both its surface, and its two banks, are covered with a countless multitude of men, who are in constant motion. Traders come from the remotest parts of the empire, to buy the fish immediately from the Cossacks, with a great train of sledges, all loaded with salt; they constantly attend the fishery in its progress down the river to the sea. Every evening the Cossacks sell to them what they have caught during the day, and receive payment on the spot. The merchants send the fish (which are frozen quite hard) to Moscow, Casan, &c. and also an incredible quantity of the salted roe of sturgeon, known under the name of caviar. It is astonishing what a great number of different kinds of fish are found in the Ural, and they all attain an extraordinary size, particularly the sturgeon, salmon, and pike. The very best of these fish cost on the banks of the Ural not more than a halfpenny, or three farthings, a pound. The day when the fishery begins, the governor has the fish, which the Cossacks send as a present to the emperor, chosen from among the whole number, and sends them without delay to St. Petersburgh, where they arrive quite frozen. The quantity is fixed, and is said to be very considerable. In summer the Cossacks also carry on the fishery, but it is far less productive, and as the fish will not keep in this season, the Cossacks salt them immediately, and send them to the neighbouring towns for sale.

5. *Foreign European Trade of Russia.* — The exports from Russia to this country are hemp, flax, tallow, iron, tar, pitch, linseed, ashes, and some timber. For hemp, Riga is the best place in the Baltic, and Petersburgh the next; that which is exported from the other ports is inferior in quality and proportionably dearer. For pass-hemp and tow Liebau is a good place. Riga is also the chief port for flax, the sorting being very strictly attended to there; the quality from Pernau is equally good, and the sorting even better, but the quantity exported bears no comparison to that from Riga. Tallow is regularly cheaper at Petersburgh than in the other parts of the Baltic; it is also the best port in Russia for iron. For linseed, Riga and Pernau are the best places. Timber is mostly exported from Archangel, Narva, Riga, Pernau, and Wyburg; oak timber from Riga only. Archangel is the best place for tar; it is also generally cheap in the ports of Finland. Ashes are preferred from Petersburgh, although Riga ashes are equally good. Rye, oats, and wheat, of inferior quality, are chiefly exported from Liebau, Revel, and Riga, and very good barley from Arensburg, in the island of Oesel. Goods may be exported from any port in Russia; but only the following places may import foreign goods (except salt, which may be imported by every place): in the White Sea, Archangel; in the Baltic, Petersburgh, Riga, Revel, and Liebau; in the Black Sea, Odessa, and Theodosia; and in the Sea of Azof, Taganrog. Of colonial produce the chief article is raw sugars, mostly clayed; the duties, which are very high, being the same for all kinds. Crushed lumps are frequently imported as clayed; they are, however, prohibited, as well as all other refined sugars. At Petersburgh are the greatest number of sugar refineries, and therefore the greatest consumption of raw sugars: the next important place is Riga, and there is one refinery at Revel. The consumption of coffee in Russia is not

great, as they prefer tea, which they get by land from China; the coffee that goes to Russia must be of a strong bluish colour. The consumption of dye-stuffs is not great, as the Russian manufactories are not yet very considerable: logwood and cochineal are the principal articles at Petersburgh: raw cotton, cotton-twist, and white cotton goods, are frequently good articles, if not sent in abundance: St. Petersburgh is the best place for them. The importation of spirits is prohibited; but French red, and white, wines are frequently found in Russia. Coals are duty free, and pay well at Riga and Petersburgh. For salt, Riga and Liebau are the best places: it should be sent in the middle of summer, or just before winter sets in: formerly, only the salt from Wilitzka was used, which was a monopoly of government; it may now however be imported, it having been found that, notwithstanding the high duty, foreign salt can be laid down much cheaper than that from Wilitzka. Of the ports in the White Sea, the principal is

Archangel, — the capital of the government of the same name, a large populous city, which has a considerable trade: it was formerly the principal port in the Russian dominions, and the English traded here as early as the year 1553; but Peter I. transferred the greatest part of its commerce to Petersburgh. The exports are tar, deals, linseed, pitch, hemp, tallow, iron, leather, mats, and flax. The prices of tar and pitch are very uncertain, varying frequently from 200 to 300 per cent. in the course of a year; but both articles are generally cheaper here than in the Baltic ports. The shipping charges, exclusive of duties, are on tar about twelve per cent. and on pitch about thirteen per cent. The deals from Archangel and Onega are considered superior in quality to those from the Baltic, and are often much cheaper; the prices of linseed are generally high, mostly equal to those of good wheat; the charges are about nine per cent. without duty. Hemp is a principal article of export; the quality is much inferior to that from Riga and Petersburgh, but prices are proportionably cheaper. Iron, both square and round, is the same as that from Petersburgh; sometimes it happens to be cheaper, sometimes dearer. Tallow is generally of inferior quality. Flax and leather are not often exported, as they may be had equally cheap from the Baltic ports. In ordering goods from Archangel, it is usual to remit the amount to a house at Petersburgh, which sends the money in specie to Archangel by post. The imports are trifling, chiefly French wines, Brazil and Martinique sugars, coffee, spices, fruits, salt, &c. but not in large quantities.

Accounts are kept in Russia in rubles, each ruble consisting of 100 copecks.

Spain is well situated for maritime commerce, but the want of inland navigation renders the communication between the different provinces difficult. For this reason it is, that such as do not grow sufficient grain for their own consumption, are obliged to import it from other countries, chiefly from the Baltic.

Productions. — The productions of Spain are wool, wine, oil, soap, kali, salt, iron, fruits, such as olives, figs, almonds, capers, lemons, oranges, and chesnuts. The olive-oil comes from Majorca, Seville, and Malaga; the soaps and kali, fit for making glass, from Alicant, Carthagena, Valencia, and Murcia; salt from several parts of Spain, particularly the Isle of Yuna, and the Bay of Cadiz; and iron from the mines of Biscay, and Upper Navarre. The wines, game, fruits, and cattle of Spain are excellent. Butter is rare; the chief substitutes for it are oil and hogs' lard. The Spanish wools are the finest, and the horses the most spirited of any in Europe. The rivers and seas abound in fish, insomuch that the fishery of tunny alone has produced a revenue of 100,000 dollars to the Duke of Medina Sidonia. The grain, wines, oils, wool, and silk are, however, the chief sources of Spanish riches. Mines of gold, silver, copper, iron, salt, and quicksilver are to be met with in many parts of this country.

Grain. — Wheat, barley, various sorts of pulse, rye, and Turkey corn are here cultivated; there are no oats grown, and the inhabitants are obliged to import them from foreign countries. All the grain that grows in Spain is good, and extremely fine: in some provinces its growth is extremely rapid; and in Andalusia and Castile, there is so much more grown than they can consume, that about 2500 fanegues of corn (each fanegue being equivalent to about 100 lbs. British) are *daily* sent to Madrid. Nevertheless, many parts of the interior of Spain are badly supplied, owing to the exorbitant charges of carriage; for even in the trade between Madrid and the provinces, more than 30,000 beasts of burthen are obliged to be in constant employ. The annual consumption of grain in Spain is computed to be about 60,000,000 fanegues. The Biscayans carry corn into Navarre and Arragon; and the Castilians into Galicia, the Asturias, and even France.

Wines. — The wines of Spain are of two sorts, white, and red, which are both excellent. The greatest quantity of wine is produced in the southern parts of the kingdom, and its export to England and Holland is very extensive. Canary wines, though not of Spanish growth, are to be met with in abundance in this kingdom. The wine of Chacoli, in Biscay, is of a very middling quality. That of Guiclas is made with cherries, and is a sort of ratafia. The

wine of Foucaral, a village near Madrid, is red, and of a tolerably good quality. The wine of Val de Penas, Cuidad Real, Rivadavia, Rioxa, and those called La Mancha, are very good, and are by some accounted the best of Spain. The chief wines of Arragon are those denominated garnaches, from the kind of grape which yields them; the best of these is a red wine called *Hospital*, it is truly excellent, and is a capital stomatic. The wine of Caninea, called white garnaches, is very fine, and much esteemed. The wines of Peralta, Fudela, Tafalla, and Arandillo in Navarre, resemble the foregoing, and are very good. To these may be added the wine of Huesea, which is also good. Those of Xeres, (known under the name of sherry) in Andalusia, are dry as well as sweet, and, we need hardly add, are truly excellent: here are also the dry and sweet wines of Paxarete and Saint Lucar. The strong red wine of Rota (Rota Tent) is an excellent stomatic, and is frequently given to women after child-birth. The wine of Moutilla is dry. In the kingdom of Granada is made the wine called Malaga, or mountain-wine, which is both dry and sweet; also Pedro Ximemes. All these are delicious. That called Malmsey is exquisite, but the Maravella is only an ordinary wine. In the kingdom of Valencia is made Alicant tent, a wine well known in France; when new it is sweet, and becomes thick as its age increases; it is a good stomatic. That of Benicarlo is red and dry, and has been compared to Bourdeaux wine. In Catalonia are made two sorts of excellent wine, viz. Sichès and garnache. The mountain-tent, and the wine denominated Mataro, are strong ropy wines. The Spanish wines are chiefly exported from the following places: Malaga, Alicant, St. Maria, Porto Real, St. Lucar, and Cadiz.

Brandies — form a considerable object of Spanish commerce. Brandy is made in almost every province of Spain in which wines are produced, but much inferior to that made in France.

Raisins. — Grapes of various sorts are grown in every district of the kingdom, some of which are exported in their natural state, others made into wines, and the remainder dried, and exported. The greatest quantity of raisins is dried in Valencia and Granada. The sorts of raisins exported from Spain are as follow: Muscatel, bloom, sun raisins, and Lexias.

Oils. — Oil being used in Spain as a substitute for butter, is a very valuable article of internal commerce, and is seldom exported, except when the price is very low. The greatest quantity of oil is made in the kingdom of Valencia.

Ashes. — There are three sorts of ashes made in Spain, namely, barilla, bourdina, and aqua-azul; they are used in the manufacture of soap, glass, and crystal. Aqua-azul is a sort of superior barilla, and is made in the territory of Alicant only. The others are made in Valencia, Murcia, and Granada. Ashes, particularly barilla, form a branch of commercial export, the ports from which they are drawn, are Carthagena, Almeria, Almazaron, Alicant, &c.

Hemp. — The Spanish hemp, particularly that grown in Granada, Murcia, and Valencia, is very good.

Senna — is cultivated throughout Spain in the open fields, and thrives very well; many prefer it to the Levant senna, and besides large quantities consumed in the interior of the kingdom, a great deal is sent to France, England, and Holland. The late King Charles, wishing to encourage the exports of senna, has exempted it from the payment of duties.

Tobacco. — It is the tobacco that is grown near the little town of Trinity, and Saint Esprit, which is prepared at, and known by the name of, the tobacco of Seville; it enjoys a good repute, and is in effect fine and pungent.

Pitch and Tar — are made in various parts of Arragon and Catalonia, and in great abundance in the mountains of Tortosa, where fir-trees abound, and whence a sufficient quantity of these useful articles is drawn for the supply of the kingdom.

Sheep. — There are two sorts of sheep in Spain, the one is sedentary, and passes nearly the whole of its life in the stable, its wool is coarse and wiry; the other, which is continually exposed to the air, yields a very fine wool; this last sort passes at the end of every summer, from the northern mountains of Spain to the plains of Andalusia, La Mancha, and Estremadura, where they spend the winter. From the most exact calculations it has been computed, that there are about 5,000,000 sheep, of the best sort, throughout Spain. The wools of Spain are divided into three classes, viz. 1st, Segovia wool, so named, because it is produced by the sheep which are pastured in the neighbourhood of Segovia and Madrid, in Castile; 2dly, Soria wool, named from the town of the same name in Old Castile; 3dly, Seville or Estremadura wool. The Segovia wool is divided into *piles*, or heaps, formed from the wool of different flocks; the principal of these piles are Paular or Escurial, Infantado and Negreti, formerly called the Jesuits. The Soria wool is also divided into various sorts, the best is that called *Soria Melina*, among which are those of Villa-Real, Badillo, Narros, and Castelfrio. The Seville wool is divided into classes similar to the others. There are also wools of inferior quality, drawn from Spain, particularly by

he French. Every bale of Spanish wool, when exported, is marked with R. F. or S. The first letter signifies superfine, the second fine, and the last inferior quality. The best Segovia wool is marked thus, $\frac{R}{HB}$, signifying superfine of the Hospital of Burgos, and so of the other kinds. The commerce in the article of wool is very considerable; from Bilboa there used to be annually exported from 20 to 22,000 bales, and about one-third part as much from Saint Andero. These two ports are the most extensive in the exports of wool of any in Spain.

Beasts of burden. — The horses of Andalusia are well made and good, but mules are universally used for draught throughout Spain. They are better adapted for mountain travelling, from being surer footed, and requiring less food. They rise to 16 and 17 hands high. Their asses are remarkably large and fine. The exportation of both asses and mules is prohibited.

Skins. — Spain furnishes a great deal of goat-skins, named Cordovans (when dressed), from Cordova, where they are prepared. These skins, as also the moroquins, or prepared kid-skins, are exported to England, Germany, and France.

Silks. — The silks of Spain form one of the most precious productions of its soil, on account of their fineness and good quality. The silks of Valencia are superior to those of Granada, although the latter enjoy a very good repute. The chief Spanish silk-markets are Valencia, Murcia, and Granada.

Cork. — The Spanish cork-wood is much esteemed, and large quantities of it are exported.

Mines. — There are mines of almost every description in Spain. The principal silver-mine is that of Gualdalcanal, situated in Estremadura, twelve leagues from Seville. A Spanish author, *Alphonso Caranga,* tells us that silver, to the value of 60,000 ducats, is weekly drawn from this mine. *Bowles* says, that there are green and blue copper-mines in Estremadura, Sierra Morena, in the mountains of Sequia, in those between St. Andero and Reynosa, and at Molina. "The surfaces of all those mines," he adds, "wear the appearance of green and blue carpets, and the mines themselves contain precious stones." In every province of the kingdom iron is to be found. The iron-mines of Biscay are the principal; there is also a good mine at Somorrastio, where every one is at liberty to dig the ore and dispose of it as he pleases. The mines of Biscay supply the cannon-founderies, and the anchor-forges, of Lierganet and Cerada; balls are manufactured from this ore at Faqui, Azura, and Hier-Biera, and musket and pistol barrels are made from it at Placentia and Valencia. There is a mine of cobalt in the valley of Gistan, in Arragon. At a short distance from Santa-Cruz de Mudela, at the foot of Mount Sierra, there is a mine of antimony, nearly level with the surface of the earth. At Alcagniz, in Arragon, is a mine of alum-stone, which is better than that of Rome. In Spain, one-third of the uncultivated lands and public roads contain saltpetre in its raw state. There are also many salt-pits, not only in the interior of the kingdom, but likewise along the coasts, particularly those of Andalusia, Valencia, and Catalonia, and in the islands of Majorca, Ivica, and Fromentara. Salt forms one of the export articles of Spain.

Manufactures, as well as agriculture, have been in a flourishing state in Spain, We shall now proceed to detail them under their various heads.

Woollen Manufactures are not sufficiently considerable to employ the wool of the whole country, although those of Guadalaxara, Enguera, Onteniente, and Concenteyna, in the kingdom of Valencia, are very important. The cloths made in Spain are of a good quality; but although the wool is fine, it seldom is sufficiently cleansed prior to its being manufactured. In some provinces, besides ordinary cloths, are made baizes, serges, druggets, &c. Guadalaxara is the only part of Spain in which the famous cloth of Vigonia is made.

Silken Manufactures have been so much encouraged in this kingdom, that it is said there are above a million persons employed in feeding and managing silk-worms, as well as in manufacturing all sorts of silks, such as satins, damasks, tabbies, velvets, and various other stuffs. The principal manufactories of silk are those of Seville, Granada, Segovia, Toledo, Cordova, Murcia, Valencia, Saragossa, Valladolid, Medino-del-Campo, and Burgos.

Linen and Muslin.—There are manufactures of the latter article at the port of Santa Maria, the isle of Leon, and at Xeres. At the same places, painted linens, which have for several years past made a rapid progress, are manufactured. These articles were principally sent to Spanish America, and in 1792 there were exported from Cadiz for the above place, muslins and linens to the value of 100,000,000 reals of plate.

Cordage.—There is a sort of cordage made in Spain, called *sparta,* which possesses the peculiar qualities of floating on and resisting the water, and of sustaining no injury, or diminution, even by a continued friction against stone or other hard substances.

Paper is made, in small quantities, in some parts of Spain: it is not so white as the French, or Dutch, paper, but is, on the whole, tolerably well manufactured.

Hats of a very good quality are made in Spain, many of which used to be sent to South America. The duties upon the importation of foreign hats are excessively heavy.

In fine, Spain boasts many other manufactures, such as wax, bleaching, tan-yards, &c. all of which might, under a more favourable state of encouragement, and under the auspices of a more liberal internal policy, be augmented to an almost unlimited extent.

Commerce. — The commerce with Spain is divided into two parts, namely, that of its natural productions, which pass through all the ports of the kingdom, and that of the productions of America, which is engrossed by the port of Cadiz. In the present state of the struggle between Spain and her South American dominions, it is difficult to say what territory she continues to possess, and what trade she carries on. As it stood previous to the late revolution in the colonies, the course of trade was as follows: Different sorts of vessels, galleons, registered ships, &c. carried annually to Porto Bello the merchandise destined for Peru. Beside these, a fleet destined for Mexico traded to Vera Cruz. Having first disembarked their cargoes, they took in silver, precious stones, cochineal, indigo, cocoa, tobacco, sugar, and skins. They departed from Vera Cruz sometimes in the month of May, but most frequently in August, and proceeded to the Havannah in the Isle of Cuba, where they met with the galleons on their arrival at the Havannah; they dispatched light vessels to Spain with an account of their cargoes: thence they proceeded to the gulf of Florida, and passing the Bahama Islands, pursued a north-easterly course to St. Augustin, and so on to Spain. A registered vessel is that which has permission to carry merchandise to America, and to bring thence cochineal and silver. Spain carries on a considerable traffic with its West India settlements; for particulars, we refer the readers to the article America, under the head West Indies. Spain draws from Vera Cruz, gold, silver, cochineal, vanilla, skins, and jalap; from Santa Fè, the same articles; from Guatimala, gold, silver, cochineal, indigo, skins, sarsaparilla, jalap, cotton, wood, balm, &c.; from Maracaybo, tobacco, cocoa, indigo, raw hides, &c.; from Campeachy, logwood, skins, honey, wax, sugar, cassia, &c.; from Gayra, upon the coast of Caraccas, the best cocoa of America; from Havannah, sugar, tobacco, hides in the hair, tallow, ginger, aloes, &c.; from Porto Rico, sugar, ginger, skins, cotton-wool, oranges and other fruits; from Carthagena, silver, tobacco, cotton, cocoa, indigo, skins, &c.

Spain carries on a considerable trade with North America, whither it sends wines, particularly sherry; brandy, fruit, such as oranges, lemons, &c. and some gold and silver, besides precious stones, &c. From North America, she draws immense cargoes of corn, besides considerable quantities of wood, salted flesh and fish, tallow, spruce, and other commodities of trifling value. From her two islands in the West Indies, Spain imports sugar, coffee, small quantities of rum, ginger, pimento, and other spices; and in return supplies them with every species of European commodity of which they may stand in need.

The English carry on a greater traffic in the ports of Spain than the Spaniards do in those of England. The English vessels chiefly frequent the ports of Cadiz, Malaga, and Alicant, where, besides gold in ingots and bars of silver, they carry away wines, fruit, brandy, wool, ashes, and many of the commodities of Spanish America. English woollen-cloths, previously to the late disturbances in Spain, were prohibited from entering into the Spanish ports; nevertheless, the English found means to bring into Spain vast quantities of cloths, baizes, serges, perpetuanaes, &c. cotton stuffs and various other manufactured articles; likewise herrings and dried fish of different kinds.

The traffic of Spain to Holland consists of wools, shipped at Bilboa and other ports of the Bay of Biscay; at Cadiz, fruit, wine, oil, kali, soap, shumac, Biscayan lead, fossil salt, alum, flax, Canary wine, brandy, silk handkerchiefs, aniseed, vermilion, and pilchards. The Dutch sell the greater part of their spices and ambergris to the Spaniards, as also wax, which the former obtain from the Baltic. It is from the considerable traffic which the Dutch carry on with Spain, and those parts of America dependent upon this country, that they supply themselves with gold and silver, which they afterwards convert into articles of commerce, and send to different nations. The Dutch likewise derive another advantage, from their intercourse with Spain, namely, the capability of furnishing Russia, Sweden, Denmark, and Germany, with the commodities of the latter kingdom.

There is but a small number of vessels belonging to the ports of the Bay of Biscay, engaged in the commerce with Hamburgh, Dantzic, and the other towns seated on the Baltic. The Spaniards usually carry thither, however, Malaga, Tozo, and Rivadaria wine, brandy, vinegar, oil, olives, grapes, figs, raisins, lemons, oranges, wools, silken stuffs of Andalusia, raw silk, chocolate, tobacco, dyes and drugs. The returns are masts, tar, pitch, tallow, hides, &c. &c.

The Spaniards possess in Asia the Philippine or Manilla Islands, and the Marianas or Ladrones; and in Africa, Ceuta, Oran, and Annabon, and Fernando-del-Po Islands; hither Spain sends iron, fruits, glass beads, steel, fire-arms, some brandy, oil and other

commodities; and in return receives camwood, ivory, and gold dust. Accounts are kept in Spain in reals, each real consisting of 34 maravedis.

Scotland. — The soil of Scotland consists of every variety in nature; but its general character, in point of fertility, is much inferior to England, and Ireland. The highlands of Scotland have been compared with the moorlands of Yorkshire; and, of late, the principal nobility and gentry have formed themselves into a society, called *The Highland Society of Scotland*, giving premiums and various encouragements for the improvements of waste lands, and the amelioration of the breeds of black cattle and sheep. The soil produces wheat, rye, barley, oats, pease and beans, flax, hemp, hay, potatoes, &c. and almost every sort of crop in common with England, although not in such perfection, and at times precarious with the season. Scotland is certainly more fertile in oats, rye, and pastures, than in wheat, but still considerable quantities of the latter species of grain are grown in some counties, especially in Stirling, Dumbarton, and in the southern district of Ayrshire. The Scotch flax and hemp are, generally speaking, coarser than the Irish: abundance of these useful articles are annually gathered in Scotland; and the cultivation of them has been encouraged by divers bounties since the year 1763. Hops are grown in the southern shires, and their quality is tolerably good. The madder-root has been cultivated with success in Scotland, as has liquorice, but neither of these in very great abundance. Apples and other fruits are also produced in large quantities. Juniper shrubs grow naturally on the hills; and the *whortle* or *blae berries*, (vaccinium mertillum,) grow on the high mountains, in the greatest abundance.

Beasts. — The domestic animals are similar to those of England; but the native breeds of black cattle and sheep are considerably smaller, yet very excellent as articles of food. The Scotch oxen and runts are in general bought up by English graziers, and after being fattened in good pastures in England, are sent up to the London market. Immense herds of cattle are annually driven out of Scotland for this purpose. It is computed, that upwards of 120,000 sheep are each year sent into England, in which kingdom the greater part of the fleeces shorn in Galloway, Ayrshire, Nithisdale, and Tiviotdale are sold. The Scotch wool is improving very fast, and with a little attention on the part of the farmer and the Highland Society, will very soon equal the Spanish; the Shetland wool is as fine as any that can be procured from that country. Scotland feeds vast herds of goats; the skins of which give employment to many of the industrious inhabitants engaged in the making of women's gloves. Among the domestic animals peculiar to Scotland, may be classed those dwarfish horses, called *ponies, galloways*, or *shelties*, which are chiefly used for conveying articles of small bulk in panniers, from one part of the country to another. These little beasts are extremely sure-footed, and therefore well calculated for travelling in the mountains or highlands.

Birds. — Of the feathered tribe, the Scotch boast the exclusive possession of that beautiful bird, called *capercailzie*, or cock of the wood: but it is now extremely rare. The ptarmigan, the black game and grouse, are abundant in the heathy mountains; and the low grounds produce partridges, snipes, plovers, and various other birds.

Fish. — The cod and herring fishery is carried on all along the sea-coast of the Long Island, from the Butt of the Lewis to the Barra Head, but most successfully towards the extremes of that range; also, around the Isle of Sky, the islands of Canna, Muck, Tyre, Coll, Mull, and, in general, all along the coast of the main land, from the point of Ardnamurchan to Cape Wrath. The boats employed are generally commissioned from Peterhead. The price of these boats with sails, masts, oars, &c. is generally from 15*l.* to 16*l.* each; and a proper set of hooks and lines for each boat will cost from 12*l.* to 14*l.* The fishermen meet in the month of February, to arrange the business of the season; they then commence the fishing, which generally lasts until the month of July; at that time the quality of the fish becoming worse, and the shoals leaving the banks for other parts of the sea, the fishermen conclude for the season. It is no uncommon thing for a successful boat to have caught in this time from 16 to 18 cwt. of fish. These are sometimes sold to merchants in the country, who keep salt stores and other necessaries for fishermen. But, in many instances, and, in particular, the inhabitants of Barra and Uist carry the fish in their own boats to the Greenock or Glasgow markets. With respect to the herring-fishery on the coast of Caithness, during the season upwards of 80,000 barrels of herrings have been taken and cured! The Highland Society encourage the fisheries of Scotland. The Scotch fishers catch in abundance every species of fish known in the English markets, whither they even carry vast quantities of the best kinds.

Mines. — Scotland cannot boast of mines of the most precious metals. No mines are now wrought solely for silver, but the lead-mines are exceedingly rich in that metal. Iron ore is abundant; copper has also been discovered in many places, and there is a rich mine of antimony in Dumfries-shire; the other metallic substances are cobalt, manganese, &c. In the southern and midland districts coal is abundant. Lime-

stone, freestone, and slates, are found in every district; and many of the marbles prove equal, in colour and polish, to those of Italy. Pearls are found in the great horse-muscle, a native of the northern rivers; the sapphire is found, in several places, of different shades, from a deep red to a transparent white, and of equal hardness with the oriental, The topaz is found in the highland mountains; and the ruby and hyacinth mixed with the sand on the sea-shore. At Portsoy is found that singular kind of granite, called *Moses's tables*, which, when polished, the marks on it resemble Hebrew characters, on a white ground; besides these, there are many curious and rare fossils. Among the districts of metallic ores, there are many springs of mineral impregnation; the chalybeate waters are very numerous: at Moffat, near Edinburgh, are sulphureous springs.

Manufactures. — The manufactures of Scotland are at once various, considerable, and important. They consist chiefly of linen, thread, lace, muslin, variety of cotton articles; caps, stockings, &c. of wool; besides sugar, pottery, paper, and cannon.

In 1746, an association, composed of the principal nobility and gentry of Scotland, at the head of which was the Duke of Argyle, was formed, for the purpose of encouraging the linen manufactures; its efforts were crowned with every success that could be wished for. Some French Protestants, who had fled from persecution in their own country, took refuge in Scotland: to these refugees is to be attributed the improvement in the mode of bleaching, and the perfection to which that art has been brought in North Britain. The Scotch laces are principally composed of thread, very few silk laces being made in this country; they are considered to be equal to the Buckinghamshire articles. The manufacture of long lawns has been established since the year 1765, and succeeds extremely well: Scotch cambrics and muslins are also in high repute, and sell well both in the English and foreign markets. *See title* COTTON. Paper of the very finest description is made in many parts, which, as well as the coarser sorts, finds a good market at Edinburgh and London. The Scotch plaids, or cross-barred and particoloured stuffs, known by that appellation, are made of silk; but more frequently of worsted. That made of silk is generally used in the formation of ladies' garments, such as pelisses, gowns, shawls, ribbons, &c. The worsted stuff is chiefly consumed by the lower orders of people in Scotland, who make it into petticoats, cloaks, stockings, &c. There are not many manufactures of fine woollens in this country, but of the coarser kinds of woollen goods there are several. The preparation of kelp has, of late years, become important among the manufactures in Scotland. The principal situation for kelp is in Long Island. The manufacture was introduced by certain Irish adventurers, about 60 years ago. Before that time, the manufacture of the article was wholly unknown on the north-west coast of Scotland. Some inhabitants, profiting by the example of the Irish, commenced the kelp business themselves; and, having gained considerably by the undertaking, the system became general. The manufacture has gradually extended from that period, down to the present time; and, on some estates in the highlands, affords now no inconsiderable share of the revenue arising to the proprietor. A great part of the kelp is made from cast or drift ware, which comes ashore, on the west coast, after a gale of westerly wind. This ware, if not instantly secured, is often drifted back again to the sea; and although it may afterwards return to the shore, it is in general found, in a few days, to have lost so much substance, as to be utterly unfit for its original purpose. It requires 350 horse-loads of ware of this description to make a ton of kelp; and, it may easily be conceived, that without a number of hands, always ready on the watch to secure the floating ware, no great quantity of kelp could be made. The rest of the kelp in these islands, is made on the east coast, from the growing ware found in the bays and arms of the sea, and often on sunken rocks, at some distance from the shore. Great part of this is cut, and floated ashore on rafts, or in boats, and is attended to the maker with no inconsiderable degree of toil and risk. To expedite the business, and for mutual convenience, the kelpers generally form themselves into small parties, make a joint stock of their ware, and divide the manufacturing price at the end of the year. This manufacture is, at all times, and particularly in a rainy season, a difficult and precarious business: and generally can only be carried on in the months of June and July, and the two first weeks in August.

Commerce.—The number of sea-ports in Scotland, combined with the industry, activity, and commercial abilities of the inhabitants, render the external trade of this country most flourishing. And in no part of the United Kingdom has greater improvement in *internal* commerce taken place than here, from the number of canals that have been made of late years; and which, brought into one point of view, are as follow:

1st. The Forth and Clyde canal uniting these two rivers, being cut from near Grangemouth in the former river, and within 10 miles of Glasgow in the latter.

2d. The Caledonian canal, running in a direction nearly east and west, from near Inverness on the east coast, through a number of lakes by Forts Augustus and William, to the west coast, making a complete section of Scotland, completed in October, 1822.

3d. A canal uniting the rivers Tweed and Solway.

4th. The Union canal, recently commenced, to communicate between Edinburgh and Glasgow, independently of the rivers in their neighbourhood.

Scotland exports salted provisions, such as beef and pork; oxen, kine, butter, cheese, wool, smoaked and salted fish, fish-oil, iron, lead, timber, woollens, silken and woollen plaids, linens, laces, muslins, lawns, cambrics, kelp, glass, and other articles of less considerable importance. She has this considerable advantage, in a commercial point of view, namely, that she exports more merchandise than she imports; and, consequently, that the balance of trade being continually in her favour, her wealth experiences uninterrupted augmentation. The balance of commerce, between England and Scotland, is invariably in favour of the latter; and the merchandise which the former sends hither, bears no sort of proportion to what she imports thence. Scotland draws little from England besides woollen cloths, and some silken goods; whereas she supplies the mother country with immense quantities of butter, cotton-goods (afterwards printed in England). The same may be said with regard to the trade with Ireland: the balance is always in favour of Scotland, and until within these few years, the latter not only supplied the former with abundance of coals (which branch of trade is still maintained), but with many cargoes of West India produce. To enumerate the different branches of external commerce in which Scotland is engaged, would be merely to repeat what, with little exception, we have already said respecting the commerce of England; we shall, therefore, conclude our general observations, and proceed to notice the principal trading places of this kingdom, as the best mode of conveying a precise notion of the extent and importance of Scotch commerce and manufactures.

The port of *Aberbrothick* (commonly called *Arbroath*) is of great antiquity, and has a good trade for coals and lime. The manufactures here are chiefly brown linens and osnaburghs. It exports thread, barley, and wheat, to England; and imports flax, flax-seed, timber, &c. from the Baltic.

Aberdeen, — consisting of two towns, the old and the new, is, so far at least as concerns the latter, a place of flourishing commerce, and rising manufacture in calicoes, linens, and threads. It is reckoned the third town in Scotland; its harbour at the mouth of the Dee is defended by a strong stone pier twelve hundred feet in length, consisting of the finest granite, and erected at an expense of at least 20,000*l*. The tonnage of shipping built at, and belonging to the port, is considerable, its fisheries profitable, its manufactures in the articles before mentioned thriving, and with its traffic of exports to Germany and the Baltic, furnish subsistence, and even opulence, to a population (on the two towns together) of near 30,000 persons.

Annan — exports, yearly, from 20 to 30,000 bushels of corn, and has a good coasting trade.

The town of *Ayr* had formerly a considerable trade, but the rise of Glasgow has diminished it; though of late years it has, to a certain degree, revived. It is situated at the confluence of the Doon and Ayr, and has two reflecting light-houses to conduct vessels safely into the harbour. The river Ayr is subject to the inconvenience of a bar of sand, particularly when the wind blows strongly from the north-west. The two rivers have great plenty of salmon. Companies are established here for curing white fish; though the principal trade is in the exportation of coal to Ireland, in which about 2000 tonnage of vessels are employed.

Dumbarton — suffered most materially during the wars in the 17th century, which nearly annihilated the trade, to which its extensive salmon fishery gave rise. This branch of industry and commerce has, however, of late years experienced a complete renovation, and the town sends immense quantities of cured salmon to most parts of Europe, besides a vast deal of the fresh fish to the populous cities and towns of England and Scotland. Some tar is made in the vicinity of this town, which abounds in fir-trees of the finest species. The chief manufacture is that of glass, and there are several bleach-fields on the banks of Leven water.

Dumfries — has imported 30,000 tons of tobacco per annum, from America; and, in time of peace, carries on a good trade with France; principally a contraband trade.

Dunbar — has a safe harbour, and is defended by a strong battery. Here are a large and convenient dry-dock, and two considerable rope-walks. The herring-fishery is carried on so extensively at this place, as not only to supply the demand of the vicinity, but to admit of a considerable annual export of the article. The mode of curing the herrings, as practised here, is similar to that pursued by the Yarmouth fishers: the Dunbar herrings are larger than those of the latter place. There is a vast export of corn hence, and about six vessels are each year sent to the whale-fishery.

At *Dundee* — the river Tay is $2\frac{1}{2}$ miles broad, and affords a safe road to vessels of large burthen, and there are upwards of 120 vessels, in different trades, belonging to the ports. On the quay are several new ranges of warehouses. Dundee exports large quantities of grain to London, and the same commodity to Amsterdam; three or four vessels likewise depart hence, every year, for the whale-fishery. The principal ma-

nufacture here is that of linen, particularly of osnaburghs, canvas, bagging, &c. for exportation; and the Dundee coloured thread has long been in high repute. This place supplies most of the adjacent country with English commodities, principally brought from London by the smacks. The inhabitants are in number, 30,575. They have a good salmon-fishery.

Dysart — has about 700 looms employed in the manufacture of checks only. A number of hands are also occupied in ship-building here. It has a very good harbour, and about 35 vessels employed in the coal and foreign trade. Vast quantities of salt are made in the neighbourhood; and the inhabitants of the surrounding villages are mostly engaged in the manufacture of nails, and other species of coarse iron-work. The coal and iron mines in the vicinity, are abundantly productive.

Edinburgh. — The chief manufactures of Edinburgh are cambrics and stockings; and there are, likewise, various other arts exercised in the city and its vicinity, connected with the supply of the various demands of the inhabitants of this large, populous, and wealthy place. Its population is now reckoned at 138,235; but its trade being mostly carried on at its suburban seaport, Leith, we must refer the reader to that article.

Glasgow, — with respect to trade, commerce, and manufactures, may be considered the chief city of Scotland. Pit-coal, and other articles required for the establishment of manufactories, are found in abundance in the whole of the surrounding districts, on both sides of the Clyde. Some of the pits are worked near the city, and even in the suburbs, especially at Camlachie. The annual value of the produce of the coal-mines is estimated at from 30 to 40,000*l.* sterling. Over the coals there is a thin, but very rich, stratum of iron-stone. This was formerly considered as an incumbrance, but since the erection of the Clyde iron-works, it has been employed in the most advantageous manner, and affords a new source of employment to a great number of persons. In early times, the trade of Glasgow chiefly arose from the curing of salmon and herrings, which were for the most part sent to France, whence wines and other commodities were received in return. In 1609, the population of Glasgow amounted to only from 7 to 8000; 50 years after that period it was from 14 to 15,000; in 1755, it had increased to 27,415; and in 1775, to 43,000. From the census in 1821, it appears to have increased to 147,043, without including the suburbs and adjoining places. The Clyde was formerly so shallow, that only vessels of 30 tons burthen could come up to the quays; but since 1771, the bed of the river has been deepened sufficiently for lighters of from 70 to 90 tons burthen. The superintendance of the navigation of the river is entrusted to a Board called the Commissioners of the River Clyde. Port Dundas is a bason at the end of the collateral cut of the great canal, distant 23 miles. The Monkland canal goes from Glasgow about 10 miles to Airdrie, and serves chiefly for the conveyance of coals from the neighbourhood of that village. The merchants and tradesmen assemble at the Tontine Coffee-house, for the purpose of transacting business. In the Tontine buildings goods are sold by public auction; and there is a large room where the merchants show samples of sugar, &c. each having his own stand, with drawers. A book is kept of all the transactions, and bargains are concluded on the spot. There are nearly twenty banking-houses in Glasgow; and as many offices of insurance. Most, if not all, the insurance companies of London have establishments here, beside which, there are others kept by natives as well as foreigners.

The police of the city of Glasgow is governed by a lord provost, three baillies, dean of guild, and deacon convenor *ex officio*, and twenty-four commissioners, chosen by inhabitants possessing houses of 10*l.* yearly rent and upwards. The funds for defraying the expense to be raised in the following manner:

On the yearly rent of subjects rented or valued	*An annual Assessment not exceeding*
At 4*l.* and under 6*l.* sterling yearly - -	$3\frac{1}{2}$*d.* per pound sterling.
At 6*l.* and under 10*l.* do. - -	5*d.* do.
At 10*l.* and under 15*l.* do. - -	7*d.* do.
And at 15*l* sterling yearly or upwards -	10*d.* do.

The city is divided into twenty-four wards, or districts; under the inspection of twenty-four commissioners, chosen upon the first Monday of September, annually. The streets are designated by name, the houses numbered, and the whole city watched, and in all respects regulated much after the manner of London.

The principal articles of exportation from Glasgow, and the ports farther down the river, to America, and the West Indies, are British manufactures, coals, fish, &c. To the continent of Europe, and the ports in the Baltic, besides British manufactures, raw and refined sugar, coffee, cotton, rum, and other productions of the western hemisphere, Glasgow imports from the West Indies and America, the principal articles of growth or manufacture there, such as coffee, cotton, sugars, rum, wheat, flour, mahogany, staves, pot and pearl ashes, fruits, &c.; and from Spain and Portugal, wines and other productions of these countries; from the Baltic, wood, iron, flax, hemp, pitch, tar, Russia

linens, and wheat. To Ireland, Glasgow sends manufactures, and in return receives hides, grain, salted beef, butter, meal, linen cloth, &c.

The combined powers of foreign trade, coasting trade, and manufacture, the two last of which have made, and still continue to make, such prodigious strides, now operating on each other with redoubled energy, are plainly discernible in the rapid increase of its population (now next to that of the metropolis) and of new buildings, and bid fair to secure to its industrious and enterprising inhabitants, a growing and permanent fund of wealth and prosperity.

As the Union gave new life and energy to the commerce of Glasgow, so it appears to have been one of the chief causes of the rise and prosperity of the manufactures. But long before the Union, the manufacture of plaids was carried on here; likewise a soap work, and one for making ropes. It was between the period of 1725 and 1750, that the spirit of manufactures first became prevalent, and as it has been ever since increasing in energy, and diffusing its influence, its effects for several years past have been wonderful. The variety of manufactures now carried on in every branch is very great, but that which seems of late years to have excited the most general attention, is that of cotton cloths of various kinds, together with the arts depending on it. In order properly to conduct this manufacture in all its branches, cotton-mills, bleach-fields, and print-fields, have been erected on all the streams in the neighbourhood, and even in situations more remote; neither is this trade altogether confined to the workmen in the city, several thousand weavers being employed by the manufacturers in Glasgow, who live in the country, even to a distance of 30 or 40 miles. By a computation which was made in the year 1791, it was said there were upwards of 15,000 looms employed in this branch; that each loom gave employment to nine persons at an average, in the various stages of the manufacture, including women and children, in all 135,000 persons; and that each loom, at an average, produced goods to the value of 100*l.* per annum, making in the whole the sum of 1,500,000*l.* sterling; since then, the increase has been prodigious. This manufacture is not only important of itself, but is productive of work to many thousands of bleachers, tambourers, calico-printers, &c. &c. many of whom being women and children, whose work was formerly unproductive, renders it of still more general importance. All kinds of pottery, together with bricks, tiles, &c. &c. are made here in abundance. Hats for exportation; also men's thread, and cotton, stockings, and gloves of all kinds. Snuff, shoes, saddles, ropes and cordage of all dimensions, soap and candles, and refined sugar, bottles of green glass, and flint glass manufactures, have arrived to great perfection. The cutting of glass is executed with taste. About the year 1792, a very extensive brewery was erected, and since that time there have been several others, even to such an extent that their produce has been estimated at little less than 100,000*l.* per annum. The first bleach-field in the neighbourhood was under the patronage of the trustees for manufactures, &c. begun about 1790. Oil of vitriol, an article requisite in the process of bleaching, is manufactured here in a considerable quantity; before 1750, what was used was brought from England and Holland. The cudbear manufacture is also carried on here: it was begun in 1777: this is a manufacture for making a dye-stuff, employed chiefly in the woollen, and silk, manufactures of Britain, and is made from an excrescence that grows upon rocks and stones, a species of the *lichen* or rock *moss*, which, with certain chemical preparations, makes a dye-stuff called Cudbear. The dyeing of Turkey red on cotton was established here earlier than in any other part of Great Britain, viz. 1785. One Papillon, a Turkey red dyer from Rouen, was brought to Glasgow, and an extensive dye-house was built at Dalmarnock, in the neighbourhood, where cotton is dyed a real Turkey red, superior in beauty and solidity to the East Indian colours. Since then, from the publication of the process, several others have been erected for the same purpose, at which several hundred men are employed in dyeing that colour alone. By means of these establishments the manufacturers are enabled to make cotton pullicate handkerchiefs, not inferior to any in the known world. Another manufacture, a substitute for sugar of lead, called the red liquor or pyroligneous acid, in the dyeing and printing business, is carried on here. The art of type-founding has long been carried on here with deserved reputation, and can boast of being equal to any in Britain, perhaps in Europe; the exactness of the types, and the durability of the materials, give them a decided preference.

Greenock. — The harbour of Greenock is very commodious, and has lately been improved at a great expense; a kind of basin is formed between two semi-circular quays, which contain sufficient depth of water for vessels of the largest burden. At the beginning of the last century, Greenock was merely a collection of fishermen's huts, without trade or harbour, and in the middle of the same century had scarcely 4000 inhabitants. From the time of the Union till the American war, the trade of Greenock depended almost entirely on that of Glasgow, merchants of the latter being the principal owners of the shipping: but now the chief portion of the shipping belongs to merchants settled here, who carry on the greatest part of the trade on their

own account. Before the revolt of the colonies, all the ships belonging to the Clyde were built in America; but since 1783, ship-building has been carried on with the greatest activity at Greenock. In 1791, a ship of 1100 tons, called the Caledonia, was launched. The manufacture of sail-cloth, cordage, and other articles required for the rigging of ships, as well as the making of nets and other tackling for the fisheries, employ a great number of the inhabitants. The refining of sugar is at present the principal manufacture. Greenock carries on a very considerable trade with America and the West Indies, whither the merchants export the muslins and other manufactures of the adjacent districts; and import in return, rum, sugar, cotton, coffee, rice, grain, potash, timber, &c. From other countries they bring wine, fruits, oil, naval stores, and a variety of other articles. The vicinity of the great canal presents superior facilities for forwarding West India commodities to the north of Europe.

Haddington — is seated on the river Tyne, by means of which it carries on a tolerably good trade. Here is a manufactory of coarse woollen cloth, beside manufactures of shalloons, baizes, long ells, Worcester plushes, and carpets. Prior to the Union there was a company established at New Mills, in the vicinity of the town, for the purpose of carrying on these manufactures; but on the two kingdoms being united, this association was dissolved. There is a weekly market in this town for the sale of woollen cloth, which is sold in the state in which it comes from the loom, being fulled and prepared for use by the buyers, who mostly reside in the neighbourhood.

Inverkeithing — has a large and safe harbour and bay, which afford excellent shelter for ships in all weather; hither his Majesty's ships of war sometimes come from Leith roads, and ride at anchor to avoid the winter storms; and merchant ships from the Mediterranean formerly used to perform quarantine here. The harbour itself is a small bay, at the mouth of which, on the west side, lies a floating lazaretto, where, instead of detaining ships from foreign ports, the particular goods in which any infection may be supposed to lodge, are immediately received, aired under the direction of a proper officer, and delivered within a limited time to the owners. There are sometimes between 40 and 50 vessels from different places, waiting here for coals, especially in the winter season. Several ships belong to this port, but none of any considerable burthen; some of them sail to foreign ports, and the others are employed in the coal, and coasting trade. Not far from the town, a lead-mine was discovered, which belonged to the Earl of Morton, but after being wrought some time the lead disappeared. A herring-fishery has lately been begun on the coast: here are several salt-pans, and an iron-foundery.

The chief manufactures of *Inverness* are of hemp and flax, and some of cotton and woollen; there are also several tanneries, brick-works, &c. The harbour of Inverness is safe and commodious; vessels of 200 tons can unload at the quays, and those of 500 tons can ride with safety in the Frith, within one mile of the town: the ships belonging to the port are chiefly employed in carrying salmon and the manufactures of the country to London, and in bringing back various articles of grocery, &c. The salmon-fishery in the river Ness is very considerable, and is formed by several of the leading fishmongers of London: here is also a good herring-fishery, the management of which is vested in a company; it is carried on between Inverness, and Fort William. The town has some inland trade with the Highlands.

The principal trade of *Irvine* is in the exportation of coal for Ireland: in 1790, there were 51 vessels belonging to this port, the tonnage of which amounted to 3682 tons, the largest 160 tons, and the smallest 33; and about 24,000 chaldrons of coals are exported annually. Considerable quantities of woollen goods, carpeting, muslins, gauzes, lawns, and linen are likewise exported hence. The principal imports are hemp, iron, and deals, from Memel and Norway; ship-timber and corn. There is a dock-yard for ship-building, a large tannery, and a bleach-field.

Kelso — has large manufactures of woollen cloth, and many hands are here employed in dressing sheep and lamb skins. From 70 to 80,000 lamb and sheep skins are annually dressed in the town and its vicinity; upwards of 30,000 pairs of shoes are exported. More than 20,000 yards of flannel, and 10,000 yards of linen, of various qualities, are also manufactured here. There is a good trade with London through the medium of Berwick.

Kilmarnock — has manufactures of Scotch carpeting, serges, woollen cloths, and saddlery. Vast quantities of coarse woollen cloth have been exported from this place to Hamburgh, and Holland, whence they were, for the most part, during the imperial government in France, sent into Germany, and employed for clothing the army of the *ci-devant* emperor. The manufacture of floor-cloth is also carried on here to considerable extent. In the neighbourhood is an extensive coal-mine, which, by means of water-carriage, recently accomplished, is likely to be of the greatest advantage.

Kirkaldy — has large manufactures of checks and tickings, and of leather and cotton. The harbour is much improved of late, and there are several vessels belonging to the port. Vast quantities of corn are

exported hence to England, and Holland: several respectable merchants are resident here.

Leith — is the port of Edinburgh, and here most of the merchants, who reside in the latter, have compting-houses and warehouses. The harbour is formed by the confluence of the water of Leith with the Forth, and is a tide harbour, the water of the river being insufficient. On the north side of the harbour is a convenient quay for the landing of goods, and a wet dock has been constructed within high water-mark, under the auspices of the town council of Edinburgh; but as ships can only enter it at full tide, at other times they lie in Leith roads, about a mile distant, which at all times afford good and safe anchorage for ships of the largest size: in 1781, a fleet of more than 500 sail of merchantmen, under convoy of several ships of the line, remained here several weeks. The commerce of this place is very considerable, and the vessels employed in the London trade are generally of a large size; but those employed in the Greenland fishery are the largest belonging to this port. Leith being conveniently situated for the navigation of the eastern seas, enjoys a share of the Baltic trade. From Russia, Sweden, &c. Leith imports iron in bars, tallow, flax, hemp, tar, &c.; from Holland, flax and linseed; from the Mediterranean, fruits, &c.; from Portugal, wine, fruit, cork-wood, &c. some ships belonging to this port trade to the West Indies, whence they bring the produce of our colonies, rum, sugar, cotton, &c. Several ships are also here fitted out for the whale-fishery in Greenland, and the herring-fishery in the British seas has been very productive. The commerce of Leith is somewhat fluctuating, and dependent on variable circumstances. Considerable quantities of coals are shipped for the north-east coast of Scotland. In 1804, the number of ships that arrived at Leith was 2652. Since the completion of the Carron canal, a navigation has been opened from Glasgow by way of Leith, to the eastern coast of England, as well as to Germany and the Baltic. Ships of considerable size are built here, and several manufactures have been established, connected with ship-building, such as those of ropes and sail-cloth, which are carried on to considerable extent. The principal manufactures, beside these, are soap, leather, and shoes, of which considerable quantities are manufactured both for home use and exportation; and Leith is also particularly celebrated for its glass-works. Here are several flour-mills, a manufactory for carpets, and some large iron founderies.

Montrose — has a commodious harbour, which admits vessels of a large burthen, having wet, and dry, docks, for the building and repairing of ships. There are upwards of 100 vessels belonging to this port, which are chiefly employed in the coasting and Baltic trades. The principal manufactures are linen yarn, thread, sheeting, and sail-cloth, beside which there is an extensive tannery, and several rope-walks.

Paisley — is now the first manufacturing town in Scotland, and many of the streets, lanes, and alleys, are named from the various branches carried on in each: previously to 1760, the manufactures consisted principally of coarse linens, and handkerchiefs, which were succeeded by those of lawn and gauze, and a sort of thread introduced from Holland. It has been computed, that there were formerly no fewer than 5000 persons employed at one time here in the gauze branch, and as many more as winders, warpers, clippers, &c. in the silk manufacture: at present, the manufacture of silk is trifling, while those of muslin, thread, and cotton, flourish. The thread of this place is of that sort known to merchants by the name of "*ounce thread*," as distinguished from the different kinds prepared at Aberdeen, Dundee, and other places. *See title* COTTON. There are also several tanneries, and manufactories of soap, candles, tape, ribbons, &c. Two of the cotton-mills in the Abbey parish, or New Town, contain 22,572 spindles, and employ nearly 1000 persons; in this district, there are also a calico printing work, several bleach-fields, and a copperas work. About half a mile west of Paisley stands the little village of Maxwelton, at which there are several extensive cotton manufactories.

Perth — is an ancient city, as much distinguished by its honourable origin, as by its recent improvements. It arose from an encampment of Agricola, while the island was under the dominion the Romans. It was a royal burgh in the time of king David I., and its privileges were confirmed by William the Lion. In ancient days it was a royal residence of the kings of Scotland, the seat of their parliaments, and their courts of justice, and esteemed the capital of the kingdom. It is situated on a fine plain, on the west side of the river Tay, by which it communicates with the ocean near Dundee. The tide flows up the river, and reaches about two miles above the town. The river is navigable for sloops, and small craft at all times, and in spring tides for ships of considerable burthen. It has a bridge of ten noble arches, completed towards the end of the last century, at an expense little less than 30,000*l*. On the river are extensive fisheries, and a considerable trade, both of import and export. The manufactures are in a flourishing condition, consisting of linen and cotton goods, boots and shoes, and leather unmanufactured. About five thousand hides, and five hundred dozen of calf skins, are supposed to be annually prepared in the city and its environs. Nor is agriculture in a less flourish-

ing condition than commerce; for the neighbourhood of Perth has long been celebrated for the skill, and the wealth, of the cultivators of its soil.

The population of the city was reckoned at about 20,000, in 1821.

Portpatrick—a great traffic is carried on in the importation of black cattle and horses from Ireland, which has averaged for several years to the number of 11,000 head of cattle, and 2,000 horses. It is the shortest passage between Great Britain and Ireland, and as such is a good deal frequented.

Stirling—has good manufactures of carpeting, shalloons, and other woollen goods; and the cotton trade is in a very flourishing state. Here is a productive salmon fishery, rented by a company, who send the fish to the London and Edinburgh markets.

We shall take leave of Scotland by extracting from the twenty-five articles of the union between that country and England, all that relates to trade, which is comprised in the following words: "The standard of the coins, weights, and measures shall be reduced to those of England; and the laws relating to trade and customs and excise shall also be the same in Scotland as in England."

Sweden may be divided into five component parts, viz. Sweden Proper, Gothland, Norland, Lapland, and *now* Norway. Finland, one of the ancient provinces, was first seized by, and ultimately ceded to, Russia. Sweden is very favourably circumstanced for commerce, being almost surrounded by sea and intersected by rivers. She has numerous ports, and plenty of every material for shipping. The country, however, is far from wealthy, for all the luxuries of life, and many of the comforts being procured from other parts of the world, her exchanges are chiefly made by the barter of raw materials for manufactured articles. In order to check this traffic, certain sumptuary laws have been recently promulgated, but so far from having answered the purpose for which they were designed, they appear rather to have injured the general commerce of the kingdom.

Productions.—The most important are, iron, reputed to be the best in the world, copper, wood, alum, vitriol, &c. but the iron and copper mines, and the wood, form the principal sources of the kingdom's riches, inasmuch as they give rise to the commercial exports which Sweden makes to all nations. Sweden annually exports 7000 schipfunds of alum, as also large quantities of vitriol, brimstone, ochre, and coal. The immense forests, with which this kingdom abounds, furnish planks, beams, joists, laths, tar, pitch, and potash.

Manufactures.—The manufactures of Sweden are not so flourishing as might naturally be expected. The cloth manufactures are the most considerable, of which some furnish a fine description of cloth made from Spanish wool, and large quantities of the coarser sorts made from Polish wool. Stuffs, ribbons, and stockings are also made from silk, brought *viâ* Hamburgh and Holland; but these manufactures are much injured by the importation of foreign silks, with which the former cannot be put in competition. There are some excellent tan-yards at Stockholm and Gottenburgh: where also are manufactured linen, sail-cloth, and paper; but not sufficient for the consumption of the country. Sweden refines all her sugar. There are some other species of industry in this kingdom, such as snuff manufactories, salt, brass, and starch-works, which contribute little to the external commerce of the kingdom. Excellent gunpowder is likewise made here.

Commerce.—The export trade is divided into two branches; iron constitutes the first. Large quantities of this metal are purchased by the English, who cannot dispense with it in their steel-works, and, therefore, form lasting contracts with the proprietors of the mines; tin, wire, nails, anchors, and cannons, form the chief part of this traffic. Wood in planks of various degrees of thickness form the second branch, which is likewise considerable, and includes the export of pitch, tar, pot, and other, ashes. The imports are generally carried on by Swedish vessels, which convey the above-mentioned commodities to foreign ports, and in return bring home grain from Prussia, Poland, and Livonia; salt from Sardinia, Portugal, Spain, and France; wines from France, the Rhine, and Portugal; and brandies from Spain, Portugal, and France. To these may be added, the manufactures of England, the wools of Spain, Poland, and other countries, flax, hemp, cotton, skins, salted provisions, spices, &c. &c. The Swedish East India Company has an exclusive privilege, and imports all the oriental commodities consumed in Sweden. There is in Sweden a certain number of towns called *staple towns*, which participate more or less in the external commerce of the kingdom. From them a considerable trade is carried on, in all sorts of bar-iron, bells, plate-iron, copper, iron cannons, pitch, tar, alum, and deal planks: there is also a considerable manufactory of brass-wire, and there are besides several yards for ship-building. Helsinfors exports grain, iron, planks, pitch, and salt-fish; and has a manufactory of linen cloth, of pipes, snuff, ropes, besides a yard for ship-building.

Stralsund is the chief city of Swedish Pomerania, and its trade consists in the exportation of grain, the produce of the duchy and island of Rugen; of malt, wheat, rye, oats, pease, some coarse wool, wax, and a few other articles.

Gottenburgh exports, besides the articles mentioned under the head of the commerce of Sweden, in general, herrings, and oil of herrings and whales, sail-cloth, &c. The ships belonging to the Swedish East India Company are fitted out at this port, which sends Indian produce not only to the different ports of Sweden, but even to foreign countries.

The import trade of this country being small, it is usual for ship-owners here to send a cargo of iron, tar, pitch, &c. to England, and let the ship there take a charter to the Mediterranean, Spain, or America, which often pays in one voyage for the loss of the vessel.

Accounts in Sweden are kept in rix-dollars, each rix-dollar consisting of 48 skillings, and each skilling of 12 ocres or pfenings.

Switzerland consists now of 22 cantons, each having its own independent government and laws, forming collectively the Helvetic Confederation. These cantons are, Zurich, Berne, Lucerne, Uri, Schweitz, Underwalden, Glarus, Zug, Friberg, Soleure, Basle, Schaffhausen, Appenzell, St. Gallen, the Grisons, Argorra, Turgovea, Tessino, Vaud, Vallais, Neufchatel, and Geneva. The general situation of Switzerland with respect to Germany, France, and Italy, as well as the easy conveyance of goods on the rivers Rhine, Rhone, and Aar, greatly facilitates the trade with these countries and Holland

Productions. — The soil of Switzerland is very various; it is neither so fertile as the plains of Italy, nor so sterile as the northern parts of France. The productions are, corn, rye, barley, and other sorts of grain. The trees produce all sorts of fruits, with the exception of those which are peculiar to warm countries, such as dates, oranges, lemons, &c. Switzerland also produces flax, wool, and wine; as well as butter and cheese of excellent quality. The cantons of Lucerne, Uri, Schweitz, Underwalden, Zug, Glarus, and Appenzell, do not grow a sufficient quantity of corn for their own consumption: nay, even in some parts of these cantons there is not a single ear of corn to be seen. On this account the Swiss are obliged to purchase grain of their neighbours, and to store it up in their towns in case of scarcity. This country produces several sorts of wine, two of which are both wholesome and agreeable; the one is white, and grows upon the borders of the Lake of Geneva, on which account it is denominated *de la cote Wine;* the other is red, and is grown not only in the county of Neufchatel, but also in the canton of Berne. Wines are also made in the cantons of Zurich, Schaffhausen, &c. which the inhabitants consume. Switzerland possesses such a vast number of beasts, that the Swiss are enabled to supply their neighbours; they are very good of their different kinds, and form an exceedingly lucrative branch of commerce. In the mountains are made butter and cheese, which not only serve the inhabitants, but are likewise exported in vast quantities to Italy and France. There are upon the mountains, as well as in the plains, woods of pines, firs, oaks, beech, and a few elms.

Zurich is the first city of Switzerland, and has an extensive trade with Italy and the Netherlands. It is situated on the lake of the same name, which has a communication by means of inferior rivers with the Rhine.

Basle has the greatest commerce of any city in Switzerland, as all goods from Germany, Holland, &c. must pass through this place.

Geneva is situated on the river Rhone and the lake of Geneva, and is a place of great celebrity for not a few kinds of traffic. They excel here in making all sorts of time-pieces, and are great speculators in insurances and mercantile transactions, at the ports of the neighbouring states of France and Belgium.

Manufactures. — The general manufactures of Switzerland are muslins, cottons, painted linens, open worked table-cloths, of all sizes, prices, qualities, and descriptions; linens for shirtings, called *Rouen, Bern,* or *Coutance*; dimities plain, corded, and striped; *Cambrays,* light stuffs of silk, and of cotton and silk, painted silks, silk neck-handkerchiefs, woollen and cotton stockings, large quantities of which pass into Italy and Alsace; silken ribbons, which are sent into Germany and Spain; silk handkerchiefs worked in squares, coloured and plain; brass and iron wire, clock and watch work, dyeing, &c. &c.

Commerce. — The chief articles of the Swiss export trade are their oxen, kine, butter, and cheese, and (latterly) their horses. The cattle are for the most part sold in Italy, whither they are sent in thousands. The Grisons' country and that of Vallais supply the greatest number. The Italians buy them for the purposes of feeding them in their pastures of Milan and Bergamo, and afterwards slaughtering the oxen and procuring milk, butter, &c. from the kine. As to the cheese, their excellent quality is too well known to need any comment; they yield a liberal profit to the Swiss. The canton of Friberg, in which is situated the territory of Gruyere, possesses the chief trade in this article. A great deal is sent into France. At Lyons there are houses established, who trade in this article alone. Hides and leather form a considerable branch of commerce: there are some excellent tan-yards at Berne and at Basle. The canton of Berne exports large quantities of calf-skins for Italy. Goat-skins are prepared at Basle, whence great numbers are sent into Germany. Formerly skins were

sent from Switzerland to England, but of late none have been purchased by the English. The commerce in flax and hemp is small. Very little Swiss wine is exported. There are some iron mines in Switzerland, and the country of Basle possesses forges in which the ore is manufactured into various household, and other, articles. The Swiss, as we have already observed, are oftentimes in want of corn, and the people of Geneva have frequently been obliged to procure large quantities from England, by way of Marseilles. They are not better furnished with salt. The canton of Berne possesses a salt-work, but its produce barely serves to answer the demands of the canton itself. The Swiss export some cherry-brandy; and send the Alpine game even to Paris: they also have a small traffic in fresh-water fish, prunes, medicinal herbs, and some marble, the quarries that produce which are situated in Vaud. The clock-work, toys, and gilt articles of Geneva, pass into Italy, Spain, Germany, the ports of the Levant, and America. From Basle is sent a great deal of fine writing-paper, denominated *The arms of Basle paper*. Silks, cottons, &c. are likewise a part of the Swiss exports. Woollen and cotton stockings pass into Italy. The Swiss obtain their hats from Lyons. The other imports of Switzerland are, spices, sugar, and coffee. A great part of the last is brought from the islands of Bourbon and Martinique, through France. From Holland they draw pepper, nutmegs, cinnamon; from England and the Low Countries, cloths. The fairs of Frankfort and Strasburg, which they frequent, give them an opportunity of selling their own commodities, and of purchasing those of Germany. From France they draw wines, corn, flax, salt, linseed oil, vegetables, Provence oil, Marseilles soap, saffron, honey, almonds, olives, prunes, capers, wool, tobacco, &c. &c.

Accounts are kept at Geneva, and through all the cantons, in current livres, each livre consisting of 20 sols, and each sol of 12 deniers.

Turkey. The grand seignior, or sovereign of this country, with great propriety, so far as respects locality, styles himself "Lord of the Black, White, and Red, Seas." Of Constantinople, the capital, some notice has been taken under title ASIA. What remains to be said of this empire, which is partly European, must refer rather to the trade of the sea-coast in its vicinity, the Morea, and the Levant, than to the territorial possessions of the sovereign. To enumerate all the articles of commerce in the Morea, or the places where they may be obtained, would be to exceed our limits; it is sufficient to observe that currants, oil, dye-woods, and cotton, are to be purchased on advantageous terms; and that at the safe and convenient port of Modon or Modona, and that of Petesso, they may always be shipped with ease and safety. All articles here are most advantageously purchased with specie, but lead, tin, pewter, salt-fish, spices, arms, &c. in small quantities, find a market.

The happy situation of Constantinople on its secure and convenient port, would render it a place of extraordinary commerce, if the inhabitants were secure from being plundered of their property by the government, and foreigners were free from exaction and insult. Under all these disadvantages, however, there are some nations with which the Turks traffic, the Italians, the Dutch, English, and French. The Italians, but the Venetians in particular, carry to Turkey cloths, white-lead, quicksilver, sublimate, opium, mercery, and German hardware, glass-beads, enamel, mirrors, silk stuffs, gold and silver, vitriol, iron, and brass-wire, paper, &c. &c. and in return receive the same sorts of merchandise as the French and English. The Dutch and English, of whom the latter are preferred, carry thither coarse and fine cloths, pepper, cloves, nutmegs, ginger, pewter, gunpowder, arms, red, white, and salted herrings, pilchards, dried cod, refined sugar, tobacco, &c. &c. The returns are cotton-wool, spun cotton, silk, wool, goats' hair, cottons, wax, skins, leather, oil, madder, coffee of the finest quality, gums, morocco-skins, shagreen, sponge, mastich, saffron, galbanum, galls, ashes, box, aniseed, carpets, several sorts of silk, Valonia soap, diamonds, rubies, pearls, &c. The French receive similar commodities, and in exchange supply the Turks with silken stuffs, paper, watches, toys, ironmongery, mercery, syrups, liquors, sugar, coffee, indigo, cochineal, spices, drugs, lead, and pewter. A very considerable trade is now carried on between Turkey and Russia, and strange to say, in confirmation of all that has been observed respecting the vicissitude of human affairs, principally through those very ports which have been ravished from Turkey by her more enterprising neighbour. Asoph, Cherson, Odessa, Taganrog, and Theodosia, are the ports with which Turkish traffic is carried on, and of these Odessa is the favourite, being declared a free port, and generally open all the winter.

Accounts are kept in Turkey in piastres, each piastre being divided into 40 paras, 80 great aspers, or 120 aspers.

Islands of Europe. — Under this head we propose to give a sketch of the several species of commerce carried on by such islands as depend upon the different kingdoms and states treated of in the foregoing part of the present article; but which were not considered of sufficient importance to demand separate heads, or those details relative to productions, manufactures, commerce,

&c. bestowed upon the continental and important insular divisions of Europe. The islands are arranged in geographical order.

Aland, — a Swedish island, furnishes Stockholm with abundance of wood for fuel and carpenters' use, as well as with considerable quantities of fish.

Archipelago, Islands of. — These islands are situate in the Egean or Grecian sea, and were denominated Cyclades and Sporades by the ancients. Of some of these we have spoken separately, such as Zante, Cephalonia, and Corfu; in this place we can only give a sketch of the general features of the commerce and commodities of the islands in question; those of the Archipelago are 78 in number, most of them uninhabited; several contain only a few mean habitations of poor labourers and their families, and all of them discover but very imperfect remains of the grandeur attributed to them in ancient times. Their population has never been correctly ascertained, but it is generally supposed not to exceed 3000 souls. The productions of the whole are alike; the greater part is sent to the Levant, and thence disseminated throughout Europe; they consist of wheat, barley, oats, and every species of grain; wine, oil, honey, wax, olives, figs, and other kinds of fruit; silk, wool, cotton, gum, marble, emery, load-stone, and medicinal plants. Most of these islands are rich in cattle, game, and their shores in fish; and some of them possess salt-mines, veins of sulphur, alum-stone, and even gold. If industry were as active here as the soil is rich, and the earth productive, they would no doubt attain the very pinnacle of commercial grandeur and prosperity. The whole employment of the inhabitants, however, consists in making some species of silken goods, such as damasks, velvets, &c. and in the manufacture of a few linens, cottons, and woollens, which are never exported, being barely sufficient for home consumption.

Bornholm. — This is a Danish island, and its commerce is certainly in a more advanced state than that of any other Danish possession in the Baltic: there are large manufactures of coarse woollen goods here, the raw material consumed in which, is produced by the immense flocks of fine sheep bred in the island. A great deal of butter is exported hence, besides salmon, herring, and cod-fish, which, but especially the former, are taken in abundance in the rivers, and on the coasts of Bornholm. Very fine quarries of stone are worked in two or three places, and coal, scarcely inferior to the English, is very plentiful; several species of clay, fit for the manufacture of earthenware, but particularly a very excellent sort, of which the inhabitants make a tolerably good kind of porcelain, are found in this island: the exportation of this clay is prohibited. Bornholm likewise produces globular stones, which contain that species of crystals called *Bornholm-diamonds.*

Candia, —an island in the Mediterranean, known to the ancients under the name of Crete. This island is extremely fertile, and the air is here very pure. Psiloriti, or Mount Ida, is situated in the middle of Candia, and is, properly speaking, nothing more than a rock; during the best part of the year its summit is crowned with snow, and it produces only the tragacanth shrub, (*astragalus tragacantha*,) a species of buckthorn, which yields by incision gum tragacanth. The valleys and plains abound in grain of every sort, in medicinal plants and drugs, wine, mulberry-trees, and olives: although the wheat grown here is of the finest kind, the inhabitants make very indifferent bread. The export of grain is frequently prohibited. Candia furnishes abundance of silk, but the inhabitants prepare it so wretchedly, that the Christian nations purchase very little of it; procuring the finest silks at Smyrna, and other ports of the Levant. The wool of Candia is only fit for the manufacture of coarse goods. The oils which the island produces are chiefly consumed by the French soap-boilers. Candia boasts a prodigious variety of trees, as well such as grow in Asia, as those which are common in Europe; of these the principal are the cyprus, pine, oak, willow, carob-bean, arbute, palm, fig, olive, almond, wild pear, plantain, laurel (which the Greeks call *daphne*), myrtle, walnut, chesnut, the *asphetamos* (a tree resembling the maple), and the *iprim*, which is a kind of *philirea*. The island also produces 72 sorts of grapes, and a great variety of shrubs, not to be found in any other part of the Levant. Near the village of Eskinpii, at the foot of Mount Ida, are mines of silver, lead, copper, iron, and alum-stone, which every person is at liberty to work, on the condition of paying one-fifth of what he draws from the mines to the governor of the island. The commerce of Candia is very considerable; most of the nations which trade to the Levant have consuls here. The island supplies vessels touching at it with fresh provisions, and exports the productions of its soil and industry to England, France, Italy, and the ports of the Levant, receiving in return the commodities of those states. The English and French consuls reside at Canea, a town and port of this island; the other trading towns of Candia are Retimo, Candia, and Gira Petra.

Cephalonia. — The chief production of this island, which is situated near Zante, is currants, similar to the produce of the latter. Cephalonia is likewise fertile in olives and in vines, but especially in that species of vine called by the French *muscat rouge*, or red muscadine. The merchants of Zante purchase all the currants produced in Cephalonia, and hence this island has no com

merce of its own, in a direct way, even with Italy. Cephalonia or Argostoli is the principal port. *See Zante.*

Corfu, — an island of the Ionian Sea. It is fertile in vines, olives, cedars, lemons, &c. but it produces neither corn nor cattle. Vast quantities of salt are found here. This island trades with Greece and Italy, and procures the principal part of its corn from Epirus. These three islands formed a part of the dominions of Ulysses, so famous in the poems of Homer. *See Zante.*

Corsica. — The territory of Corsica is fertile, and even the soil of the mountains, except those which are highest, and covered the greater part of the year with snow, repays the toils of the cultivator. This island produces wheat, rye, barley, but no oats; so that the horses and mules are fed with barley. Agriculture is not in the most prosperous state in Corsica; the implements of husbandry are generally clumsy and ill made; nor are the Corsicans considered able or industrious agriculturists. Several parts of the island produce excellent wines, which are, however, said to be extremely heady. At Capo Corso two sorts of wine are made, one of which much resembles Malaga; large quantities of this wine are annually sent to Germany, and there sold under the name of Malaga; the English purchase considerably of this wine at Leghorn, and much of it is sold throughout Great Britain as Spanish wine; the other species of white wine of Capo Corso is somewhat similar to Frontiniac. Furiani furnishes a kind of white wine, whose flavour comes very near that of Syracusan wine, only that it is not so sweet. In several villages they make a pleasant white wine, nearly resembling Tokay; and at Vescovato and Campotoro a very fine red wine, which partakes of the flavour of Burgundy, is to be met with. Corsica exports some grapes, and large quantities of raisins. The olive flourishes here, and of the oil, which the olive plantations yield, about 2,500,000 lbs. are annually exported. The lemon tree, the pomegranate, the orange, the almond, and the mulberry-tree, all thrive in Corsica; and chesnuts are in such abundance, that according to Boswell, 100,000 crowns' worth are annually exported; flax of good quality is likewise plentiful; very little silk is gathered in this island, but the forests furnish excellent timber, especially pines, box, chesnut, and arbutus. The island of Corsica abounds in wild, and domestic, animals of various species: the horses are of a very small race, as are the asses and mules, but their vigour and strength compensate for their diminutiveness; the beeves and kine are numerous, but the former are very lean, and the latter afford very little milk; scarcely any butter is used here, oil being its substitute; but a tolerably good sort of cheese is made in some parts of the island. The sheep are generally fat, their flesh extremely sweet, and their wool (notwithstanding the native breeds being crossed by the English and Spanish races) uncommonly coarse and wiry. The mountains of Corsica produce lead, copper, silver, alum, granite, porphyry, and jasper. Salt and saltpetre are made in several parts of the island. Near San Fiorenzo there is a silver-mine, whose ore yields 5 lbs. of silver per quintal. The Corsican iron is highly esteemed. The rivers of Corsica, as well as the lakes, produce excellent fish in great abundance; and the coasts swarm with sturgeon or tunny, sardines of peculiarly fine flavour, and large oysters, of which, as well as tunny, considerable quantities are exported. Three beautiful species of coral, namely, red, white, and black, are found on the coast facing Sardinia. Manufactures are not in a flourishing state in Corsica: some coarse woollens are made from the wool of the Corsican sheep, and for this purpose the black wool is generally employed, the white or grey being in no sort of repute. The inhabitants make their shoes of the untanned skins of hogs; they are not unacquainted with the art of tanning, and as they send the greater part of their bark to Italy, generally perform the process with the leaves of the wild laurel, dried in the sun and reduced to powder; this ingredient communicates a greenish shade to the leather. Very little linen is made here, and notwithstanding the fineness of the flax, what is manufactured usually proves very coarse. The commerce of Corsica is trifling, and is, for the most part, carried on with France and Italy, consisting in an interchange of commodities. The principal ports of this island are Centuri, San Fiorenzo, Isola Rossa, Calvo, Ajaccio, Bonifacio, Porto Vecchio, and Macciano. Porto Vecchio, situated on the eastern side of the island, is the best.

Cyprus.—This is one of the largest islands in the Mediterranean. The climate of Cyprus is not so temperate as that of other islands lying in the same degree of latitude. The winds blowing from the high mountains render the island extremely cold, more especially on the north side. Two species of commodities sustain and invigorate the commerce of Cyprus: the first is the productions of the island itself; the second, the merchandise which it procures from the circumjacent parts of Caramania. With respect to the first, the cotton which Cyprus produces, is esteemed, on account of its extraordinary whiteness, superior to any other of Levantine growth; it is uncommonly soft, and its filaments long and fine. It is generally sent to Venice, whence it finds its way into the German, English, and Dutch markets. Silk is an important object of Cyprian commerce, and large quantities are gathered in the island, during the month of May, and the succeeding warm months; the

silk is of different colours, and qualities, according to the parts of the island in which it is produced: the white silk is the most esteemed, but beside this there are yellow, orange, and bright gold-coloured silks; the English, Dutch, and French, purchase the greater part of the white and yellow silks, the Italians import all sorts, and the Turks mostly buy the orange-coloured silks. Cyprus produces three sorts of wool, namely white, brown, and black, of which the first is most esteemed; the shearing commences on the 20th of March, each year, and the sale takes place in the month of August. Entire fields are here covered with the cassia plant, which grows spontaneously; the gathering takes place in the month of May, and large quantities are exported to Hamburgh, Amsterdam, Marseilles, and Venice. Madder grows spontaneously in this island, but as the demand for this dye stuff is very great, the inhabitants are obliged to sow large quantities of seed annually; much of this root is sent to the Levant, and to France. Small quantities of cochineal are annually gathered here and sent to Venice. Near the village of Calopsidare the kali plant is grown; it is burned during the summer months, and the ashes are exported to France and Italy in September and October. Turpentine of excellent quality is obtained here both by incision, and pressure, and is exported to many parts of the world, but especially to Venice, where it is in high repute. Large cargoes of corn are annually sent to Leghorn, Genoa, Marseilles, and Malta; for Cyprus produces a much greater quantity of corn than serves to supply its domestic demand for this article. The wines of Cyprus are all of excellent quality; but that which is called Commandery is the most esteemed throughout Europe: the whole of the annual produce of the vineyards amounts to 10,000 barrels; these wines are mostly bought up by the French, the Dutch, the English, and the Tuscans. Salt, which is a natural production of the island, is exported to Syria and Constantinople. There are four other valuable productions of Cyprus, viz. carobbean, tar, pitch, and planks. The Turks and the Greeks purchase the greater part of the carobs, which are carried to the Levant by the European vessels; the destination of the remaining articles is the same. Such are the natural productions of Cyprus: those commodities with which Caramania supplies the island, are styrax, both liquid and resinous: camels' hair, gall-nuts, and many other Turkish goods, which are re-exported to different parts of Europe. The imports of Cyprus, from the other parts of Europe, principally consist of silks, woollens, indigo, hardware, &c. &c.

Guernsey.—The harbour of St. Peter's, or Saint Pierre, the capital of this island, is very safe and commodious, and at each side of it are strong piers. The air here is very healthy, and the soil fertile, but the inhabitants neglect agriculture, for the sake o trade and commerce. In time of peace, Guernsey carries on a considerable traffic with France, and other parts of Europe; and at all periods, it, as well as the neighbouring islands of Jersey, Alderney, and Sark, is a *depot* in which the wine merchants of London and other parts of England lodge their wines, until they find a demand for them, in order to avoid being in advance for duties inwards. In time of war a great number of privateers are fitted out here, and bring considerable riches to this place. The island is full of gardens and orchards, and the principal beverage of the inhabitants is cider. Here is found that useful species of stone called emery or smyris, which is used by jewellers in polishing precious stones, and by glass cutters in the performance of their occupation. The only manufactory of any consequence is that of stockings.

Hebrides, or Western Isles.—The soil varies in the different islands which come under this denomination; some are mountainous and barren, producing little else than heath, wild myrtle, fern, and a little grass; whilst others, being cultivated and manured with sea-weed, yield plentiful crops of oats and barley. Lead-mines have been discovered in some of the islands, but they have not been worked to much advantage; others have been found to contain quarries of marble, lime-stone, and free-stone; nor are these islands destitute of iron, talc, crystals, and many curious pebbles, some of which emulate the Brazilian topaz. The commodities which may be deemed the staples of this country are black cattle, sheep, and fish, which are mostly sold to the Scotch; part of the wool is worked up into knit stockings, coarse cloth, and that variegated stuff called *tartan*. Cod, ling, mackarel, whiting, haddock, and soles, are caught in abundance; a prodigious quantity of herrings are also caught here and cured. The commerce of these islands is very capable of being advantageously extended.

Iceland.—The principal commodities which this island exports, are dried fish, such as cod, herrings; &c. salted mutton, a small quantity of cured beef, butter, fish-oil, tallow, woollen stuffs of the coarsest kind, especially that called *wadmel;* under waistcoats made of wool; gloves and stockings, composed of the same material; raw wool; sheep, and lamb, skins; fox-skins of different colours; eider-down and feathers. Sulphur was formerly procured from Iceland, but none is now exported. The imports chiefly consist of spirits, wine, salt, cloths, linen, iron, copper, medicinal drugs, dye-stuffs, wood for building, &c. fishing-hooks and lines, tobacco, corn, and horse-shoes. This commerce is vested in the hands of a com-

pany, the members whereof are all Danes. The Icelanders barter their own commodities for the greater part of their imports, and pay the amount of the remainder in money. Although the Iceland company has the exclusive privilege of carrying on the trade of the island, private individuals may have a participation in it, on application to any of the members, and by the payment of a moderate duty or fee; the company sends from 18 to 20 vessels, annually, from Denmark to Iceland, of which 14 are fitted out at Copenhagen, and the others at Gluckstadt. The Danish coins, weights, and measures, are current in, and are the standard of, Iceland.

Jersey. — The middle of this island is mountainous, and so thick with orchards of apple-trees, that it resembles a forest. It has been computed that 25,000 hogsheads of cider have been made here in one year, insomuch as to occasion a deficiency of arable land for corn, which is imported from the Baltic, England, and in time of peace from France. It produces plenty of cattle, particularly sheep; the wool is manufactured into stockings and caps, of which some thousands are every week sold at the market of St. Helier. The merchants employ several ships in the Newfoundland fishery, as well as in the English, French, Spanish, Portuguese, and American trades. The coasts abound with fine fish, amongst which there are some species rarely to be met with in the British seas, such as the *grounard*, the *ormer*, &c. The isles of *Alderney* and *Sark* are noted for their breeds of small black cattle, the flesh of which is of a delicious flavour. These islands are extremely fertile; their commerce is similar to that of Jersey, though on a less extensive scale; the only manufacture is that of stockings.

Lipari Islands. —These islands, which belong to Sicily, are in number eleven, and are situated to the north of the last mentioned island; the largest of them is called Lipari, and it is eleven leagues in length: several of the Lipari are desert, but others abound in alum-stone, currants, grain, cotton, and sulphur; the veins of which latter are visible on the surface of the soil. The Malmsey wine which the islands of Lipari produce is excellent, and the greater part of the inhabitants are extremely industrious, besides being skilful navigators. The trade of the Lipari islands is almost exclusively carried on with Sicily.

Majorca, — a large island in the Mediterranean; it is fertile in corn, wine, and olives. A great deal of coral is found on the coasts, and the inhabitants are accounted good seamen. The city of Majorca, or, as it is frequently denominated, Palma, is well fortified, beautiful, large, and rich. This city has some flourishing manufactures of silks and woollens.

Malta. — This island is a mere rock, covered with a soil not more than five or six inches in depth. The industry of the inhabitants has, however, overcome what to some nations would appear an insuperable obstacle to cultivation, and the shallow soil of Malta is, in a manner, forced to support its cultivators, and even to bring wealth to the island. Since it has been in possession of the English, viz. 1817, it has been permitted by statute to trade both directly and circuitously with Gibraltar, the Cape of Good Hope, and all the places within the India Company's charter, except China. Malta produces a very small quantity of grain, indeed so little, that the annual crop is barely sufficient to supply the inhabitants with five months' provision. This island produces very excellent cotton, of which it exports to the annual value of 400,000 ecus. The Maltese oranges are in high repute, and the yearly produce of this fruit is extremely abundant. Cummin is likewise grown here in large quantities. The commerce of Malta is in a flourishing state: this commerce is not alone supported by the territorial productions of the island, but likewise by the number of English, Dutch, French, and Italian vessels which touch here, and supply the place with various kinds of merchandise, and by the Maltese merchants freighting vessels with goods for the Italian ports, in order to obtain returns for grain, &c. In addition to the commodities already specified, Malta furnishes fresh provisions, figs, melons, raisins, and grapes, which latter are esteemed equal to those of any other part of the world: it is to be observed that these grapes do not yield any species of wine. In this island many articles are manufactured from the cotton, the produce of the country, but especially stockings, which are accounted very beautiful and durable. The Maltese cotton coverlids, and such like goods, are in high repute throughout Europe. The inhabitants of the little isle of Gozzo, which belongs to Malta, are industrious in these branches of manufacture, and cultivate the sugar-cane with success.

Man, Isle of. — The herring-fishery is the most important occupation of the Manks; it employs about 5000 of the men, the women being mostly employed in husbandry. The sheep here are small and hardy, and their flesh is excellent; a peculiar breed, called Laughton, of which the fleece is in the greatest repute among the inhabitants for cloth and stockings, is of the colour of Spanish snuff. There is a light-house and a custom-house in this island. The exports to Great Britain are potatoes, butter, eggs, pork, beef, skins, kelp, honey, wool, linen, yarn, and lead-ore. This island is much infested by smugglers, and serves this description of persons as a ready medium

whereby to introduce contraband goods, at convenient periods, into England and Ireland.

Minorca. — This island is situated in the Mediterranean, and belongs to Spain. The inhabitants are extremely ignorant, but industrious; they cultivate olives and vines, yet are not capable of making wines. They import the greater part of the corn which they consume. Pearl-ashes are prepared here, but their quality is inferior to that of the ashes exported from Trieste. Saffron, cotton, and tobacco, thrive in this island, and large quantities of salt are annually exported hence; besides marble, wax, honey, and olives. The inhabitants have long carried on a lucrative trade by importing considerable cargoes of fine wool, from the coast of Barbary, spinning it, and afterwards disposing of it to the Spanish and French merchants. Large quantities of tunny are salted in Minorca, and there are very productive fisheries on the coasts. An extensive manufactory of cordage is established in the island, the produce of which is sent to the adjacent ports in the Mediterranean. Minorca is a considerable loser by its external commerce, its annual imports amounting to nearly 56,700*l.* and the value of exports being not more than 20,120*l.*

Oeland. — Vast quantities of black cattle are pastured in this island, which belongs to Sweden, and is situated on the Baltic; it likewise abounds with stout little horses, and exports a great deal of honey, wax, nuts, kid-skins, alum-stone, (of which there are entire mountains here,) a fine durable stone used for building with, hones, black marble, grey ditto, and divers species of petrifactions.

Orkney Islands or Orkneys.—Little is done in these isles during the winter, except fishing on the coast; and in summer, kelp is the staple commodity of the Orkneys. Except juniper, wild myrtles, heath, and a shrub called *cyor-hordon*, there is scarcely a tree or plant to be seen. There are no rivers, but the islands are well supplied with lakes and rivulets, which even turn mills, and produce excellent trout and salmon. The land animals are small horses, sheep, black cattle, swine, rabbits, red deer, and other game; the sheep are so small and meagre, that the common price of one of these animals is 5*s.* their wool is, however, excellent. The heaths abound with partridges, grouse, heath-cocks, plovers, and other game, and there are besides, eagles, ducks, geese, herons, hawks, gulls, soland geese, swans, gannets, &c. The sea swarms with otters and seals, together with plenty of cod, ling, haddock, herrings, and most kind of fish, whales not excepted. Corals, ambergris, sponge, and spermaceti, are sometimes thrown ashore. The chief trade of these islands consists in supplying with provisions the vessels which touch upon the coasts in northern voyages; and the East India fleet, in time of war, when they pass this way to avoid privateers. They are also visited by the busses in the herring-fishery, which barter tobacco, wine, spirits, and grocery, for provisions. The produce of the kelp made in the islands, has been calculated at about 3000 tons per annum, at the rate of about 6*l.* per ton.

Sardinia. — This island is situated in the Mediterranean, and produces corn, vegetables, cheese, salted tunny, wine, oil, salt, tallow, provisions, ox-hides; sheep, goat and fallow deer-skins, &c. Although corn is the most abundant of Sardinian productions, very little of the article is exported, by reason of the heaviness of the duty laid upon its exportation. The cheese is sent to Naples, Leghorn, Genoa, and Marseilles. The tunny is exported to Spain and Italy. Sardinia imports all sorts of woollen, and linen, drapery, hardware, wrought silks, sugar, iron, cacao, spices, drugs, &c. Formerly the cloths of France alone were in repute here, but several years back they were superseded by those of England; which, in this market, as well as in every other throughout Europe, are esteemed more highly than the woollen drapery of any other part of the world. English serges sell exceedingly well in Sardinia, and about 400 pieces are annually imported from Great Britain. The linens of Germany are readily bought up on account of the lowness of their prices. Silks are brought from Naples and Genoa; sugar and cacao from Marseilles; and the hardware chiefly from England. Iron comes from Leghorn, Genoa, and Marseilles, and hats from England and France.

Scilly Islands. — The inhabitants of these islands employ themselves in fishing, burning kelp, and as pilots. Some of the islands produce excellent corn, and most of them plenty of rabbits, herons, swans, and various species of water fowl.

Shetland Isles.—The coasts of these Scottish islands are well adapted for fishing, but this branch of trade having been much neglected it was taken advantage of by the Dutch; the inhabitants, however, export great quantities of dried fish. Sponge, ambergris, and amber, are found here in abundance. The only tree or shrub of any consequence is the juniper. The black cattle are much larger than those of the Orkneys; their horses are small, but very stout; their sheep are exceedingly delicate, and afford excellent wool. As to manufacture, the inhabitants make a sort of coarse cloth for their own use, and a little linen; but their chief trade is the barter of stockings with the Dutch fishermen, and the sailors of the English Greenland men.

Sicily.—This island is so fertile in grain and fruit, that it was anciently denominated "The Granary of Italy," and "The Nurse of the Roman People." Sicily produces

abundance of oil, sugar, saffron, silk, honey, wax, and various kinds of simples: great quantities of grain are exported to Genoa and Leghorn, and some to Marseilles, Barcelona, Cadiz, and Lisbon; vegetables, such as beans, white kidney-beans, split pease, &c. are sent to Leghorn, Genoa, and Spain; silk, which is the chief source of Sicilian wealth and prosperity, is exported (to the amount of a million ecus annually) to Genoa, Leghorn, Marseilles, Lyons, and to the ports of Great Britain and Ireland: salt is exported chiefly to Venice; pistachio nuts are sent to Leghorn, Marseilles, Venice, Genoa, and Great Britain; sumach to Leghorn, Genoa, Civita-Vecchia, Marseilles, Naples, and Great Britain; about 500lbs. of manna, annually, to Leghorn, Genoa, Marseilles, and Great Britain; 30,000lbs. of hare and rabbit skins to Leghorn, Genoa, Marseilles, Rome, Venice, Trieste, and Naples; 5000 quintals of sweet, and some hundreds of bitter, almonds to Genoa, Leghorn, Venice, Marseilles, and Great Britain; tallow to Leghorn, Genoa, Civita-Vecchia, and Marseilles; liquorice-ball, and refined liquorice, to the amount of 1500 quintals per annum, to Leghorn, Venice, Genoa, Marseilles, Amsterdam, and England; about 50,000 quintals, annually, of olive oil, to Leghorn, Genoa, Marseilles, Trieste, England, and Ireland; linseed oil, in small quantities, to Genoa, Marseilles, Civita-Vecchia, Rome, Venice, and Naples; cream of tartar to Marseilles, Genoa, Leghorn, Venice, and England; cheese to Italy, France, and Great Britain; small quantities of coriander-seeds, pomegranates, and gall-nuts, to Genoa; about 1000 quintals of barilla, annually, to Venice, Marseilles, Leghorn, Genoa, England, and Ireland; citron to Leghorn; preserved oranges to Leghorn, Venice, and Rome; about 78 tons of lemon juice, per annum, to Genoa, Venice, &c.; brimstone to Venice, Leghorn, Marseilles, and Great Britain; fresh tunny to Italy; of salted tunny, about 600 quintals annually, to Italy and France; anchovies and sardines, to the annual amount of 16,000 barrels, to England, Italy, and France; luscious wines to Gibraltar and Genoa; cob-nuts and raisins to England, Holland, France, and Italy; and, finally, kid, lamb, and fox skins, to Italy, France, and Great Britain. The imports of Sicily are as follow: from Leghorn, woollens, caps, stockings, Barbarian and Levantine wools, raw and spun cotton, straw hats, linen, calicoes, iron, pewter, copper, elephants' teeth, gunpowder, lacque, quinquina, cinnamon, pepper, and other kinds of spices, saffron, indigo, cochineal, Brazil-wood, logwood, Turkey-blue, litmus, annatto, verdigris, incense, alum, medicines, sealing-wax, quicksilver, flax, hemp, and hides; from Genoa, velvet, paper, nails, iron, calf-skins, coloured leather, hats, German linen, embroidered silks, &c. besides other species of merchandise, similar to those brought from Leghorn; from France, linens, cottons, hats, paper, calf-skins, laces, boxes, embroidered vests, fans, jewellery, camlets, and serges; from Venice, medicinal drugs, quicksilver, sublimate, turpentine, cinnabar, cloths of Padua, scarlet cloths, hats, woollen caps and stockings, deals, nails, wax, copper, mirrors and crystal glass, vitriol, fire-arms, and occasionally maize; from Naples, vast quantities of English and French commodities, besides wood, the growth of Italy, Calabrian pitch, saffron, linen, cloth, earthenware, jewellery, and toys; from Trieste, several kinds of German merchandise, and wood for carpenters' use; from Spain and Portugal, sugar, cacao, quinquina, saffron, vanilla, cochineal, Brazil-wood, tobacco, other species of South American merchandise, and Segovian cloth; from Amsterdam, fine linen, cacao, cinnamon, pepper, cloves, and other Indian spices and drugs; in fine, from England, East and West India goods, watches, hardware, cutlery, jewellery, toys, stationery, hats, hides, copper, pewter, iron, and lead. Messina and Palermo are the chief ports of Sicily.

Wight, Isle of.—The face of this island is beautifully diversified, and the whole extremely fertile. The higher parts of the country produce much chalk, which is used as manure. The chief sorts of grain cultivated here are wheat, barley, and oats; and of pulse, pease and beans. The wheat produced in the southern parts is about 24 bushels per acre, and in the northern about 18; the production of barley, per acre, is averaged at 30 bushels, and oats 35; hence the exports of grain are very considerable. The downs stretching across the island afford pasturage to about 40,000 sheep; and, it is said, that 5000 lambs are annually sent to the London market. The cows are good; the horses are large and generally black, and the hogs are also of a large size, and furnish excellent bacon. Game is plentiful. Among the fossil earth of the district are tobacco-pipe clay, fullers'-earth, yellow and red ochre. The coast yields all the usual species of fish, and the lobsters and crabs are particularly large and excellent. There are very productive salt-marshes in the island. This is also a rallying point of the smuggling traders.

Zante,—an island in the Grecian sea. Zante is extremely fertile in corn, and produces abundance of cherries, from the kernels of which is made a liquor called *marasquin*, and which is highly esteemed in Italy and France. The chief commodity of this island is, however, its currants (*uvæ Corinthiacæ*). There are only two vineyards that produce the grapes, which, when dried, are denominated Zante currants, and are

situated in a delightful plain about the middle of the island; the grapes are gathered in the month of August, and laid on the ground to dry; when perfectly dried they are carried to the capital of the island, and lodged in warehouses, called *seraglios*, being poured into them by means of large doors in their roofs, until the warehouses are completely filled; they adhere so closely when thus lodged, that immediately before their being barrelled, they are obliged to be removed with iron utensils. Opposite to Patros, in the country of the ancient Etolians, there is a village called Anatolico, whose inhabitants cure currants of an extraordinary size, being about twice as large as those of Zante. There are other species of grapes grown in Zante, from which excellent strong wines are made. Oil of good quality is also made here. The Zante melons are equal to the Spanish; they are of two sorts, white and yellow; the first, which is of a clear white within, has a greenish rind, and yields a delightful odour, as if it were perfumed with ambergris. The peaches of this island are extremely well flavoured, and so large that each of them weighs from 8 to 10 ounces; here, likewise, grow in abundance, lemons of an uncommonly large size, oranges, figs, and excellent limes. This island, with those of Corfu and Cephalonia, before mentioned, and the four other small and dependent islands of Maura, Ithaca, Congo, and Paxo, form now altogether an *independent* state, under what is called "*the protection*" of Great Britain. Of this anomalous government it is not necessary to say any thing. The inhabitants have been rescued from Turkish despotism, and that is a great step gained toward independence, industry, and wealth.

There are other islands in the European seas, in addition to those already enumerated, but they are of such trifling importance, in a commercial point of view, that we do not deem it necessary to notice them particularly.

EXCHANGE, signifies a place in most considerable cities, wherein the merchants, agents, bankers, brokers, interpreters, and other persons concerned in commerce, meet at certain times, to confer and treat together of matters relating to exchanges, remittances, payments, adventures, assurances, freights, and other mercantile negotiations both by sea, and land. The most considerable Exchanges in Europe are those of London, Amsterdam, Dublin, and Bourdeaux.

EXCHANGES are carried on by merchants and bankers all over Europe, and are transacted on their different Exchanges. The mode of exchanging between one kingdom or nation, and another, is, the one gives the certain price, and the other the uncertain price of exchange to each other: *i. e.* England gives the price, viz. one pound sterling to France, for an uncertain number of livres and sous, (or francs and cents,) to be paid or received there, and gives the same to Hamburgh, Holland, and the Netherlands, for an uncertain number of schillings and pence Flemish, or of guilders and stivers: and she gives the uncertain price, viz. an uncertain number of pence and parts of pence to other nations; as for example, she gives from 60*d.* to 70*d.* (more or less) to Lisbon or Oporto for one of their milreis; from 30*d.* to 40*d.* to Madrid, Cadiz, &c. for their piastre or dollar; from 35*d.* to 55*d.* to Genoa and Leghorn for a pezzo or dollar, of 5 livres banco at Genoa, and 6 livres at Leghorn; from 25*d.* to 45*d.* to Naples for a ducat of 10 carlins, or 100 grains; from 36*d.* to 56*d.* to Venice for a ducato banco of 24 grossi; from 30*d.* to 40*d.* to Petersburgh for a rouble of 100 copecks; and to Dublin and all parts of Ireland 100*l.* sterling for an uncertain number of pounds, shillings, and pence Irish, to be paid or received there, viz. from 105*l.* up to 115*l.* Irish, as exchange may happen to be.

The par of exchange (or *par pro pari*) is the intrinsic value of the different species of money on the continent, equalised to those of England, and *vice versâ;* as, for instance, the par of exchange between England and Ireland is 8½ per cent. or in other words, 108*l.* 6*s.* 8*d.* Irish, are equal to 100*l.* English; the English shilling being current in that country for 13*d.* consequently the pound sterling is 1*l.* 1*s.* 8*d.* therefore when the exchange from London on Dublin is 12 per cent. there is a profit or saving of 3*l.* 15*s.* 4*d.* per cent. on every 100*l.* sterling remitted to Ireland.

The course of exchange is always fluctuating, sometimes under, and sometimes over the par of exchange, and is chiefly governed by the balance of trade being for, or against, the negotiating parties; so that when the exchange is above par, the balance of trade is certainly against them, and when it is under par, it is consequently in their favour. If London ships to Hamburgh merchandise to the amount of 500,000*l.* and at the same time Hamburgh ships to London goods or merchandise to only the amount of 300,000*l.* Hamburgh can only discharge to the amount of 300,000*l.* and for remaining balance of 200,000*l.* she must procure bills of exchange at the lowest possible premium elsewhere, in order to liquidate the debt due to London, as it is not to be supposed that Hamburgh, being indebted to London, can furnish bills on equally good terms with another city not indebted to London. Thus Hamburgh, by paying a premium of 1 per cent. for bills of exchange, would have to pay 202,000*l.* in order to liquidate the aforesaid balance of 200,000*l.* thereby losing 2000*l.* on the transaction.

Thus it is that the balance of trade affects the fluctuation of exchanges.

The certain price always rises in its value as the course is above or below par, and the uncertain price fluctuates in value the contrary way. As banco money of Holland is always better than cash or current money, so there is usually a difference of from $1\frac{1}{8}$ to $5\frac{3}{8}$ per cent. which is called the agio, and fluctuates.

The Exchanges on the Continent are negotiated in the following manner, subject to the like fluctuations as before-mentioned, viz.

From Amsterdam to London, from 30 to 40 schillings Flemish, per pound sterling; and, also, from 10 to 12 current florins per pound sterling.
Paris, Bourdeaux, &c. from 50 to 60 groots Flemish, per 3 francs.
Madrid, Cadiz, &c. from 90 to 100 do. per ducat of 375 marvedis plate.
Lisbon, Oporto, &c. from 40 to 50 do. per crusado, or crown of 400 reis.
Genoa and Leghorn, from 80 to 90 do. per pezzo, or dollar of 5 livres banco at Genoa, or 6 livres at Leghorn.
Hamburgh, from 30 to 40 stivers, per exchange ducat of 2 marks.
Petersburgh, from 40 to 50 stivers current per rouble.

From Paris, Bourdeaux, &c. to London, from 22 to 26 francs, per pound sterling.
Amsterdam, from 50 to 60 groots Flemish, per ecu of do.
Madrid, Cadiz, &c. from 13 to 17 francs per doubloon of 32 reals old plate.
Lisbon and Oporto, from 400 to 500 reis per 3 francs.
Genoa and Leghorn, from 90 to 100 sous, per dollar, or pezzi, of livres 5.15 fuer. banco at Genoa, or 6 livres at Leghorn.
Hamburgh, from 25 to 28 schillings banco, per 3 francs.

From Naples to London, from 500 to 600 grains per pound sterling.

From Venice to London, from 24 to 28 Italian livres per pound sterling.

From Madrid, Cadiz, &c. to London, from 30*d.* to 40*d.* per peso, or dollar of 8 reals old plate.
Hamburgh, from 70 to 80 groots per ducat, of 375 marvedis.
Amsterdam, from 90 to 100 groots Flemish, per ditto.
Paris, Bourdeaux, &c. from 13 to 17 francs per doubloon, of 32 reals old plate.
Lisbon and Oporto, from 2000 to 2200 reis per doubloon old plate.
Genoa, from 620 to 660 marvedis plate, per escu d'or marche.
Ditto, from 21 to 25 livres fuero banco, per pistole of 40 reals plate.
Leghorn, from 120 to 130 pesos, or Spanish dollars, for 100 pezzi, or Leghorn dollars, of 6 leras each.

From Lisbon and Oporto to London, from 60*d.* to 75*d.* per milrea.
Amsterdam, from 40 to 50 groots Flemish, per crusado of 400 reis.
Paris, Bourdeaux, &c. from 450 to 500 reis per 3 francs.
Madrid, Cadiz, &c. from 2000 to 2200 reis per doubloon of 32 reals plate.
Genoa and Leghorn from 600 to 800 reis per peso, or dollar of 5.15 livres at Genoa, or 6 livres at Leghorn.
Hamburgh, from 40 to 50 groots Flemish, per crusadon of 400 reis.

From Petersburgh to London, from 9*d.* to 15*d.* sterling per rouble.
Amsterdam, from 40 to 50 stivers per silver rouble.
Hamburgh, from 25 to 35 schillings banco per rouble.

From Genoa and Leghorn to London, from 40*d.* to 50*d.* per dollar of 5 livres banco.
Amsterdam, from 80 to 90 groots Flemish, per ditto.
Paris, Bourdeaux, &c. from 90 to 100 sols in francs, per do.
Madrid, from 620 to 660 marvedis plate, per escude d'or marche (or 22 to 24 livres per pistole of 40 reals plate).
Cadiz, from 120 to 130 pesos per 100 pezzi.
Lisbon, Oporto, &c. from 600 to 800 reis per dollar of 5.15 livres fuero banco.

From Hamburgh to London, 30 to 40 schillings Flemish, per pound sterling.
Paris, Bourdeaux, &c. from 25 to 28 schillings banco per 3 francs.
Madrid, Cadiz, &c. from 60 to 80 groots per ducat of 375 marvedis.
Amsterdam, from 30 to 40 stivers per 2 banco marks.
Ditto (in current money at 120 marks, from 105 to 110 guilders).
Lisbon and Oporto, from 40 to 50 groots Flemish, per crusado of 400 reis.

We shall now give some examples of the operations of exchange between London and those places with which she has a direct exchange, subject to fluctuations as before-mentioned, viz.

London. — *Course of Exchange.*

	Time.		*Uncertain Prices.*	*Certain Prices.*
Amsterdam -	3 Ms.	gives	37 schillings Flemish	for 1 pound sterling.
Dublin -	21 days' sight.	gives	110½ pounds Irish	for 100 pounds British.
Paris, Bourdeaux, &c.	3 Ms.	give	25 livres Tournois	for 1 pound sterling.
Idem - - -		gives	25 francs	for 1 pound sterling.
Genoa - -	3 Ms.	receives	46*d.* sterling	for 1 pezza fuori di banco.
Hamburgh - -	3 Ms.	gives	35 schillings Flemish	for 1 pound sterling.
Leghorn - - -	3 Ms.	receives	50*d.* sterling	for 1 pezza of 8 reals.
Naples - -	3 Ms.	receives	39*d.* sterling	for 1 ducat di regno.
Lisbon, Oporto, &c.	60 days	receive	63½*d.* sterling	for a milreis (or 1000 reis).
Rotterdam - -	3 Ms.	gives	12 florins current	for 1 pound sterling.
Madrid, Cadiz, &c. -	3 Ms.	receive	36*d.* sterling	for 1 dollar of exchange.
Venice -	3 Ms.	gives	26 Italian livres	for 1 pound sterling.

Moneys of Exchange and Regulations with regard to London.

A pound = 20 shillings, or 240 pence.
A shilling = 12 pence, or 48 farthings.

Accounts are kept in pounds, shillings, and pence: some reckon farthings.

Value of usances for bills drawn from

Holland - -	1 month after date.
Spain and Portugal	2 ditto.
Italy - -	3 ditto.

There are three days of grace, which begin the day after the bills are due, and on the third day they must be paid or protested. Bills due on Sunday must be paid or protested on Saturday: for these at sight, no days of grace are allowed.

London on Amsterdam.

Reduce 4086 florins, 4 stivers, 6 penings banco, into pounds, shillings, and pence sterling, at the exchange of 38 schillings, 2 groots Flemish banco, per pound sterling.

Here 1 florin = 40 groots.
12 groots = 1 schilling.
32 schil. 2 groots = 1 pound.

Rule.—Multiply 4086 4 6 by 40 groots; divide the product by 38 2 price of exchange and by 12 groots.

38.2	4086 4 6
12	40
458 div.	163440
for 4 stivers	8
for 6 penings	¾

458)163448¾(356*l.* 17*s.* 6*d.* result by common division.

N. B. When the price of exchange consists of schillings Flemish only, multiply the sum by 10 instead of 40, and multiply the price of exchange by 3 instead of 12.

London on Dublin, Cork, &c.

Reduce 293 pounds, 10 shillings, and 6 pence Irish, into pounds, shillings, and pence British, at the exchange of 14 per cent.

£114 Irish = £100 British.

Rule. — Multiply 293 10 6 by 100, and divide the product by 114, price of exchange.

	293 10 6
	100
	29300
for 10 shill.	50
for 6 pence	2 10

114)29352 10(257*l.* 9*s.* 6*d.* result by common division.

To prove this operation, that is to calculate the exchange of Dublin on London, multiply 257*l.* 9*s.* 6*d.* by 114, price of exchange, and divide the product by 100.

N. B. British money is 8⅓ per cent. better than Irish; therefore,

12 pounds British = 13 pounds Irish.

London on Paris, Bourdeaux, &c.

Reduce 3222 livres, 2 sols, 9 derniers Tournois, into pounds, shillings, and pence sterling, at the exchange of 25 livres, 14 sols Tournois per pound sterling. Here 25 livres, 14 sols = 1 pound.

Rule. — Divide 3222 2 9 by 25 14, price of exchange.

```
25 14          3222 2 9
20 fraction.     20  fraction.
-----          ----------
514 div.  514)64142 15(125l. 7s. 6d. result.
```

Reduce 2545 francs, 41 cents, into pounds, shillings, and pence sterling, at the exchange of 24 francs, 80 cents, per pound sterling. Here 24 francs, 80 cents = 1 pound.

Rule. — Divide 2545 41 by 24 80, price of exchange.

2480)2545 41(102*l.* 12*s.* 9*d.* result.

Reduce 5925 francs 75 cents, into livres, sous, and deniers.

Rule.—Multiply by 81, and divide by 80.

Result, livres 6000.

Reduce 6000 livres into francs and cents.

Rule.—Multiply by 80, and divide by 81.

Result 5925 francs, 75 cents. The exchange between London and Paris is now done in francs and cents; livres, sous, and deniers being abolished.

London on Genoa.

Reduce 1277 pezze 13 soldi, 4 denari fuori di banco, into pounds, shillings, and pence sterling, at the exchange of 45 pence sterling per pezza, of 115 soldi fuori di banco.

Here 1 pezza = 45 pence.
240 pence = 1 pound.

Rule. — Multiply 1277 13 4 by 45, price of exchange, and divide the product by 240 pence.

```
                1277 13 4
                  45
                -----
                6385
               5108
for 10 soldi     22 10
for  3 do.—4 denari  7 10
               ------
            12)57495
               ------
            20)4791  3
               ------
            £239 11s. 3d. result.
```

London on Hamburgh.

Reduce 1416 marcs, 1 schilling, 6 fenings, lubs banco, into pounds, shillings, and pence sterling, at the exchange of 35 shillings, 4 groots, Flemish banco, per pound sterling.

Here 1 marc = 32 groots.
12 groots = 1 schilling.
35 schillings, 4 groots = 1 pound.

Rule.— Multiply 1416 1 6 by 32 groots; divide the product by 35 4, price of exchange, and by 12 groots.

```
35 4          1415 1 6
12             32
----          -----
424 div.      2832
             4248
for 1 shilling   2
for 6 penings    1
             ------
        424)45315(106l. 17s. 6d. result.
```

N. B. When the price of exchange consists of schillings Flemish only, multiply the sum by 8 instead of 32, and multiply the price of exchange by 3 instead of 12.

London on Leghorn.

Reduce 664 pezze, 7 soldi, 6 denari of 8 reals, into pounds, shillings, and pence sterling, at the exchange of 48 pence sterling per pezza of 8 reals.

1 pezza = 48 pence.
240 pence = 1 pound.

Rule.—Multiply 664 7 6 by 48, price of exchange, and divide the product by 240 pence.

```
                664 7 6
                 48
               -----
               5312
              2656
for 5 soldi      12
for 2 do. 6 denari  6
              ------
           12)31890
              ------
           20)2657 6
              ---------
           £132 17s. 6d. result.
```

London on Naples.

Reduce 1014 ducats, 16 grains di regno, into pounds, shillings, and pence sterling, at the exchange of 37½ pence sterling per ducat di regno.

1 ducat = 37½ pence.
240 pence = 1 pound.

Rule.—Multiply 1014 16 by 37½, price of exchange, and divide the product by 240 pence.

```
                1014 16
                  37½
               -----
               7098
              3042
for ½          507
for 16 grains    6
              ------
           12)38031
              ------
           20)3169 3
              ------
           £158 9s. 3d. result.
```

London on Lisbon, Oporto, &c.

Reduce 566880 reis into pounds, shillings, and pence sterling, at the exchange of 62½ pence per milreis.

1000 = 62½ pence.
240 pence = 1 pound.

Rule.—Multiply 566880 by 62½, price of exchange; divide the product by 1000 reis and the quotient by 240 pence.

```
        566880
          62½
       -------
       1133760
      3401280
        283440
      -------
1000)35430000
      -------
  12)35430
      -----
  20)2952 6
      -----
£147 12s. 6d. result.
```

N.B. To divide the product by 1000, separate the three right-hand figures, and when they are or exceed 500, add one unit.

London on Rotterdam.

Reduce 2401 florins, 17 stivers, 8 penings current, into pounds, shillings, and pence sterling, at the exchange of 12 florins, 4 stivers current per pound sterling.

12 florins 4 stivers = 1 pound.

Rule.—Divide 2401 17 8 by 12 4, price of exchange.

```
12 4          2401 17 8
20 fraction.  20 fraction.
----          ----
244 div.  244)48037½(£196 17s. 6d. result.
```

London on Madrid, Cadiz, &c.

Reduce 2643 dollars, 6 reals, 17 marvedis of plate, into pounds, shillings, and pence sterling, at the exchange of 35½ pence sterling, per dollar of exchange.

1 dollar = 35½ pence.
240 pence = 1 pound.

Rule.—Multiply 2643 6 17 by 35½, price of exchange, and divide the product by 240 pence.

```
                 2643 6 17
                   35½
                 -----
                 13215
                 7929
for ½ - - -      1321 4
for 4 reals -      17 6
for 2 do. - -       8 7
for 17 marvedis     2 1 25½
                 ----------
            12)93855 2 25½
                 ----------
            20)7821 3
                 -----
£391 1s. 3d. result.
```

London on Venice.

Reduce 14783 lire, 3 soldi, 9 denari piccole, into pounds, shillings, and pence sterling, at the exchange of 59 lire piccole effective per pound sterling.

59 lire = 1 pound.

Rule.—Divide 14783 3 9 by 59, price of exchange.

59)14783 3 9(250*l.* 11*s.* 3*d.* result.

We shall now give the exchanges from Holland, as also some examples of the operations with some places with which she has a direct exchange.

Amsterdam, &c.—*Course of Exchange.*

		Uncertain Prices.		*Certain Prices.*
London - - -	receives	37 schillings Flemish	for	1 pound sterling.
Idem - - -	receives	12 florins current	-	1 pound sterling.
Breslaw - - -	receives	44 stivers banco	-	1 libia banco.
Dantzic - - -	receives	1 pound Flemish	-	372 groshen current.
Paris, &c. - -	receives	54 groots Flemish	-	3 francs.
Frankfort - -	gives	139 rixdollars	-	100 rixdollars current.
Geneva - - -	receives	90 groots Flemish	-	1 crown current.
Genoa - - -	receives	83 groots Flemish	-	1 pezza fuori di banco.
Hamburgh - -	receives	33 stivers banco	-	1 marc lubs banco.
Idem - - -	receives	106 florins current	-	120 marcs lubs banco.
Leghorn - - -	receives	88 groots Flemish	-	1 pezza of 8 reals.
Lisbon and Oporto -	receive	44 groots Flemish	-	1 crusade of 400 reis.
Madrid, Cadiz, &c. -	receive	89 groots Flemish	-	1 ducat of exchange.
Venice - - -	gives	4 lire 18 soldi	-	1 florin banco.
Vienna - - -	receives	25 stivers banco.	-	1 rixdollar current.

Moneys of Exchange and Regulations *at Amsterdam*, &c.

A rixdollar (rix dalder) = 2½ florins = 50 stivers = 8⅓ sch. Flemish, or 100 groots Flemish
A florin or guilder (gulden) = 20 stivers = 3⅓ schillings Flemish, or 40 groots Flemish.
A stiver (stuyver) = 16 penings, or 2 groots Flemish.
A pound Flemish (pond Flaams) = 20 schillings Flemish = 240 grotes Flemish, or 6 florins.
A schilling Flemish (schilling Flaams) = 12 groots Flemish, or 6 stivers.
A groot Flemish (groot Flaams) = ½ stiver, or 8 penings.

2 rixdollars = 5 florins.
3 rixdollars = 25 schillings Flemish.
3 florins = 10 schillings Flemish.

Accounts are kept here in florins, stivers, and penings.

Value of Usances for bills drawn from

England and France - - - - - -	1 month after date.
Spain, Portugal, and Italy - - - -	2 months after date.
Dantzic and Konigsberg - - - - -	40 to 70 days after date.
Germany and Switzerland - - - -	14 days after sight.

There are 6 days of grace, Sundays and holidays included, for bills of exchange drawn in current money, but for those drawn in bank money, no days of grace are generally allowed, and bills are protested on the second or third day after they become due.

Amsterdam on London.

Reduce 356 pounds, 17 shillings, and 6 pence sterling, into florins, stivers, and penings banco, at the exchange of 38 schillings, 2 groots Flemish banco per pound sterling.

1 pound = 38 schillings, 2 groots.
1 schilling = 12 groots.
40 groots = 1 florin.

Rule.—Multiply 356 17 6 by 38.2, price of exchange, and by 12 groots; divide the product by 40 groots.

```
                    356  17  6
      38.2 × 12 = 458
                    ----
                   2848
                  1780
                 1424
for 10 schillings    229
for 5  do.  -  -     114  10
for 2  do. 6 pence    57   5
                  ----------
          40)163448 15(4086 4 6 result.
```

N.B. When the price of exchange consists of schillings Flemish only, multiply the price of exchange by 3 instead of 12, and divide the product by 10 instead of 40.

Rotterdam on London.

Reduce 196 pounds, 17 shillings, and 6 pence sterling, into florins, stivers, and penings current, at the exchange of 12 florins, 4 stivers current per pound sterling.

1 pound = 12 florins, 4 stivers.

Rule.—Multiply 196 17 6 by 12 4, price of exchange.

```
                  196  17  6
                   12   4
                  ----
                  392
                 196
for 4 stivers  -   39   7
for 10 schillings   6   2
for 5 do.  -  -     3   1
for 2 do. 6 pence   1  10  8
                 ----------
                 2401  17  8 result.
```

N.B. The exchange from Antwerp on London is done as above.

Amsterdam on Paris, Bourdeaux, &c.

Reduce 1056 francs, 75 cents, into florins, stivers, and penings banco, at the exchange of 54 groots Flemish banco for 3 francs.

3 francs = 54 grotes.
40 grotes = 1 florin.

Rule.—Multiply 1056 75 by 54, price of exchange, and divide the product by 120, fixed number.

```
                 1056  75
                   54
                 ----
                 4224
                5280
for 50 cents  -   27
for 25 do.  -  -  13½
                 ----------
        120)57064½(475  10  12 result.
```

Amsterdam on Genoa.

Reduce 572 pezze fuori di banco into florins and stivers banco, at the exchange of 85 groots Flemish banco, per pezza of 115 soldi fuori di banco.

1 pezza = 85 grotes.
40 grotes = 1 florin.

Rule.—Multiply 572 by 85 groots, and divide the product by 40 groots. The result is 1215 10.

Amsterdam on Hamburgh.

Reduce 3746 marcs, 5 schillings, 4 penings lubs banco, into florins, stivers, and penings banco, at the exchange of 34½ stivers banco for 2 marcs lubs banco.

2 marcs = 34½ stivers
20 stivers = 1 florin.

Rule.—Multiply 3746 5 4 by 34½, price of exchange, and divide the product by 40, fixed number.

```
                 3746   5  4
                  34½
                 -----
                14984
               11238
for ½  -  -  -   1873
for 4 schillings -  -  8  10
for 1 schilling  -  -  2   2  6
for 4 penings  -  -    11   6
                 ----------
        40)129248½(3231  4  4 result.
```

Reduce 2854 marcs, 8 schillings lubs banco, into florins, stivers, and penings current, at the exchange of 106 florins current for 120 marcs lubs banco.

130 marcs = 106 florins.

Rule.—Multiply 2854 8 by 106, price of exchange, and divide the product by 120 marcs.

```
          2854 8
           106
         ------
          17124
         28540
for 8 schillings - 53
         ------
120)302577(2521 9 8 result.
```

Exchange with the United States of America.

Monies of Exchange and Regulations.

A dollar = 100 cents.

Accounts are kept in dollars and cents, each dollar is rated at 4*s.* 6*d.* sterling at par: therefore, 40 dollars = 9 pounds sterling.

Course of Exchange.

Uncertain prices.	*Certain prices.*
Amsterdam receives 37 cents -	for 1 florin current.
Hamburgh receives $33\frac{1}{2}$ cents -	for 1 marc lubs banco.

N. B. America exchanges with London at par, or at so much per cent. either above or under par. When the exchange is not at par, they reduce the sterling into dollars, and add or deduct, according to the circumstance, the agio, which is the difference between the par of exchange and the actual course.

Currencies and their Par in Sterling.

A pound currency = 20 shillings, or 240 pence.

In Georgia and South Carolina, a dollar is worth 4*s.* 6*d.* currency; therefore 100 pounds currency = 100 pounds sterling.

In New England and Virginia, a dollar is worth 6*s.* currency; therefore $133\frac{1}{3}$ pounds currency = 100 pounds sterling.

To reduce this currency into sterling, multiply by 3 and divide by 4.

In Delaware, Maryland, New Jersey, and Pennsylvania, a dollar is worth 7*s.* 6*d.* currency; therefore $166\frac{2}{3}$ pounds currency = 100 pounds sterling.

To reduce this currency into sterling, multiply by 3 and divide by 5.

In New York and North Carolina, a dollar is worth 8*s.* currency; therefore $177\frac{7}{9}$ pounds currency = 100 pounds sterling.

To reduce this currency into sterling, multiply by 9 and divide by 16.

N. B. The several provincial currencies above mentioned are abolished in the United States of America, and the accounts kept in those monies are not admitted in the courts of justice: they are still used, however, by the force of habit, in certain commercial transactions.

America on London.

Reduce 173*l.* 17*s.* 6*d.* sterling, into dollars and cents, at par.

9 pounds = 40 dollars.

RULE. — Multiply 173*l.* 17*s.* 6*d.* by 40 dollars, and divide the product by 9*l.*

```
          173 17 6
           40
         ----
         6920
for 10s. - 20
for 5s.  - 10
for 2s. 6d.  5
         ----
9)6955(772,77 7/9 result.
```

To prove this operation, multiply $772,77\frac{7}{9}$ by 9, and divide the product by 40.

America on Amsterdam.

Reduce 839 florins, 15 stivers current, into dollars and cents, at the exchange of 37 cents per florin, current.

1 florin = 37 cents.
100 cents = 1 dollar.

RULE.—Multiply 839*fl.* 15*st.* by 37, price of exchange, and divide the product by 100 cents.

```
          839 15
           37
         ----
         5873
        2517
for 10 stivers  18 1/2
for  5 do.       9 1/4
         ----------
1,00)310,70 3/4(310,70 3/4 result.
```

To prove this operation, multiply $310,70\frac{3}{4}$ by 100 cents, and divide the product by 37, price of exchange.

America on Hamburgh.

Reduce 1236 marcs, 12 shillings lubs banco, into dollars and cents, at the exchange of $33\frac{1}{2}$ cents per marc lubs banco.

1 marc = $33\frac{1}{2}$ cents.
100 cents = 1 dollar.

RULE. — Multiply 1236 12 by $33\frac{1}{2}$, price of exchange, and divide the product by 100 cents.

```
          1236 12
            33 1/2
          ------
          3708
         3708
for 1/2    618
for 8s.     16 3/4
for 4s.      8 3/8
         ----------
1,00)414,31 1/8(414,31 1/8 result.
```

To prove this operation, multiply $414,31\frac{1}{8}$ by 100 cents, and divide the product by $33\frac{1}{2}$, price of exchange.

Exchange with the East Indies.

Course of exchange ordered to be adopted for the adjustment of the Calcutta customs.

	Uncertain prices.	*Certain prices.*
Bombay rec.	2*s.* 6*d.*	for 1 rupee.
Calcutta —	2*s.* 8*d.*	— 1 sicca rupee.
Madras —	8*s.* 9*d.*	— 1 star pagoda.

Table of Exchange.

	Coins.	Exchange. *sicca rupees.*
Great Britain gives	1 pound sterling	for 10
Denmark	— 1 rixdollar	— $2\frac{1}{4}$
France	— 24 francs	— 10
Ditto	— 48 Mauritius livres	— 10
Spain	— 1 hard dollar	— $2\frac{1}{4}$
Portugal	— 1000 reis	— $2\frac{3}{4}$
China	— 1 tale	— $3\frac{1}{3}$
Madras	— 1 star pagoda	— $3\frac{3}{4}$
America	— 1 dollar	— $2\frac{1}{4}$

Monies of Exchange.

Bombay.

A rupee = 4 quarters, or 400 reis.
A quarter = 100 reis.

Calcutta.

A rupee = 16 annas or 192 pices.
An anna = 12 pices.
100 sicca rupees = 116 current rupees.

Madras.

A pagoda = 36 fanams or 288 pices.
A fanam = 8 pices.

Exchange with the West Indies.

Monies of Exchange.

A pound currency = 20 shillings, or 240 pence.

Accounts are kept in pounds, shillings, and pence, currency.

140 pounds Jamaica currency = 100 pounds sterling.

Reduce 573*l.* 12*s.* 6*d.* sterling, into pounds, shillings, and pence, currency, at the exchange of 140 pounds currency for 100 pounds sterling.

100 pounds sterling = 140 pounds currency.

Rule. — Multiply 573*l.* 12*s.* 6*d.* by 140, price of exchange, and divide the product by 100 pounds.

```
                573 12  6
                 140
               ------
               22920
               573
for 10s.  -     70
for  2s. 6d.    17 10
               ---------
      1,00)803,07 10(803 1 6 result.
                20
               ----
               1,50
                 12
               ----
               6,00
```

To prove this operation, multiply 803*l.* 1*s.* 6*d.* by 100 pounds, and divide the product by 140, price of exchange.

N. B. The exchange between Jamaica and Great Britain is 140 per cent. as above stated; but the other islands are different, the exchange being variable, from 130 to 175 per cent. all of which may be calculated according to the above rule.

Arbitration of exchanges is a calculation, by combining the dates of exchange of two or more places, to draw therefrom that which shall be most advantageous to remit or draw on. If bills remained always at par, or if the course of exchange was susceptible of being regulated with accuracy, there would be no such thing as an advantage to be obtained in one more than the other. The data to go upon are easily to be obtained, as the current prices are always published at short intervals.

The following examples will illustrate the nature of this subject.

London and Amsterdam.

Proportional exchange.

	Quotation at London.	*Quotation from Amsterdam.*
On Amsterdam	37 3	36
Genoa	45	$83\frac{1}{2}$
Hamburgh	35	34
Leghorn	$48\frac{1}{2}$	90
Lisbon	62	$44\frac{1}{2}$
Madrid	$34\frac{1}{2}$	$88\frac{1}{4}$
Paris	25 15	$53\frac{1}{2}$

Observation. — London gives the certain price to Amsterdam; that is, 1*l.* sterling for so many shillings banco, more or less; therefore, when London remits to Amsterdam, that place through which the highest course of exchange can be obtained is to be preferred, because more schillings Flemish will be received in exchange for one pound sterling. On the contrary, when London has to draw upon Amsterdam, that place should be chosen which furnishes the lowest course, because less schillings Flemish will be given in exchange for a pound sterling. If you include the charges in the calculation, insert, for an indirect remittance, 100 in the divisor, and 100 less the charges in the dividend; and for an indirect draft, place 100 in the divisor, and 100 more the charges in the dividend.

N. B. The above quotations are successively combined in the following arbitrations, to ascertain the advantage which may be derived from the comparison of the different proportional exchanges.

London and Amsterdam through Genoa.

A bill on Genoa, taken at London at 45 pence sterling, per pezza of $5\frac{3}{4}$ lire fuori di banco, is remitted to Amsterdam, and negotiated at $83\frac{1}{2}$ groots Flemish banco per pezza fuori di banco, what is the proportional exchange between London and Amsterdam?

1 pound sterling	=	240 pence.
45 pence	=	1 pezza.
1 pezza	=	$83\frac{1}{2}$ groots.
12 groots	=	1 schil. Flemish.

Rule.—Multiply 20, fixed number, by the course of exchange between Amsterdam and

Genoa; and divide the product by the course of London on Genoa, that is, $\frac{20 \times 83\frac{1}{2}}{45} = 37.1\frac{1}{6}$

London on Amsterdam through Hamburgh.

A bill on Hamburgh, taken at London at 35 schillings Flemish banco per pound sterling, is remitted to Amsterdam, and negotiated at 34 stivers banco for 2 marcs lubs banco, what is the proportional exchange between London and Amsterdam?

1 pound sterling = 35 schillings Flemish.
8 schil. Flemish = 3 marcs.
2 marcs banco = 34 stivers banco.
6 stivers - = 1 schilling Flemish.

Rule.— Multiply the course of exchange between London and Hamburgh, by the course of Amsterdam on Hamburgh, and divide the product by 32, fixed number, that is, $\frac{35 \times 34}{32} = 37.2\frac{1}{4}$

London on Amsterdam through Leghorn.

A bill at Leghorn, taken at London at $48\frac{1}{2}$ pence sterling per pezza of 8 reals, is remitted to Amsterdam, and negotiated at 90 groots Flemish banco per pezza of 8 reals, what is the proportional exchange between London and Amsterdam?

1 pound = 240 pence.
$48\frac{1}{2}$ pence = 1 pezza.
1 pezza = 90 groots.
12 groots = 1 schilling Flemish.

Rule. — Multiply 20, fixed number, by the course of exchange between Amsterdam and Leghorn, and divide the product by the course of London on Leghorn.

$48\frac{1}{2}$	20
2 fraction	90
97 div.	1800
	2 fraction.
	97)3600($37.1\frac{1}{3}$

London and Amsterdam through Lisbon.

A bill on Lisbon, taken at London at 62 pence sterling, per mil reis, is remitted to Amsterdam, and negotiated at $44\frac{1}{2}$ groots Flemish banco per crusade of 400 reis: what is the proportional exchange between London and Amsterdam?

1 pound = 240 pence.
62 pence = 1000 reis.
400 reis = $44\frac{1}{2}$ groots.
12 groots = 1 schil. Flemish.

Rule.—Multiply 50, fixed number, by the course of exchange between Amsterdam and Lisbon; and divide the product by the course of London on Lisbon, that is, $\frac{50 \times 44\frac{1}{2}}{62} = 35.10\frac{2}{3}$.

London on Amsterdam through Madrid.

A bill on Madrid, taken at London at $34\frac{1}{2}$ pence sterling, per dollar of exchange, is remitted to Amsterdam, and negotiated at $88\frac{1}{4}$ groots Flemish banco per ducat of exchange: what is the proportional exchange between London and Amsterdam?

1 pound sterling = 240 pence.
$34\frac{1}{2}$ pence - = 1 dollar.
375 dollars - = 272 ducats.
1 ducat = $88\frac{1}{4}$ groots.
12 groots - = 1 sch. Flemish.

Rule.—Multiply 1088, fixed number, by the course of exchange between Amsterdam and Madrid; and divide the product by 75, fixed number, multiplied by the course of London on Madrid.

75	1088
$34\frac{1}{4}$	$88\frac{1}{4}$
300	8704
225	8704
$37\frac{1}{2}$	272
$2587\frac{1}{2}$	96016
2 fraction	2 fraction
5175 div.	5175)192032($37.1\frac{1}{15}$ result.

London and Amsterdam through Paris.

A bill on Paris, taken at London at 25 livres, 15 sols Tournois per pound sterling, is remitted to Amsterdam, and negotiated at $53\frac{1}{2}$ groots Flemish banco for 3 francs, what is the proportional exchange between London and Amsterdam?

1 pound sterling = $25\frac{3}{4}$ livres Tournois.
81 livres Tournois = 80 francs.
3 francs - = $53\frac{1}{2}$ groots.
12 groots - = 1 schil. Flemish.

Rule.—Multiply 20, fixed number, by the course of exchange between London and Paris, and by the course of Amsterdam on Paris; divide the product by 729, fixed number: that is, $\frac{20 \times 25\frac{3}{4}}{729} = 37.9\frac{1}{2}$ result.

Recapitulation of the proportional exchange between London and Amsterdam.

Through Genoa it comes out at	37	$1\frac{1}{3}$
Hamburgh - -	37	$2\frac{1}{4}$
Leghorn - -	37	$1\frac{1}{3}$
Lisbon will answer to draw	35	$10\frac{2}{3}$
Madrid - - -	37	$1\frac{5}{16}$
Paris will answer to remit	37	$9\frac{1}{2}$
Direct course between London and Amsterdam - - -	37	3

Application to remit. — It appears by the comparison of the above-mentioned exchanges, that the proportionable exchange on Paris is the highest, and consequently, that it would be more advantageous to remit to Amsterdam by that place than by either of the others, or by a direct bill: such remittance would establish an indirect course of $37.9\frac{1}{2}$, instead of the direct, 37.3; so that a mer-

chant would receive 37 schillings, $9\frac{1}{2}$ groots Flemish, in exchange for 1 pound sterling.

37.3 direct course : $37.9\frac{1}{2}$ indirect course : : 100 : - - 101 9 1

Less charges at $\frac{3}{4}$ per cent.	15 0	
Advantage resulting from the arbitration -	14 1	1 9 1
		100 0 0

Application to draw.—If a merchant at London have to value on Amsterdam, instead of drawing directly, he would order his correpondent at Amsterdam to take a bill on Lisbon at $44\frac{1}{2}$, and either to remit it thither to provide for drafts from London on Lisbon at 62, or to remit it to London to be negotiated at the same price. Such operation would establish an indirect course of $35.10\frac{2}{3}$, instead of the direct, 37.3; so that a merchant would give only 35 schillings, $10\frac{2}{3}$ groots Flemish, for 1 pound sterling.

37.3 direct course : $35\ 10\frac{2}{3}$ direct course : : 100 : - 96 6 10

Add for charges, at $\frac{3}{4}$ per cent. - -	0 15 0	
Advantage resulting from the arbitration -	2 18 2	3 13 2
		100 0 0

London and Genoa

Proportional exchange.

	Quotation. At London.			*Quotation. from Genoa.*
On Genoa	- 46			
Amsterdam	37.4	-	-	$84\frac{7}{8}$
Hamburgh	35.4	-	-	$46\frac{1}{4}$
Leghorn	50	-	-	$124\frac{1}{2}$
Lisbon	- $61\frac{1}{2}$	-	-	765
Madrid	$34\frac{3}{4}$	-	-	660
Paris	- 25.2	-	-	$94\frac{7}{8}$

Observation.—London gives the uncertain price to Genoa; that is, 46 pence sterling, more or less, for 1 pezza fuori di banco; therefore, when London remits to Genoa, that place through which the lowest course of exchange can be obtained is to be preferred, because less pence will be given in exchange for a pezza.

If you include the charges in the operation, insert, for an indirect remittance, 100 less the charges in the divisor, and 100 in the dividend; and for an indirect draft, place 100 more the charges in the divisor, and 100 in the dividend.

N. B. The above quotations are successively combined in the following arbitrations, to ascertain the advantage which may be derived from the comparison of the different proportional exchanges.

London on Genoa through Amsterdam.

A bill on Amsterdam, taken at London at 37 schillings, 4 groots Flemish banco per pound sterling, is remitted to Genoa, and negotiated at $84\frac{7}{8}$ groots Flemish banco per pezza of $5\frac{3}{4}$ lire fuori di banco: what is the proportional exchange between London and Genoa?

1 pezza $= 84\frac{7}{8}$ groots.
12 groots = 1 schilling Flemish.
$37\frac{1}{2}$ schil. Flemish = 1 pound sterling.
1 pound = 240 pence.

Rule.—Multiply 20, fixed number, by the course of exchange between Genoa and Amsterdam; and divide the product by the course of London on Amsterdam.

$37\frac{1}{3}$	20
3 fraction	$84\frac{7}{8}$
112 div.	1680
	$17\frac{1}{2}$
	$1697\frac{1}{2}$
	3 fraction
	112)$5092\frac{1}{2}$($45\frac{1}{2}$ result.

London and Genoa through Hamburgh.

A bill on Hamburgh, taken at London at 35 schillings 4 groots Flemish banco per pound sterling, is remitted to Genoa, and negotiated at $46\frac{1}{4}$ soldi fuori di banco per marc lubs banco: what is the proportional exchange between London and Genoa?

1 pezza = 115 soldi.
$46\frac{1}{4}$ soldi = 1 marc banco.
3 marcs = 8 schil. Flemish.
$35\frac{4}{6}$ schil. Flemish = 1 pound sterling.
1 pound = 240 pence.

Rule.—Divide 73600, fixed number, by the course of exchange between London and Hamburgh, multiplied by the course of Genoa on Hamburgh.

$35\frac{2}{6}$	73600
6 fraction	6 fraction
212	9805)441600(45 result.
$46\frac{1}{4}$	49400
1272	375
848	
53	
9805	

London and Genoa through Leghorn.

A bill on Leghorn, taken at London at 50 pence sterling, per pezza of 8 reals, is remitted to Genoa, and negotiated at $124\frac{1}{2}$ soldi fuori di banco per pezza of 8 reals: what is the proportional exchange between London and Genoa?

1 pezza fuori di banco = 115 soldi ditto.
$124\frac{1}{2}$ soldi ditto - = 1 pez. of 8 reals.
1 pezza of 8 reals - = 50 pence sterl.

Rule.—Multiply 115, fixed number, by the course of exchange between London and

Leghorn; and divide the product by the course of Genoa on Leghorn.

$124\frac{1}{2}$ — 2 fraction — 249

115 — 50 — 5750 — 2 fraction

249)11500($46\frac{3}{15}$ result.
1540
46

London on Genoa through Lisbon.

A bill on Lisbon, taken at London at $61\frac{1}{2}$ pence sterling per mil reis, is remitted to Genoa, and negotiated at 764 reis per pezza of 115 soldi fuori di banco: what is the proportional exchange between London and Genoa?

1 pezza = 765 reis.
1000 reis = $61\frac{1}{2}$ pence.

Rule. — Multiply the course of exchange between Genoa and Lisbon, by the course of London on Lisbon, and divide the product by 1000, fixed number.

765
$61\frac{1}{2}$
765
4590
$382\frac{1}{2}$

1,000)47,0474$\frac{1}{2}$($47\frac{1}{21}$ result.

London and Genoa through Madrid.

A bill on Madrid, taken at London, at $34\frac{3}{4}$ pence sterling, per dollar of exchange, is remitted to Genoa, and negotiated at 660 maravedis per gold crown: what is the proportional exchange between London and Genoa?

1 pezza - = 115 soldi.
214 soldi - = 1 gold crown.
1 gold crown = 660 maravedis.
272 maravedis = 1 dollar.
1 dollar - = $34\frac{3}{4}$ pence.

Rule.—Multiply 115, fixed number, by the course of exchange between Genoa and Madrid, and by the course of London on Madrid; divide the product by 58208, fixed number.

115
660
6900
690
75900
$34\frac{3}{4}$
303600
227700
56925

58208)2637525)$45\frac{3}{16}$ result.
309205
18165

London and Genoa through Paris.

A bill on Paris, taken at London at 25 livres 2 sols Tournois per pound sterling, is remitted to Genoa, and negotiated at $94\frac{7}{8}$ sols in francs per pezza of 115 soldi fuori di banco: what is the proportional exchange between London and Genoa?

1 pezza = $94\frac{7}{8}$ sols.
20 sols = 1 franc.
80 francs = 81 livres Tournois.
$25\frac{1}{10}$ livres Tournois = 1 pound sterling.
1 pound sterling = 240 pence.

Rule. — Multiply 243, fixed number, by the course of exchange between Genoa and Paris, and divide the product by 20, fixed number, multiplied by the course of London on Paris.

20 — $25\frac{1}{10}$ — 502 div.

243 — $94\frac{7}{8}$ — 972
2187
$121\frac{4}{8}$
$60\frac{6}{8}$
$30\frac{3}{8}$

502)23054$\frac{5}{8}$($45\frac{15}{16}$ result.
2974
464

Recapitulation of the proportional exchange between London and Genoa.

Thro' Amsterdam it comes out at -	$45\frac{1}{2}$
Hamburgh will answer to remit	45
Leghorn - - -	$46\frac{3}{16}$
Lisbon will answer to draw	$47\frac{1}{21}$
Madrid - - - -	$45\frac{5}{16}$
Paris - - - -	$45\frac{15}{16}$
Direct course between London and Genoa - - - -	46

Application to remit. — It appears by the comparison of the above-mentioned exchanges, that the proportional exchange upon Hamburgh is the lowest, and consequently, that it would be more advantageous to remit to Genoa by that place, than by either of the others, or by a direct bill; such remittance would establish an indirect course of 45, instead of the direct 46, so that a merchant would give only 45 pence in exchange for one pezza fuori di banco.

46 direct course : 45 indirect course : : 100*l.* - -		97 16 6
Add for charges $\frac{3}{4}$ per cent.	0 15 0	2 3 6
Advantage resulting from the arbitration -	1 8 6	
		100 0 0

Application to draw. — If a merchant at London had to value on Genoa, instead of drawing directly, he would order his correspondent at Genoa to take a bill on Lisbon at 765, and either to remit it thither to provide for drafts from London upon Lisbon, at $61\frac{1}{2}$, or to remit it to London to be negotiated at the same price; such oper-

ation would establish an indirect course of $47\frac{1}{2}$, instead of the direct 46, so that a merchant would receive $47\frac{1}{21}$ pence in exchange for a pezza.

46 direct course : $47\frac{1}{21}$ indirect course : : 100*l.* - -	102	5	7
Less charges at $\frac{3}{4}$ per cent. 0 15 0			
Advantage resulting from the arbitration - 1 10 7	2	5	7
	100	0	0

EXCHANGE-BROKER, is a person so called, who regularly attends on 'Change, for the purpose of negotiating foreign bills for the merchants, and for which he is usually paid a brokerage of $\frac{1}{8}$th per cent. upon the amount.

EXCHEQUER.—This, which is a court of law and equity, is a very ancient court of record, established by William the Conqueror, as a part of the *aula regis*, though regulated and reduced to its present state by Edward I., intended chiefly to order the revenues of the crown, and to recover the king's debts and duties. An appeal from the equity side of this court lies immediately to the house of peers; but from the common law side, pursuant to 31 Ed. III. c. 12. a writ of error must first be brought into the court of exchequer chamber, whence, in the *dernier resort*, there lies an appeal to the house of lords.

EXCHEQUER-BILLS, bills of credit issued by the authority of parliament, payable with interest out of the produce of a particular tax, or more frequently out of the supplies to be granted in a future session. The sum of 2,750,000*l.* is usually raised in this manner on credit of the malt tax, and tax on personal estates, although it is well known that these taxes never produce so much, the deficiency being always made good out of the next supplies. The sum to be issued out of the consolidated fund is likewise usually raised by these bills, charged upon the growing produce of the surplus of the said fund; also other sums for ordinary and extraordinary expenses, by bills charged upon the first supplies of the next session. The Bank contract with government for the circulation of these bills, at a certain premium. The interest they carry has been at various rates; those at present in circulation, bear interest at the rate of two-pence halfpenny a day *per cent.* which is computed up to the day of sale, from the respective dates of the bills. They are from 100*l.* each, to 1000*l.*, and some for much larger sums: they are numbered arithmetically, and registered accordingly. When they are to be paid off, or interest at least upon them, to cease, such payment is notified by advertisement. The daily transactions between the bank and the exchequer are chiefly carried on by bills of 1000*l.* each, which are deposited by the bank in the exchequer, to the amount of the sums received by them on government's account; the bank notes and cash thus received by the bank being retained by them, as the detail part of the money concerns of government is all transacted at the bank. The instalments on loans are paid into the receipt of the exchequer by these exchequer-bills of 1000*l.* each, which are received again by the bank as cash, either for the amount of dividends due, or in repayment of advances; and as, while deposited in the exchequer, they are considered merely as a pledge or security, they of course continue to bear interest, till the advance, on which the bank first received them, is paid off.

The premium or discount at w ich exchequer-bills sell, depends on the proportion which the interest payable on them bears to the interest produced by the public funds, according to their current prices.

Exchequer-bills, though the same in their nature and solidity, differ in their origin from navy-bills in this, that they ar issued in anticipation of revenue, and circulated by the Bank of England to raise money. During the recess of parliament, there is a sum left to the credit of the chancellor of the exchequer, to serve in cases of exigency. The bank makes advances to the amount voted, for which the exchequer issues bills.

There is a standing contract between government and the bank, for the trouble and expense attending the issue and circulation of these bills. The payment is made at the exchequer-bill office, Westminster. *See* BANK.

EXCISE, one of the principal branches of the public revenue, consists of inland duties, or taxes on articles manufactured or consumed; whereas the duties of customs are paid on goods brought into, or carried out of, the country. It originated in the year 1626, but was not actually established till 1643, when the long parliament laid an excise duty on beer, ale, and other liquors, with a *solemn declaration that at the d of the war all excises should be abolished!!* The example was immediately followed by the king and parliament of Oxford, who established similar excise duties, and the war continuing longer than was expected, this mode of levying money was extended to bread, meat, salt, and many other necessary articles. The excise on bread and meat was afterwards repealed, but the duties on beer and ale were continued, and after the restoration, were granted to Charles II. during his life; from whose death they were continued, under the title of the *temporary excise*, to the differ ent sovereigns, during their respective lives, a part of the civil-list revenue: but they are now placed on the same footing as all the other permanent taxes, being made perpetual, and the produce carried to the consolidated fund. The *hereditary excise* was a duty of 15*d.* per barrel upon beer and ale, and a proportionate sum upon other liquors sold

in the kingdom, and was granted to Charles II., his heirs and successors for ever, as a compensation for the profits of the feudal privileges of wardship and purveyance, then abolished by act of parliament. These two branches, which comprehend all the excise duties existing at the revolution, produced on an average 610,486*l.* yearly. During the reign of William III. the excise was extended to salt; additional duties were laid on beer and ale, and an excise duty on malt, (which has since been granted annually,) was established.

In the reign of Queen Anne, candles, hides, and skins, vellum and parchment, paper and pasteboard, soap, starch, hops, and some other articles, were subjected to excise duties. In the reign of George I. the excise duties, with all other taxes which had been granted for terms of years, were made perpetual; a duty was laid on wrought plate, and the principal part of the duties on tea, coffee, and chocolate, was transferred from the customs to the excise. During the reign of George II. considerable additions were made to excise duties, by licences; a duty on glass, and new duties on spirituous liquors, coffee, chocolate, and malt; since that period numerous additional duties have been imposed on all the articles subject to the excise, which, with the increased consumption, caused by the progress of population and luxury, has rendered this source of the revenue so productive, that it is not surprising those who have had the management of the public finances should have become partial to it, though it has always been an obnoxious mode of taxation.

The whole produce of this tax during the 12 years of the reign of King George I. was 30 421,454*l.*

The produce of one year ending 5th Jan. 1822, was 29,815,533*l.* including the annual duties. *See further, title* REVENUE.

In England the excise duties are collected at an expense of 2*l.* 16*s.* 1*d.* per cent. on the gross revenue, or 3*l.* 0*s.* 4*d.* per cent. on the net produce; but the expense of collecting in Scotland amounts to 7*l.* 8*s.* 6*d.* per cent. on the gross of the revenue, or 8*l.* 10*s.* 6*d.* per cent. on the net produce. In Ireland the management of the excise-duties is united with the customs, and the expense of the whole amounts to 11*l.* 3*s.* 3*d.* per cent,, on the net revenue. *See* CUSTOMS, REVENUE, &c.

EXCISE LAWS.—For the more easily levying the revenue of excise, the kingdom of England and Wales is divided into about fifty collections, some of which are called by the names of particular counties, others by the names of great towns; where one county is divided into several collections, or where a collection comprehends the contiguous parts of several counties. Every such collection is subdivided into several districts, within which there is a supervisor; and each district is again subdivided into out-rides and foot-walks, within each of which there is a gauger or surveying officer.

The commissioners or sub-commissioners, in their respective circuits and divisions, shall constitute, under their hands and seals, so many gaugers as they shall find needful.

Arrears of duties.— By several acts of parliament, all articles in the possession of persons subject to the excise-laws, together with all the materials and utensils of whatever description, are made liable for the arrear of duties, whether these be single or double duties; and if a trader, being in arrears for the single duties, become a bankrupt, and be convicted after the assignment of his effects, the double duties are a lien upon the exciseable commodities, utensils, and materials in the hands of his assignees, and the commissioners, or magistrates, may authorize the penalty to be levied upon all such commodities, and all the materials, preparations, utensils, and vessels for making thereof, in the custody of the bankrupt, or any person or persons in trust for him.— 2 *Doug.* 411.

Bonds,— for the exportation of exciseable commodities, are to be taken by officers of excise, and they are to be given generally upon all exciseable articles, at the place where exported.

Forgery— of any stamps, licences, certificates, permits, or any other excise documents, is by various statutes made a capital felony.

Licences.—In all cases where licences are required, the licence will only sanction the business carried on in that particular place for which such licence was granted; but when the business is carried on by partners, one licence will be sufficient to cover the firm.

Officers of Excise. — The officers of excise are to be appointed, and may be dismissed, replaced, or altered by the commissioners, under their hands and seals: their salaries are allowed and established by the treasury; and by 1 W. and M. c. 24. s. 15. if it be proved by two witnesses, that any officer has demanded or taken any money, or other reward whatever, except of the king, such offender shall forfeit his office. Also by 24 Geo. 3. c. 47. any person bribing, or offering to bribe, an officer of excise is liable to a penalty of 500*l.* And by 38 Geo. 3. c. 54. the excise officer to be transported.

By several statutes no process can be sued out against any officer of excise, for any act done in the execution of his office, until one month after notice given specifying the cause of action, and the name and abode of the person who is to begin, and the attorney who is to conduct the action; and within one month after such notice, the officer may tender amends, and plead

such tender in bar; and having tendered insufficient, or no amends, he may, with leave of the court, before issue joined, pay the money into court. *See* 23 Geo. 3 c. 70. and *Daniel* v. *Wilson*, 5 *Term R.* 1.

Officers of excise are empowered to search, at all times of the day, entered warehouses, or places for tea, coffee, &c. But private houses can only be searched upon oath of the suspicion, before a commissioner or justice of peace, who can, by his warrant, authorize a search; if upon the examination of the informant such commissioner or justice shall think there is sufficient ground of suspicion. *Cooper and Cameron* v. *Boot, in error.* 25 Geo. 3. B. R.

Permits. — Persons dealing in exciseable commodities are entitled to permits for removing the same to different places in certain quantities, and under certain regulations. These permits are written upon a peculiar species of paper, manufactured expressly for the purpose; and by 23 Geo. III. c. 70. s. 11. no permit paper is to be delivered out before it shall be filled up agreeably to the request-note of a trader; and officers knowingly granting any false permit, making false entries in the counterpart thereof, or receiving any commodities into stock with a false or forged permit, are to be transported for seven years.

Samples.—Officers of excise are by various acts, empowered to take samples of exciseable commodities, paying the prices therein regulated for the same.

Seizures.—When an officer makes a seizure of any spirits, or other articles, he must lay his hand on the casks, vessels, &c. so seized, and declare that he seizes such spirits, &c. and the casks or vessels containing the same, for the use of his majesty and of himself; but if the officer happen to be alone when he makes such seizure, he must afterwards, in the presence of witnesses, again lay his hand on such cask or vessel, &c. and repeat the former declaration of seizure.

All information on seizures must be laid in the names of the officers making the same.

Scales and Weights. — By various acts of parliament, traders subject to the excise-laws, are to keep just and sufficient scales and weights, under penalty of 100*l.* for every such offence, and the scales and weights may be seized by the officer.

Traders, manufacturers, and dealers liable to the excise-duties, are to assist the officers in weighing stock; and forcibly obstructing, or using any art or contrivance to prevent or impede the officers from taking a true account, incurs a penalty of 100*l.*

By 46 Geo. 3. c. 112. or stat. 26 Geo. 3. c. 77. s. 13. directing that prosecutions in courts of record for penalties relating to the customs or excise shall be prosecuted in the name of the attorney-general, or some officer of such revenues, shall extend to all proceedings for excise penalties before commissioners of excise, or justices of peace. *s.* 1.

Persons taking false oaths in any case where an oath is required by the excise laws, shall be liable to the pains of perjury. *s.* 3.

By 47 Geo. 3. sess. 2. c. 30. the commissioners, on evidence that the forfeiture arose without any design of fraud, may restore any seizures upon such terms and conditions as they may deem proper.

By 49 Geo. 3. c. 81. where any *vessels* would, if found, be liable to forfeiture for want of entry, or notice, or for being private or concealed, all the utensils used in any private or unentered place where any such vessel shall be found, shall be forfeited. *s.* 8.

By 53 Geo. 3. c. 21. persons committed to prison for offences against the customs and excise laws, *if poor*, are entitled to a daily allowance for sustenance from the commissioners of those boards respectively.

By 53 Geo. 3. c. 103. the executors of persons having taken out licences from commissioners of excise for carrying on certain trades, are empowered to continue the exercise of those trades till the expiration of the terms mentioned in such licences respectively.

By 54 Geo. 3. c. 171. commissioners of the treasury are empowered to restore seizures, and to remit penalties, incurred under laws of customs and excise, on conditions.

The 56 Geo. 3. c. 104. for the prevention of smuggling, and for rewarding persons making seizures, is too comprehensive in its provisions even to be epitomized to any considerable extent here, but the most commonly useful of its provisions are the following:

By sect. 2. officers of the army and navy on half-pay may be authorized by the lords of the treasury to make seizures.

Sect. 6. authorises such officers to carry offenders before justices of the peace, who may convict, and such officers shall on such conviction receive rewards in proportion to the value of the articles produced before such justices. Also provides that in certain cases of failure in securing offenders or seizing goods, lords of the treasury may nevertheless grant rewards to such officers for diligence.

Sect. 14. gives to two justices like powers of adjudication, in cases of seizure under laws of customs, as they previously had under those of excise.

Sect. 15. prohibits actions being brought, or informations taken, for penalties imposed by this act, except by order of the commissioners of excise, or in the name of the attorney-general.

The 57 Geo. 3. c. 87. explains and amends the provisions of the immediately preceding statute relative to the persons entitled to

rewards, and directs that such rewards shall be paid *immediately after condemnation*, after deducting 10*l.* per cent. for expenses.

Sect. 5. of last-mentioned act, directs that any person, a subject of Great Britain, seized on board a vessel liable to forfeiture as aforesaid, shall be liable to be carried before a justice and convicted, in a penalty of 100*l.* and be thereupon sent to serve in his majesty's navy, or be imprisoned in gaol, or house of correction, till such penalty be paid; and the offence shall not be bailable.

Sect. 7. directs condemnation of the vessels and cargoes, though no owner appear.

Sect. 8. and 9. adjust the distribution of forfeitures, and subject persons obstructing seizures to a penalty of 200*l.*

The law of excise relating to the warehousing system is amended by 1 & 2 Geo. 4. c. 105. by which, amongst other things, the decrease of quantity in warehoused exciseable articles, arising from natural waste, is allowed for in charging the duties on such articles, when they are taken out of the warehouse. *And see* WAREHOUSE.

The excise laws relating to the duties on beer, &c. are amended by stat. 1 & 2 Geo. 4. c. 22. which contains provisions to prevent frauds by brewers; and no beer, &c. can be sent out by the brewer without the certificate and entry mentioned in the act.

For excise laws relating to *Salt*, *Tobacco*, and *Paper*, see those Articles.

EXECUTION is a judicial writ, grounded on the judgment of the court from whence it issues; by which the party obtains compensation for the damages he has sustained.

An execution may be against the goods, the goods and profits of the land, and against the body, land, and goods.

Where the body of the debtor is imprisoned, until satisfaction be made for the debt, together with the costs and damages, no other process can be sued out against his lands or goods; but if he die whilst charged in execution upon this writ, new executions may be sued out against his lands, goods, or chattels.

If two writs of execution come to the sheriff on the same day, he ought to execute that first which was first received.

Nothing can be taken in execution that cannot be sold, as deeds and writings: so also bank-notes cannot be taken in execution.

Goods of a stranger in the defendant's possession, cannot be taken in execution.

The sale of goods for a valuable consideration, after judgment and before execution, will be good: but where a man keeps possession of his goods after sale, such sale, by the statute of frauds, will be void.

When a plaintiff obtains judgment, it is at his election to sue out what writ of execution he thinks proper; but he cannot regularly take out two different writs of execution upon the same judgment, nor a second of the same nature, unless upon failure of satisfaction in the first.

No person can sue out an execution but such as is privy to the judgment, or entitled to the thing recovered, as heir, executor, or administrator, to the party who recovers the judgment.

No execution can be taken out against a member of parliament, during privilege of parliament; nor can any *capias* issue against a peer.

Priority and Proceedings of Execution.—Lands are bound from the time of the judgment; and also statute-merchant, statutes-staple, and recognizance, which also bind the lands from the time of entering them.

No judgment, which shall not be entered in the several courts, and regularly docketed, pursuant to act of parliament, shall affect any lands or tenements as to purchasers or mortgagees, or have any preference against heirs, executors, or administrators in their administration of their ancestors, testators, or intestate estates; but execution for the king's debt, or prerogative execution, is always preferred before any other execution. 7 *Rep.* 20.

No writ of execution shall bind the property of the goods but from the time such writ shall be delivered to the sheriff, or other officer, to be executed; and for better ascertaining the time, the sheriff, or other officer, shall indorse upon such writ the day of the month, and year, when the same was received.

The property of goods, taken in execution, is bound only from the delivery of the writ to the sheriff, with respect to purchases only; but where the party dies after the teste, and before execution, the property shall be bound from the teste.

Within what Time Execution is to be sued out.—This must be generally within a year and a day after the judgment, but the judgment may be revived; and if the plaintiff hath a judgment, with a stay of execution for a year, he may, after the year, take out his execution.

It is a general rule, that in executing any of the writs of execution, the sheriff cannot break open the door of a dwelling-house, unless in very special instances, where, at the suit of the king, or in obtaining possession under an ejectment, the sheriff, if denied entrance by the tenant, may justify breaking open the door.

This privilege also of a man's home relates to such executions as affect himself individually; and, therefore, if a writ be directed to the sheriff against the goods of A. which are in the house of B. if after request made, B. refuses to deliver these goods, the sheriff may justify breaking in and seizing them; and when the sheriff, or his officers, are once within the house, they may break open any chamber, door, or trunks, for completing the execution. 3 *Black. Com.* 418.

EXECUTION *of Criminals* in all cases, as well capital as otherwise, must be performed by the legal officer, the sheriff or his deputy; whose warrant for so doing was anciently by precept under the hand and seal of the judge, as it is still practised in the court of the lord high steward, upon the execution of a peer, 2 *Hal. P. C.* 409.; though, in the court of the peers in parliament, it is done by writ from the king. However, in general, the usage is, for the judge to sign the calendar, or list of all the prisoners' names, with their separate judgments in the margin, which is left with the sheriff.

If the sheriff receive afterwards no special order from the judge, he executes the judgment of the law in the usual manner, agreeably to the directions of his calendar.

If the judge thinks it proper to reprieve a capital convict, he sends a memorial or certificate to the king's most excellent majesty, directed to the secretary of state's office, stating that, from favourable circumstances appearing at the trial, he recommends the offender to mercy, *on conditions*, or otherwise.

The sheriff upon receipt of his warrant is to do execution within a convenient time; which in the country is also left at large. In London a more solemn exactness is used, both as to the warrant of execution, and the time of executing thereof: for the recorder, after reporting to the king in person the case of the several prisoners, and receiving his royal pleasure, that the law must take its course, issues his warrant to the sheriffs; directing them to do execution on the day, and at the place, assigned.

The sheriff cannot alter the manner of the execution by substituting one death for another, without being guilty of felony himself. 2 *Hawk. P. C.* 463.

To conclude: it is clear, that if, upon judgment to be hanged by the neck till he is dead, the criminal be not thoroughly killed, but revives, the sheriff must hang him again. 2 *Hal. P. C.* 412. 2 *Hawk. P. C.* 462.

EXECUTOR is a person appointed by the testator to carry into execution his will and testament after his decease. The regular mode of appointing an executor is by naming him expressly in the will; but any words indicating an intention of the testator to appoint an executor will be deemed a sufficient appointment. Any person capable of making a will, is also capable of being an executor; but in some cases, persons who are incapable of making a will, may nevertheless act as executors, as infants, or married women; to obviate, however, inconveniences which have occurred respecting the former, it is enacted by stat. 38 Geo. 3. c. 89. that where an infant is sole executor, administration, with the will annexed, shall be granted to the guardian of such infant, or such other person as the spiritual court shall think fit, until such infant shall have attained the age of twenty-one; when, and not before, probate of the will shall be granted him. An executor derives his authority from the will, and not from the probate, and is therefore authorized to do many acts in the execution of the will, even before it is proved, such as releasing, paying, or receiving debts, assenting to licences, &c. but he cannot proceed until he has obtained probate. If an executor die before probate, administration must be taken out with the will annexed; but if an executor die, his executor will be executor to the first testator, and no fresh probate will be needed. It will be sufficient if one only of the executors prove the will; but if all refuse to prove, they cannot afterwards administer, or in any respect act as executors. If an executor become a bankrupt, the Court of Chancery will appoint a receiver of the testator's effects, as it will also upon the application of a creditor, if he appear to be wasting the assets.

If an executor once administer, he cannot afterwards renounce; and the ordinary may, in such cases, issue process to compel him to prove the will. 1 *Mod.* 213.

If a creditor constitute his debtor his executor, this is at law a discharge of the debt, whether the executor act or not, provided, however, there be assets sufficient to discharge the debts of the testator. The first duty of an executor or administrator is to bury the deceased in a suitable manner; and the next thing to be done by the executor is to prove the will.

By stat. 37 Geo. 3. c. 9. s. 10. every person who shall administer to the personal estate of any person dying without proving the will of the deceased, or taking out letters of administration within six calendar months after such person's decease, shall forfeit 50*l.* Upon proving the will, the original is to be deposited in the registry of the ordinary, by whom a copy is made upon parchment under his seal, and delivered to the executor or administrator, together with a certificate of its having been proved before him, and this is termed the probate. If all the goods of the deceased lie within the same jurisdiction, the probate is to be made before the ordinary or bishop of the diocese where the deceased resided; but if he had goods and chattels to the value of 5*l.* in two distinct dioceses or jurisdictions, the will may be proved before the metropolitan or archbishop of the province in which the deceased died. An executor, by virtue of the will of the testator, has an interest in all the goods and chattels, whether real or personal, in possession or in action, of the deceased; and all goods and effects coming to his hands will be the assets to make him chargeable to the creditors and legatees.

An executor or administrator stands personally responsible for the due discharge of

his duty; if, therefore, the property of the deceased be lost, or through his wilful negligence becomes otherwise irrecoverable, he will be liable to make it good; and also where he retains money in his hands longer than is necessary, he will be chargeable not only with interest but costs, if any have been incurred. An executor or administrator has the same remedy for recovering debts and duties, as the deceased would have if living.

By the custom of merchants, an executor or administrator may indorse over a bill of exchange or promissory note. An executor or administrator may also, on the death of a lessee for years, assign over the lease, and shall not be answerable for rent after such assignment; nor shall he be liable for rent due after the lessee's death, from premises which in his life-time he had assigned to another.

The executor or administrator, previously to the distribution of the property of the deceased, must take an inventory of all his goods and chattels, which must, if required, be delivered to the ordinary upon oath. He must then collect, with all possible convenience, all the goods and effects contained in such an inventory; and whatever is so recovered that is of a saleable nature, and can be converted into money, is termed assets, and makes him responsible to such amount to the creditors, legatees, and kindred of the deceased.

The executor or administrator having collected in the property, is to proceed to discharge the debts of the deceased, which he must do according to the following priorities, otherwise he will be personally responsible. 1. Funeral expenses, charges of proving the will, and other expenditures incurred by the execution of his trust. 2. Debts due to the king on record, or by specialty. 3. Debts by particular statutes; as by 30 Car. 2. c. 23. Money due for poor-rates, and to the post-office. 4. Debts on record, as judgments, statutes, recognizances, and those recognized by a decree of a court of equity, and debts due on mortgage. 3 *Peere Wms.* 401. 5. Debts on special contracts, as bonds or other instruments under seal, and also rent in arrear. 6. Debts on simple contract, viz. such as debts arising by verbal promise, or by writing not under seal, as notes of hand, &c. The executor is bound to take notice of debts on records, if properly doggetted, according to the statute, but not of other contracts, unless he receive notice. If no suit is commenced against an executor or administrator, he may pay one creditor in equal degree the whole debt, though there should be insufficient remaining to pay the rest; and even after the commencement of a suit, he may, by confessing judgment to other creditors of the same degree, give them a preference. Executors and administrators are also allowed, amongst debts of equal degree, to pay themselves first, but they are not allowed to retain their own debt, to the prejudice of others, in a higher degree: neither shall they be permitted to retain their own debts, in preference to that of their co-executor or co-administrator, of equal degree, but both shall be charged in equal proportion.

EXECUTOR *de son tort*, or an executor of his own wrong, a person that takes upon him the office of an executor, by intrusion, without being so constituted by the testator, or appointed by the ordinary to administer. Such a person is chargeable to the rightful executor, as also to all the testator's creditors and legatees, so far as the goods, which he wrongfully possessed, amount to.

EXPORTATION, the act of sending goods out of one country into another. In modern times it has been the principal object of commercial policy, in almost every country, to encourage exportation, except with respect to a few particular articles; the export of manufactured goods has been promoted with the view of encouraging the internal industry of the country; and the export of foreign produce, as a mean of drawing wealth from other countries by the profits of the carrying trade. The excess of the value of goods exported, beyond that of the imports, has usually been considered as a criterion of the profits which a country derives from foreign trade. The laws in force relating to importation consist principally of prohibitory or restrictive regulations respecting bullion, corn, wool, machinery, and tools used in various branches of manufactures, the exportation of which, it is thought, might diminish the necessary supply of provisions for the consumption of the country, or enable foreigners to rival valuable branches of its manufactures. The acts relative to the exportation of wool prohibit not only that of the article itself, but of live sheep, rams, or lambs, from Great Britain, Ireland, Jersey, Guernsey, Alderney, Sark, and Man, on penalty of the forfeiture thereof, and of the ships conveying the same; also 8*l.* for every sheep, &c. and the offender to suffer three months' solitary imprisonment; for a second offence, 5*l.* per sheep, &c. and six months' imprisonment: except wether sheep for ship's use only, put on board by licence of the port officer of the customs. A limited quantity of wool is, however, permitted to be exported from the port of Southampton to Jersey, Guernsey, Alderney, and Sark. 28 Geo. 3. c. 38.

And no sheep's wool, wool-fells, mortlings, shortlings, yarn made of wool, wool-flocks, fullers'-earth, fulling-clay, or tobacco-pipe-clay, shall be exported out of England, Wales, or Berwick, under penalty of forfeiture of the vessel, and treble costs; and persons assisting in exporting the same, shall suffer three years' imprisonment.

No English coin, nor bullion, unless first

stamped at Goldsmiths' hall, and oath made that no part of it was the current coin of this realm, or clippings thereof, or plate wrought within this kingdom, can be exported under penalty of forfeiture of the bullion, and imprisonment of the owner, by 7 & 8 W. 3. c. 17. : but by 43 Geo. 3. c. 49. a considerable relaxation of the former act is provided respecting bullion. *See title* BULLION.

All goods shipped before the custom duties are paid, shall be forfeited. No person shall take on board any ship beyond sea, any English goods or merchandise, until they are first entered in the books of the proper officer of the customs, outwards; and shall bring to such officer the contents in writing under his hand, of the names of the persons who shall have laden on board any goods, together with the mark or number thereof, under penalty of 100*l.*

Wharfingers, or keepers of cranes or quays, suffering uncustomed or prohibited goods to be landed upon their wharfs or quays or shipped on board from thence, without the presence of some officer of the customs, shall forfeit 100*l.*

Goods exported and carried coastwise without a cocket or sufferance from the Custom-house, are forfeited; and masters of vessels shall take out cockets where such goods were laden, and give bond and security that they shall be landed at the place for which they were entered, or some other within the United Kingdom, and shall return a certificate within six months, (danger of the seas excepted,) from the custom-house, at the port where such goods were unladen, to the officer to whom the security was given, otherwise, the bond and security will be forfeited.

No goods can be exported or imported in a packet-boat (unless allowed by the chief officer of the customs), under penalty of forfeiture, and 100*l.* upon the master of such vessel.

The following is an account of the *official value* of the exports from Great Britain in each year from 1792 to 1820, both inclusive, distinguishing the value of British produce and manufactures from that of foreign and colonial merchandise. *See further* COMMERCE, CUSTOMS, REVENUE.

Year.		*British Produce and Manufactures.*	*Foreign and Colonial Merchandise.*	*Total Exports.*
1795	-	£16,338,213	£ 8,509,126	£24,847,339
1796	-	19,102,220	8,923,848	28,026,063
1797	-	16,903,103	9,412,610	26,315,743
1798	-	19,672,103	10,617,526	30,290,029
1799	-	24,084,213	9,556,144	33,640,357
1800	-	24,304,283	13,815,837	38,120,120
1801	-	25,699,809	12,087,047	37,786,856
1802	-	26,993,129	14,418,837	41,411,966
1803	-	22,252,027	9,326,468	31,578,495
1804		23,935,793	10,515,574	34,451,367
1805	-	23,004,337	9,950,508	34,954,845
1806	-	27,402,635	9,124,499	36,527,184
1807	-	25,171,422	9,395,149	36,566,571
1808	-	26,691,962	7,862,395	34,554,267
1809	-	35,104,122	15,182,768	50,286,900
1810	-	34,923,575	10,946,204	45,869,859
1811	-	24,131,734	8,277,937	32,409,671
1812	-	31,244,723	11,998,449	43,243,172
1813	-	The records of this year were destroyed by fire.		
1814	-	36,092,167	20,499,347	56,591,514
1815	-	44,053,455	16,930,439	60,985,894
1816	-	36,714,534	14,545,933	51,260,467
1817	-	36,697,610	14,545,964	51,243,574
1818	-	41,588,585	11,534,616	53,123,202
1819	-	44,564,044	12,287,274	56,851,319
1820	-	35,634,415	11,278,076	46,912,492
Trade of the United Kingdom, exclusive of intercourse between Great Britain and Ireland.				
1821	-	38,395,555	10,555,912	48,951,467
1822	-	40,831,744	10,629,689	51,461,434
1823	-	44,236,533	9,227,589	53,464,122

EXTENT, signifies a writ or commission to the sheriff for the valuing of lands or tenements; and sometimes the act of the sheriff or other commissioners upon this writ.

This process is issued against persons who, being in the receipt of any part of the public revenue, as excise, or other taxes, fail in payment of them to the boards or other persons authorised to receive them. *Wild* v. *Fort*, 4 *Taunt. Rep.* 334.

EXTENT *in aid*, is a similar process, which the debtor to the crown can sue out against any other person indebted to him,

by means of which he is himself rendered unable to liquidate his said obligation to the crown.

Extents in aid, towards the end of the last reign, were extremely oppressive from the circumstance of persons liable to duties, as manufacturers, &c. being allowed to use the prerogative process to sweep away all the estate of bankrupts and insolvents, to the detriment of other creditors. This abuse has been, in a great measure, remedied by stat. 57 Geo. 3. c. 117.

EXTORTION, is the unlawfully taking, by colour of office, from any person, any money or other thing of value that is not due, or more than due, or before the same be due: this offence is a high abuse of public justice, and is punished by fine and imprisonment, and sometimes by forfeiture of office.

EYE, in printing, is sometimes used for the thickness of the types; or, more properly, it signifies the graving in relievo on the top of the letter, otherwise called its face: the eye of the *e* is the small opening at the head of that letter, which distinguishes it from the *c*.

EYE *of the anchor*, on board a ship, the hole in which the ring of the anchor is put into the shank.

EYE *of the strap*, on board a ship, the ring or round which is left to the strap to which any block is seized.

F, the sixth letter of the alphabet. As a numeral it denotes 40, and with a dash over it, thus, F, denotes 40,000. In medicine, F stands for *fiat*, "let it be done:" thus F. S. A. stands for *fiat secundum artem*, "let it be done according to art."

FACET, or FACETTE, among jewellers, the name of the little faces or planes to be found in brilliant and rose diamonds.

FACTOR, in commerce, is an agent or correspondent residing beyond the seas, or in some remote part, commissioned by merchants to buy, or sell, goods on their account, or assist them in carrying on their trade. A factor receives from the merchants or manufacturers, &c. in lieu of wages, a commission, or factorage, according to the usage of the place where he resides, or the business he transacts, this being various in different countries, and on the purchases and sales in different commodities. He ought to keep strictly to the tenor of his orders; as a deviation from them, even in the most minute particular, exposes him to make ample satisfaction for any loss that may accrue from his non-observance of them. When unlimited orders are given to factors, and they are left to sell, or buy, on the best conditions they can, whatever detriment occurs to their principals, they are excused, as it is to be presumed they acted for the best, and were governed by the dictates of prudence. But a bare commission to sell is not authority for the factor to trust any person; he ought to receive the money on delivery of the goods; and by the general power, he may not trust above the usual time allowed in sales, otherwise he shall be answerable; nor can he pledge the goods of his principal. If he sell on the usual terms to a person of reputed good credit, who afterwards becomes insolvent, he is discharged; but not if the man's credit was bad at the time of sale. A factor should be punctual in the advices of his transactions, in sales, purchases, freights, and more especially bills of exchange: he should never deviate from the orders he receives in the execution of a commission for purchasing goods, either in price, quality, or kind; and if, after goods are bought, he sends them to a different place from what he was directed to, they must remain for his own account, except the merchant or manufacturer, on advice of his proceedings, admit them according to his first intention. A factor that sells a commodity under the price he is ordered, shall be obliged to make good the difference; and if he purchase goods for another at a price limited, and afterwards they rise, and he fraudulently takes them for his own account, and sends them to another part, in order to secure an advantage that seemingly offers, he will, on proof, be obliged, by the custom of merchants, to satisfy his principal for damages. If a factor, in conformity with a merchant's orders, buy with his money, or on his credit, a commodity he shall be directed to purchase, and, without giving advice of the transaction, sell it again to profit, and appropriate to himself the advantage, the merchant shall recover it from him, and besides have him amerced for his fraud. A factor who enters into a charter-party with a master for freight, is obliged by the contract; but if he loads aboard generally, the principal and the lading are liable for the freight, and not the factor. If a factor, having money in his hands belonging to his principal, neglect to insure a ship and goods, according to order, if the ship miscarry, the factor, by the custom of merchants, shall make good the damage; and if he make any composition with the insurers after insurance, without orders so to do, he is answerable for the whole insurance.

As fidelity and diligence are expected from the factor, so the law requires the like from the principal; if, therefore, a merchant consign counterfeit jewels, &c. to his factor, who sells them as if true; if such factor re-

ceive loss or prejudice, the principal shall not only make full satisfaction to him, but to the party who bought the jewels, &c. What is here said of factors, is meant of such as reside abroad to act for merchants; but may be applied to supercargoes, who go a voyage to dispose of a cargo, and afterwards return with another to their principals. It is the custom of merchants to act mutually in the capacity of factors for each other. The business so executed is called commission-business, and they have current, as well as commission, accounts constantly between them; and draw on, remit to, and send commissions to each other by the intercourse of letters. *See ante* CHARTER-PARTY.

FACTORAGE, or Commission, is the allowance given to factors by the merchants and manufacturers, &c. who employ them: it is a per centage on the goods they purchase, or sell, for account of their principals, and varies according to circumstances. A factor's commission in Great Britain and Ireland is from 2 to 2½ per cent.: on lead and some other articles, 2 per cent.; in Italy, 2½ per cent.; in France, Holland, Hamburgh, Dantzic, St. Petersburgh, and in Spain, Portugal, &c. 2 per cent.; in Turkey, 3 per cent.; in America, 5 per cent. on sales, and the same on returns; in the West Indies, 8 per cent. for commission and storage. In many places it is customary for factors to insure the debts for an additional commission, called a *del credere* commission, and generally from 1½ to 2 per cent. In that case they are accountable for the debt, when the credit expires. Factorage or commission is frequently charged at a certain rate per cask, or other package, measure, or weight, especially when the factor is only employed to receive or deliver, and this commission is usually charged according to a special agreement between the merchant and factor.

FACTORY, is a place where a considerable number of merchants and factors reside, to negotiate business for themselves and their correspondents on commission. We have factories in the East Indies, Turkey, Portugal, Russia, &c.

FAGG, in the sea language, a term given to the end of those strands which do not go through the tops, when a cable or rope is closed.

FAILURE, is where a tradesman, through misfortune or imprudence, is unable to pay his debts, which may happen from trading beyond his capital, or negligence in keeping his accounts, or misfortunes in trade. *See* BANKRUPT.

FAIR, a greater kind of market, granted to a town, by privilege, for the more speedy providing of such things as the place stands in need of. It is incident to a fair, that persons shall be free from being arrested in it for any other debt or contract than what was contracted in the same, or at least promised to be paid there. Also proclamation is to be made how long they are to continue; and no person shall sell any goods after the time of the fair is ended, on forfeiture of double the value, one-fourth to the prosecutor, and the rest to the king. There is a toll usually paid in fairs, on the sale of things, and for stallage, picage, &c. Fairs abroad are either free, or charged with toll and imposition. The privileges of free fairs consist chiefly, first, in that all traders, &c. whether natives or foreigners, are allowed to enter the kingdom, and are, under protection, exempt from duties, impositions, tolls, &c. Secondly, that merchants, in going or returning, cannot be molested or arrested, or their goods stopped. They are established by letters patent from the prince. Fairs, particularly free fairs, are very considerable auxiliaries to the commerce of Europe, especially that of the Mediterranean, Germany, &c.

Some of the principal British fairs are: 1. Sturbridge fair, near Cambridge. 2. Bristol, two fairs. 3. Exeter. 4. West Chester. 5. Edinburgh. 6. Weyhill; and, 7. Burford fair, both for sheep. 8. Pancras fair, in Staffordshire, for saddle-horses. 9. Bartholomew fair, in London. 10. St. Faith's, in Norfolk, for Scotch runts. 11. Yarmouth fishing-fair, for herrings, the only fishing-fair in Great Britain. 12. Ipswich butter-fair. 13. Woodborough-hill, in Dorsetshire, for west-country manufactures, as kerseys, druggets, &c. 14. Two cheese-fairs at Chipping Norton. 15. One ditto at Nottingham. 16. Howden and Boroughbridge fairs, in Yorkshire, for Holderness cows, and Yorkshire hunters. 17. Horncastle, in Lincolnshire, for horses of all kinds; and Harborough, in Leicestershire, for Scotch cattle, to be fed on the Essex and Norfolk marshes for the supply of the London markets in winter.

Among the principal free fairs in France were those of St. Germains, Lyons, Rheims, Chartres, Rouen, Bourdeaux, Troyes, Bayonne, Dieppe, &c. The most noted fairs in Germany are those of Frankfort, Leipsic, and Nuremburg; not only on account of the great trade, but the vast concourse of princes of the empire, nobility, and people who come to them from all parts of Germany to partake of the diversions. There are also other fairs much resorted to, as Zurich, in Switzerland, Novi, in the Milanese, Sinigaglia, in the duchy of Urbino, Italy, Riga, in Livonia, Rama, in the Holy Land, Porto Bello, La Vera Cruz, and the Havannah, in Spanish America.

The emperor of Russia has also recently proclaimed an annual fair at Warsaw; and there has long been one at Archangel, in the same monarch's dominions.

The following are some of the regulations relative to fairs in Great Britain:

Owners and governors of fairs are to take

care that every thing be sold according to just weights and measures; and for this and other purposes, are to appoint a clerk of the fair or market, who is to mark and allow all such weights, taking for the same only just and reasonable fees.

Tolls payable at a fair or market, is a reasonable sum of money due to the owner of such fair, upon sale of tollable commodities, as for stallage, picage, &c.

Every sale in a fair or market overt, effectually transfers the property to the vendee. however injurious or illegal to the title of such vendor.

A court of the clerk of the market is incident to every fair and market, to punish misdemeanors committed therein, as well as a court of *pie-powder*, to determine all disputes relative to civil property. The object of this jurisdiction is principally the cognizance of the weights and measures; which, if not according to the standard required by law, exclusive of the punishment by fine to the party, may be destroyed.

No goods in a fair or market can be distrained for rent; but if they are on their way, or put into a pasture, they may be distrained.

Any citizen of London may carry his goods or merchandise to any fair or market in England, at his pleasure.

Owners of tolls or markets are to appoint toll-takers or book-keepers, on pain of 40*s*.

Fairs are commonly annual, and were formerly granted to be held on the dedication of the church, upon which day many fairs are yet held; and they were first held in churches, and afterwards in church-yards, until a particular act of parliament was made to prohibit this practice.

Persons taking unreasonable toll shall be punished; and what shall be deemed reasonable is to be decided by the judges, if the question comes judicially before them.

FAKE, among sailors, signifies one round or circle of a cable, or hawser, coiled up out of the way.

FALCHION, a short, crooked sword, not much in use at present.

FALL, is the name of a measure of length used in Scotland, containing six ells.

FALL, in the sea language, that part of the rope of a tackle, which is hauled upon. Also when a ship is under sail, and keeps not so near the wind as she should do, they say "she falls off;" or when a ship is not flush, but has risings in some parts of her decks more than others, they are called falls.

FAN, (*Fans.* Ger. *Facher.* Du. *Waajers.* Da. *Vifter.* Sw. *Solfjadrar.* Fr. *Eventails.* It. *Ventagli.* Sp. *Abanicos.* Port. *Abonos.* Rus. *Opachalu.* Pol. *Wachlarz,*) an instrument used by ladies to move the air, and cool themselves. There are a few wholesale fan-dealers established at London, and in some other parts of Great Britain, who carry on a profitable trade in this trifling article.

FANO, a small weight used at Goa, and other parts of the East Indies, for weighing rubies, equal to two Venetian carats.

FANON, or Fanos, a current coin on the coast of Malabar, Coromandel, in the island of Ceylon, and several other parts of India; they are both of gold and silver, and differ in their value in different places, according to the goodness of the metal. The heaviest are not worth above five-pence halfpenny sterling, and the lightest not more than five farthings. They weigh seven grains; but the gold is of so base an alloy, that twenty-two of them scarcely make half a crown: these are made at Asem; and those of Pegu are of the same weight, but being purer metal, fifteen of them are of equal value with the above. There are golden fanons at Pondicherry, worth about three-pence halfpenny. They are made like the half of a pea, and are not bigger. Twelve dondores are given for this fanon, and two caches for the dondore. The silver fanos are worth about two-pence sterling; twenty of them are equal to the pardo, a Portuguese money made at Goa.

FARATELLE, a weight used in some parts of India, equal to two Portuguese pounds, of fourteen ounces marc, or to 1 lb. 14 oz. British.

FARTHING *of copper*, a coin, and the smallest in Britain, equal in value to one-fourth of a penny sterling.

FASCETS, in the art of making glass, are the irons thrust into the mouths of bottles, in order to convey them into the annealing tower.

FAT, in the sea language, signifies the same with broad. Thus a ship is said to have a fat quarter, if the trussing in or tuck of her quarter is deep.

FAT, properly vat, (vas or vessel,) denotes likewise an uncertain measure of capacity. Thus, a fat of isinglass contains from 3¼ cwt. to 4 cwt.; a fat of unbound books, half a maund, or four bales; of wire, from 20 to 25 cwt.; and of yarn, from 220 to 221 bundles.

FATHOM, a long measure, containing six feet, chiefly used at sea for measuring the length of cables and cordage.

FAYALLE, an imaginary money, valued by some as the pistole of France, viz. ten livres, and by others twelve livres and a half, which difference proceeds from the first valuation made on the French livre of 20 sous, and the other on the livre or guilder of Holland, worth 25 sous. It is equivalent to about 8*s*. 4*d*. sterling.

FEATHERS, (*Bed-feathers.* Ger. *Federn, Bettfedern.* Du. *Bedveérn, Pluimen.* Da. *Fiere, Sengefierce.* Sw. *Fjadrar.* Fr. *Plumes, Plumes à lit.* It. *Piume.* Sp. and Port. *Plumas.* Rus. *Pera.* Pol. *Piora,*) make a considerable article of commerce, particularly those of the ostrich, heron, swan, peacock, goose, &c. for plumes, or-

naments of the head, filling of beds, writing-pens, &c. The coarsest part of the ostrich plumage is generally denominated *hair*, to which it bears a resemblance, and is used in the composition of hats. Many parts of Great Britain supply feathers for beds, and an inferior sort is brought from Ireland. Eider down is imported from Denmark; the ducks that supply it being inhabitants of Hudson's Bay, Greenland, Iceland, and Norway. All the islands west of Scotland breed numbers of these birds, which are a profitable branch of trade to the poor inhabitants. Hudson's Bay also furnishes very fine feathers. The down of the swan is brought from Dantzick, as also are large quantities of inferior feathers. The best method of curing them is to lay them in a room exposed to the air and sun; and when dried, to put them in coarse bags, and beat them well with poles to get out the dirt, &c.

FEATHER EDGE, boards or planks that have one edge thinner than another, are called *feather edges*.

FEE, denotes a settled perquisite of public officers, payable by those who employ them. The fees due to the officers of the Custom-house are expressly mentioned in a schedule, or table, which is hung up in public view in the said office, and in all other places where the said fees are to be paid or received. And if any officer shall offend, by acting contrary to the regulations therein contained, he shall forfeit his office and place, and be for ever after incapable of any office in the Custom-house. By stat. 1 Geo. 4. c. 7. s. 5. reciting 51 Geo. 3. c. 71. s. 10. a penalty of 200*l.* is imposed for the offer of the fee, prohibited by those acts, to the officers, &c. of the customs. The other public offices have likewise their settled fees, for the several branches of business transacted in them.

FELLMONGER, is a person who buys up the skins of sheep and lambs, pulls the wool, and makes the sheep-skins into leather for breeches, &c. &c.

FELLOWSHIP, or Company, in commerce, is when two or more join their stocks and trade together, dividing their gain or loss proportionably. Fellowship is either with, or without, time. Questions without time, or in the single rule of fellowship, as it is frequently called, are wrought by the following proportion: As the whole stock is to the whole gain or loss, so is each man's particular stock to his particular gain or loss.—Example 1. A, B, and C, make a joint stock; A puts in 460*l.* B, 510*l*, and C, 480*l.* they gain 340*l.* what part of it belongs to each?

In order to the solution of this question, find the total of their joint stock, viz.—A's stock 460*l.* + B's stock 510*l.* + C's stock 480*l.* = 1450*l.* the total stock.

Then, 1. To find A's share of the gain, state as follows: If 1450*l.* : 340*l.* : : 460*l.* which being worked by the rule of three, the answer will be, 107*l.* 17*s.* 2¾*d.* for A's share of the profit.

2. B's share of the gain by stating thus: If 1450*l.* : 340*l.* : : 510*l.* and working by the rule of three, will be found to be 119*l.* 11*s.* 8½*d.*

3. C's share will appear 112*l.* 11*s.* 0¾*d.* when worked as before, being stated thus: If 1450*l.* : 340*l.* : : 480*l.*

Example 2.—Suppose three partners, A, B, and C, make a joint stock in this manner: A puts in 24*l.* B, 32*l.* and C, 40*l.* in all 96*l.* with which they trade, and gain 12*l.* required each man's true share of that gain? The first operation for A's part of the gain will stand thus:

96*l.* : 12*l.* : : 24*l.* : 3*l.* = A's gain.
96*l.* : 12*l.* : : 32*l.* : 4*l.* = B's gain.
96*l.* : 12*l.* : : 40*l.* : 5*l.* = C's gain.
Proof 3*l.* + 4*l.* + 5*l.* = 12*l.* the whole gain.

That is, if the total of all their particular gains amounts to the whole gain, the work is true; if not, some mistake has been committed.

Fellowship with time, usually called the *double rule of fellowship*, because every man's money is to be considered with relation to the time of its continuance in the joint stock. It is worked thus: Multiply each man's stock by the respective time he puts it in for, and add all the products; the total of which must be your first number through all the statings; the gain or loss the second, as before; and each man's particular stock, multiplied by its time, the third.

Example 1.—A put into company 560*l.* for eight months, B, 279*l.* for ten months, and C, 735*l.* for six months; they gain 1000*l.* What share of it must each have?

For the solution of this question, proceed as follows: A's stock 560*l.* × 8 its time, = 4480; B's stock 279*l.* × 10 its time, = 2790; C's stock 735*l.* × 6 its time, = 4410. Then 4480 × 2790 × 4410 = 11680. Now, 1. To find A's share of the profit, state thus: If 11680*l.* : 100*l.* : : 4480*l.* which being worked by the rule of three, the answer will be, 383*l.* 11*s.* 2¾*d.* for A's share of the gain.

2. For finding B's share, state thus: If 11680*l.* : 1000*l.* : : 2790*l.* and working as before directed, the answer will be, 238*l.* 17*s.* 4¾*d.*

3. To find C's proportion of the gain, say: If 11680*l.* : 1000*l.* : : 4410*l.* then working it by the rule of three, the true amount of his share will appear to be, 337*l.* 11*s.* 4½*d.*

FELT, (Ger. *Filz.* Du. *Vilt, Vilte.* Da. and Sw. *Filt.* Fr. *Feutre.* It. *Feltra.* Sp. *Fieltro.* Port. *Feltro.* Rus. *Woilok.* Pol. *Pils'n'.* Lat. *Coactila,*) a sort of stuff deriving all its consistence merely from being fulled or wrought in warm water, without either spinning or weaving. Felt is made either of wool alone, or of wool and hair. The term is principally employed in the

manufacture of hats. It is likewise used to signify the coarsest species of woollen hats, which are, for the most part, exported to the West Indies, for the use of the negroes.

FELUCCA, a little vessel with six oars, frequent in the Mediterranean, which has this peculiarity, that its helm may be applied either in the head or stern, as occasion requires.

FEND, in the sea language, imports the same as defend: thus, "fending the boat," is saving it from being dashed to pieces against the rock, shore, or ship's side.

FENDER, a guard or inclosure, composed of iron, steel, or brass, and laid before the fire to hinder coals, cinders, &c. that fall, from rolling forward to the floor. Fenders are made in the highest perfection at Birmingham and Sheffield. The steel-fenders made at these places are so admirably finished, that they frequently fetch from five to fifteen or twenty guineas in the English market, and still more in foreign countries.

FENDERS are pieces of old hawsers, cables, or billets of wood, hung over the ship's side, to keep other ships from rubbing against and injuring them.

FENNEL-SEED, (Ger. *Fenchel.* Du. *Venkel.* Da. *Fennikel.* Sw. *Fankol, Fenkal.* Fr. *Fenouil.* It. *Finocchio.* Sp. *Hinojo.* Port. *Funcho.* Rus. *Woloskoi ukrop.* Pol. *Koprwtosky.* Lat. *Fœniculum,*) of which there are two sorts, the common, and the sweet. Both are cultivated in our gardens: the common is a perennial plant: the sweet fennel perishes after it has seeded, but its seed does not come to perfection in this climate. Of the first species, the fennel, both the seeds and roots are used in medicine. The seeds of both have an aromatic smell, and a moderately warm taste: those of the sweet are of an agreeable flavour, with a considerable degree of sweetness. They are considered as stomachics. Fennel is cultivated in Holland, France, and Italy in great abundance.

FENUGREEK, (Ger. *Bockshornsaamen, Fönugrek.* Du. *Bokshoornzaad, Fenegriek.* Da. *Fonugræk.* Sw. *Fenugrek.* Fr. *Fenu-grec, Senegré.* It. *Fienogreco.* Sp. *Alforva, Alholva.* Port. *Alforvas, Fenogrego.* Lat. *Fœnum græcum,*) is a seed of very singular figure, about the size of hemp-seed, of a pale yellowish colour, wrinkled surface, heavy, and extremely firm; it is used in medicine, and comes to us from Germany, and other countries, where it is cultivated in the fields. The plant which yields this seed is grown in abundance at Aubervilliers, near Paris, where it is esteemed excellent fodder for cattle.

FERMENTATION, is that change in the principles of organic bodies which begins to take place spontaneously, as soon as their vital functions have ceased; and by which they are at length reduced to their first principles. This may be distinguished into three species: the vinous or spirituous, the acid or acetous, and the putrid fermentation.

The *vinous* fermentation only takes place in such bodies as contain saccharine matter. The principal product of this is a volatile, pungent, inflammable fluid, which, when in a state of purity, is termed *alcohol.*

The *acetous* fermentation is distinguished by the product known by the name of *vinegar*, or in a state of purity *acetic acid.*

In the *putrid* fermentation, bodies appear to be reduced to their most simple elements. The chief product in the early part of this process is *ammonia.*

Vegetable substances alone are susceptible of vinous and acetous fermentation; the putrid is common to both vegetable and animal bodies.

The decomposition of bodies is retarded by low temperature, and exclusion from the air; it is favoured by slight agitation, free exposure to the air, and a certain degree of heat. *See* VINEGAR, *and* DISTILLATION.

FERRY, is a liberty by prescription, or the king's grant, to have a passage-boat upon a river, for carriage of horses and men, at a reasonable toll. *Savil,* 11 *and* 14. The owner of a ferry cannot suppress that ferry, and put up a bridge in its place, without a licence. *Show.* 243. 257. So says the old law, but few persons would find fault with such an exchange now. If a bridge, however, be put in the place of a ferry, the person so erecting it is bound to maintain and keep it in repair, except under special circumstances. 43 Geo. 3 c. 59. Not keeping up a ferry, being a common passage for all the king's people, is also indictable, as well as not keeping up bridges. 1 *Salk.* 12.

An exclusive right to a ferry from A to B does not prevent persons going by *any other boat* from A directly to C, though C be very near to B, provided it be not done fraudulently, and as a pretence for avoiding the regular ferry. *Tripp* v. *Frank,* 4 *T. Rep.* 666.

FIDD, in the sea language, an iron or wooden pin, to splice and fasten ropes together. It is made taperwise, and sharp at one end. The pin in the heel of the topmast, which bears upon the chess-trees, is likewise called a fidd.

FIDDLE, (*Fiddles.* Ger. *Violinen, Geigen.* Du. *Viioolen.* Da. *Fiole.* Sw. *Fioler.* Fr. *Violons.* It. *Violini.* Sp. *Violines.* Port. *Rebecas.* Rus. *Sskripizii.* Pol. *Skrzypce,*) likewise denominated a violin, is a stringed musical instrument, too well known to need any particular description. The finest toned violins are those made in Italy; they are usually called Cremonas, from the name of an Italian town, where those instruments were formerly manufac-

tured in the highest perfection. Fifty or sixty guineas are not an uncommon price for a Cremona-violin.

FIFE, or Fiffario, a shrill wind-instrument of the martial kind, consisting of a short narrow tube, with holes disposed along the side, for the regulation of its tones. It is not blown at the end, but at the side, like a German flute.

FIGS, (Ger. *Feigen*. Du. *Vygen*. Da. *Figen*. Sw. *Fikon*. Fr. *Figues*. It. *Fichi*. Sp. *Higos*. Port. *Figos*. Rus. *Winnüa jagodi*. Pol. *Fiki*. Lat. *Fici, Caricæ,*) are a considerable article in the *materia medica*, chiefly employed in emollient cataplasms, and pectoral decoctions. The best are those which come from Turkey, packed in cases. Many are brought to us from Faro, of a small and inferior kind, also from the south of France. Vast quantities of figs of inferior quality are imported into Great Britain from Spain and Portugal. These are always sent to us packed in mats, and are such as the generality of grocers deal in. Figs are moderately nutrimental, grateful to the stomach, and easier to digest than any other of the sweet fruits.

FIGURES, in arithmetic, are characters denoting numbers. The figures most commonly used are the English figures, such as 1, 2, 3, 4, &c. and the Roman figures, such as I, II, III, IV, &c. In law, figures are not allowed to express numbers in indictments, &c. but numbers must be expressed in words. Roman figures are good in pleading, but English figures are not.

FILE, (*Files*. Ger. *Feilen*. Du. *Vylen*. Da. *File*. Sw. *Filar*. Fr. *Limes*. It. *Lime*. Sp. & Port. *Limas*. Rus. *Pili*. Pol. *Pilki*,) among mechanics, a tool used in metal, &c. in order to smooth, polish, or cut. This instrument is of iron or forged steel, cut in little furrows, with chissels and a mallet, in a certain direction, and of a certain depth, according to the grain or touch required. After cutting the file, it must be tempered with a composition of chimney-soot, very hard and dry, diluted, and wrought up with urine, vinegar, and salt; the whole being reduced to the consistence of mustard. Tempering the files consists in rubbing them over with this composition, and covering them with loam; after which they are put into a charcoal-fire, and taken out by the time they have acquired a cherry-colour, which is known by a small rod of the same steel put in along with them. Being taken out of the fire, they are thrown into cold spring water, and when cold they are cleaned with charcoal and a rag, and being clean and dry, are kept from rust by laying them up in wheat-bran. Iron files require more heating than steel ones. Files are of different forms, sizes, cuts, and degrees of fineness, according to the different uses and occasions, for which they are made. Those in common use are the square, flat, triangular, half-round, round, thin file, &c. each of which may be of different sizes, as well as different cuts. There are several machines invented for cutting files: they are worked by water as ready as by hand: they are adapted to cut all sorts of files, or any number at a time.

File likewise signifies a string or wire on which letters received, accounts paid or pending, invoices, bills of lading, &c. &c. are placed or filed, for the purpose of being kept in such order that they may at any time be referred to with facility.

FILE-CUTTER. The *file-cutter* forges the iron, forms the roughness of the *file*, by filing it, and makes *rasps*, by punching up the iron in sharo scales; after which he case-hardens them.

FILIGREE, (Ger. *Filigranarbeit, Kornfaden*. Du. *Filigrein*. Da. *Filigramsarbeide*. Sw. *Filigramsarbete*. Fr. *Filigrane*. It. *Filagrana*. Sp. & Port. *Filigrana*,) a sort of ornamental work, composed of stiff paper and pasteboard of various colours, decorated with gilding, &c. and employed in the embellishment of ladies' work-baskets, tea-caddies, &c. whereon it is laid in the form of flowers, shells, and the like. The nuns in foreign countries, such as Spain, and Italy, make a variety of articles in filigree-work, which exhibit peculiar taste and elegance. It is also used for expressing a delicate kind of work in threads, on gold or silver plate, being derived from the Latin word *filum*, which signifies *thread*. The French are celebrated for this work.

FILTER, or Filtre, a strainer commonly made of bibulous or filtering paper in the form of a funnel, through which any fluid is passed, in order to separate the gross particles from it, and render it limpid.

FILTERING-PAPER, is paper manufactured without size. To use it as such, the paper is shaped into the form of a cone, and placed in a funnel, in order to support it; otherwise it would break.

FILTERING-STONES, BASINS, &c. are either natural, or artificial, for the purpose of purifying water. Natural filtres are found in rocks, mountains, beds of sand, gravel, &c. Artificial filtering-basons consist of equal parts of pipe-clay, and coarse sand. They should be three quarters of an inch thick.

FINDER, a person who finds any property. It was long insisted on, that such property having no rightful owner belonged to the king, by his prerogative. Even Blackstone fell into this error. But it is now generally admitted, that the finder of any treasure, *upon the earth*, has a title to it against all the world, but the rightful owner, who has lost, but not abandoned, it; and if he hath abandoned it, then it is the absolute property of the finder. *See Christian on Game Laws*, p. 25.

If any bank-bills, tickets, &c. which have

been stolen, or lost, are paid to, or delivered to, another without consideration, an action may be brought against the person in whose hands the same may be found.

If a bill payable to A, or bearer, be found by B, who gives it to C for a valuable consideration, an action of trover to recover the value of the bill may be brought against B, but not against C.

The property of goods found or stolen, may, nevertheless, be changed, by sale, for a valuable consideration, without notice, and in market overt; and the party purchasing such articles obtains a good title against the original owner: but if the party to whom the articles were transferred, even for a valuable consideration, had notice that the articles offered were lost, or stolen, the original proprietor may bring an action against the vendee, to recover them.

FINERS, or Refiners, of gold and silver, are those who separate these metals from their ores, or the sweepings of gold and silver-smiths' workshops, &c.

FINERY, in the iron-works, one of the forges at which the iron is hammered and fashioned into, what they call, a bloom, or square bar.

FIRE. For the several regulations of building dwelling-houses, &c. so as to guard against fire, *see* stat. 4 Geo. 3. c. 2. s. 54. 6 Geo. 3. amending the former act.

FIRE-ARMS make no inconsiderable article of external, as well as internal, traffic; it became therefore a proper subject of legislative interference, to prevent imposition in the manufacture of them. Accordingly, by 53 Geo. 3. c. 115. proof-houses are directed to be established at Birmingham and elsewhere, for the proving of all barrels of fire-arms; and a penalty on all persons *using*, or *selling*, barrels not duly proved at the same, or one of them, were imposed. This statute, however, being soon found inadequate to the purposes in contemplation, from the loose words in which some of its provisions were expressed, was partially repealed; the offences intended to be prohibited, and the penalties to be exacted, more precisely defined; and all its provisions considerably extended, by 55 Geo. 3. c. 59; which latter act imposes a fine of 20*l*. on any person *using*, in any of the progressive stages of manufacture, any barrel not duly proved; on any person *delivering* the same, except through a proof-house; and on any person *receiving*, for the purpose of making guns, &c, any barrels which have not passed through a proof-house. These penalties to be levied on conviction before two justices; with like penalties, to be similarly levied, on persons counterfeiting the *proof-marks*.

FIRE-INSURANCE. *See* INSURANCE, *and title* EUROPE, *article* London

FIRE-SHIPS, in the navy, are vessels charged with combustible materials; which, having the wind of an enemy's ship, grapple her, and set her on fire.

FIRELOCKS, so called from their producing fire by the action of the flint and steel, are the arms carried by a foot-soldier. They were formerly three feet eight inches in the barrel, and weighing fourteen pounds; at present the length of the barrel is from three feet three inches, to three feet six inches, and the weight of the piece only twelve pounds. They carry a leaden bullet, of which twenty-nine make two pounds; its diameter is 550 of an inch, and that of the barrel 1-50th part of the shot. Firelocks were first made use of in 1690, when matchlocks were universally disused; but when invented is not ascertained. A firelock is called, by writers of about the middle of the last century, *asnaphaan*, which being a Low-Dutch word, seems to indicate its being a Dutch invention. Firelocks are principally manufactured at Birmingham and Sheffield.

FIRESTONE. The firestone, or pyrites, is a mineral composed of vitriol, sulphur, and an unmetallic earth, but in very different proportions in the several masses. It has its name of pyrites or firestone from its giving fire on being struck against a steel much more freely than flint will do. *See* PYRITES.

FIRE-WORKS. By 9 & 10 W. 3. all sorts of fire-works are declared to be a common nuisance; and the *making*, *causing to be made*, *giving*, *selling*, or *offering* to sale, any squibs, rockets, serpents, or *other fire-works*, or any cases, or implements for making the same, is made subject to a penalty of 5*l*. to be recovered on conviction before a justice of the peace. Casting or firing any such fire-works, or permitting the same to be cast or fired, *from* any house, or place, and casting or firing the same *into* any house, shop, street, highway, or river, is subjected to a penalty of 20*s*. to be recovered in like manner; and if not immediately paid, to an imprisonment and hard labour for not exceeding a month.

FIRKIN, an English measure of capacity, being the fourth part of the barrel: it contains eight gallons of ale, soap, or herrings; and nine gallons of beer.

FIRLOT, a dry measure used in Scotland. The oat-firlot contains 21¼ pints of that country; the wheat-firlot contains about 1211 cubic inches; and the barley-firlot 31 standard pints. Hence it appears that the Scotch wheat-firlot exceeds the English bushel by 33 cubic inches.

FISH. (Ger. *Fische*. Du. *Visschen*. Da. and Sw. *Fisk*. Fr. *Poissons*. It. *Pesci*. Sp. *Pescados*. Port. *Peixes*. Rus. *Rüba*. Pol. *Rybi*. Lat. *Pisces*.) Fish are to be considered here under two different views; 1st, as private property; 2dly, as a national concern, and a subject of commerce. As private property, fish are protected by a pro-

digious number of statutes, some general in their operation, some local. The latter will be sparingly alluded to, the former are principally the following.

Trespassers in private ponds are subjected to three years' imprisonment, beside recompence to the party injured, by 3 Edw. 1. c. 20. Breaking and destroying the heads or dams of ponds, with intent to take the fish therein, are to pay treble damages on conviction, and be imprisoned three months, and find sureties for seven years, by 5 Eliz. c. 21.

Persons taking fish, or attempting so to do, out of *private waters*, without the consent of owner, are to pay a recompence to the owner not exceeding treble damages, 10*s.* to the overseers of the poor of the parish where offence committed, and be committed to the house of correction for one month. 22 & 23 Car. 2. c. 25.

And by the same, all the engines, nets, &c. may be destroyed.

The 4 & 5 W. 3. c. 23. authorizes the searching for all sorts of engines and nets for the destruction of fish in the houses, outhouses, &c. of all idle, disorderly, and mean persons, and none shall be allowed to keep the same but the owners or occupiers of rivers and fisheries, the makers and sellers of nets and engines, and fishermen and their apprentices.

The 9 Geo. 1. c. 22. commonly called the Black Act, makes it felony, *sans* clergy, to go armed and disguised and unlawfully steal any fish out of any river or pond; or maliciously to break down any head or mound of a pond, whereby the fish shall be lost or destroyed, or to rescue any person in custody for these offences.

Lastly comes the statute 5 Geo. 3. c. 14. which makes the taking, killing, or destroying, or attempting so to do, any fish, in any river or stream, pond, or pool, in any inclosed ground not being a park, paddock, garden, orchard, or yard, but private property, without the consent of the owner thereof, an offence punishable before one justice by a penalty of 5*l.* or commitment to the house of correction for not exceeding six months. And a similar offence committed in any like place in any park, paddock, garden, orchard, or yard, and convicted thereof at the assizes, subject to transportation for seven years, It likewise extends the same punishment to all persons aiding and assisting in the offence, and also to all persons purchasing the fish, knowing the same to have been so taken and stolen.

The foregoing statutes are universal in their application to all fish in private fisheries. For the constructions of them under particular circumstances, see *Dick. Pract. Expos.* v. 1. p. 521. & v. 3. p. 259.

The local statutes are principally the following.

By 13 Ric. 2. st. 1. c. 19. no person shall put in the waters of the Thames, Umber, Ouse, Trent, nor other waters, any nets called stalkers, nor other engines, by which the fry or the breed of salmons, lampreys, or other fish, may be taken, upon the pain aforesaid.

And the waters of Lone, Wye, Mersey, Ribble, and all other waters in the county of Lancaster, shall be put in defence, as to the taking of salmons, from Michaelmas day to the Purification, and in no other time; and where such rivers be, there shall be assigned and sworn conservators of this statute as in the statute of Westminster; and they shall punish the offenders after the pain contained in the said statute. *Ibid.*

And by 1 Geo. 1. st. 2. c. 11. if any person shall lay or draw any nets, engines, other device, or do any other act in the Severn, Dee, Wye, Teame, Were, Tees, Ribble, Mersey, Dun, Air, Ouse, Swaile, Calder, Wharf, Eure, Derwent, and Trent, whereby the small fry of salmon, or any kepper or shedder salmons, or any salmons not eighteen inches long from the eye to the extent of the middle of the tail, shall be taken or killed; or shall set any bank, dam, hedge, or stank, or nets, cross the said rivers, whereby the salmon may be taken or hindered from going up the rivers to spawn; or shall, between the last of July and the 12th of November, (except in the Ribble, where they may be taken between January 1 and September 15, 23 Geo. 2. c. 26. § 7, 8, 9; and the rivers in the counties of Southampton and Wilts, where they may be taken between the 1st January and 12th September, 37 Geo. 3. c. 5.) by any net, device, &c. take or wilfully hurt any salmon in the said rivers, or shall at any time after the 12th November, fish there for salmon with any net less than two inches and a half in the mesh, and shall be convicted thereof before one justice of peace for the county, either upon view, by confession, or by one witness, he shall forfeit 5*l.* for every offence, besides the fish and the nets, &c. one moiety of the said sum to the informer, the other to the poor of the parish, to be levied by distress and sale of goods, by warrant of the justice; and for want of distress, the offender shall be committed to the house of correction, or the county gaol, for not more than three months, nor less than one, there to be kept to hard labour, and suffer such other corporal punishment as the justice shall think fit; and the justice shall order such nets, &c. to be seized and cut in pieces, or destroyed in his presence; and shall cause such banks, &c. made across the river, to be removed at the charges of the offender; such charges, if not paid on conviction, to be levied in the same manner as the said sum of 5*l.* § 14.

No salmon shall be sent to London from any such rivers that shall weigh less than six pounds each fish; and every person buying, selling, or sending a salmon of less weight,

who shall be convicted thereof as aforesaid, shall forfeit 5*l.* besides the fish; one moiety to the informer, the other to the poor of the parish; the said sum, if not paid on conviction, to be levied by distress and sale of goods, by warrant of the justice; and for want of distress, to be sent to the house of correction or county gaol, to be kept to hard labour for three months, unless the forfeiture be paid in the mean time.

Besides the before-mentioned fisheries, the salmon-fishery in the river Tweed is protected by a recent act, viz. 37 G. 3. c. 8.

By 43 Geo. 3. c. 33. the rivers Teign, Dart, and Plym, are still further protected, so far as regards the spawn or fry of fish, by prohibitions against taking them during particular months, and on Sundays.

And by 45 Geo. 3. c. 33. like provisions are made to protect the rivers in the county of Caermarthen.

The rivers Thames and Medway are placed, as to the preservation of their fish and spawn of fish, under the protection of the lord mayor of London, by 17 Ric. 2. c. 9.

Fish receive further protection generally from the following provisions of two statutes before mentioned.

By 1 Geo. 1. st. 2. c. 18. if any person bring to shore in England, sell, or expose to sale, or exchange for goods, unsizeable fish, not of the lengths following, from the eyes to the extent of the tail, bret or turbot, sixteen inches; — brill or pearl, fourteen inches; — codlin, twelve inches; — whiting, six inches; — bass and mullet, twelve inches; — sole, plaice, or dab, eight inches; — and flounder, seven inches; he shall forfeit the fish to the poor of the parish, and 20*s.*; one moiety to the informer, and the other to the poor; and in default of payment or distress, to be sent to the house of correction or other common gaol of the county, to be severely whipped and kept to hard labour six days, and not longer than fourteen.

But by 33 Geo. 2. c. 27. bret or turbot, brill or pearl, although under the said dimensions, may be exposed to sale, so as the same be not sold by retail for above 6*d.* a pound; and if any person ask or take for the same any higher price than at the rate of 6*d.* the pound, or refuse or neglect to weigh and measure any such fish exposed to sale when required, every such fish shall be forfeited; and any person may seize and deliver the same into the hands of a constable, and charge such constable with the party who asked or took any higher price: and such constable is to carry the person so charged, and also the fish seized and delivered to him, with all convenient speed before some justice of peace, within whose jurisdiction any higher price than as aforesaid was asked or taken; and if the person charged with such offence be convicted, either on confession or by the oath of one witness, he shall forfeit 20*s.* for every such offence, and the fish so seized shall by order of such justice be given to the prosecutor, and the money shall be returned to the party who paid the same. § 11.

And no person shall take or destroy, or knowingly have in his possession, either on the water or on shore, or bring to shore, or cry, carry about, or expose to sale, or exchange for any goods, any spawn, fry, or brood of fish, or any unsizeable fish, or any fish out of season, or any smelt which shall not be full five inches in length from the nose to the utmost extent of the tail: and if any offend, any person may seize all such spawn or unsizeable fish, &c. wherever found, with all baskets and package in which found, and charge a constable or other peace officer with such offender; and after seizure the same shall be delivered to some constable or peace officer, who is to carry such offender and such spawn or fish, with the baskets, &c. before some justice; and on conviction, such offender shall forfeit all such spawn, fry, or brood of fish, unsizeable fish, and fish out of season, and every smelt of less size than five inches so seized, with all baskets or package in which seized; and all such spawn or unsizeable fish, &c. with the package, shall, by order of the justice, be delivered to the person who seized the same; and every offender convicted shall besides forfeit for every such offence 20*s.*

Lastly, 58 Geo. 3. c. 43. was enacted to prevent the destruction of the breed of salmon and fish of the salmon kind, in all the rivers of England, to which, therefore, by this statute, the provisions of former local statutes, with some additional ones, were extended.

FISHERMEN. There shall be a master, wardens, and assistants of the Fishmongers' company in London chosen yearly, at the next court of the lord mayor and aldermen after the 10th of June, who are constituted a court of assistants; and they shall meet once a month at their common hall to regulate abuses in fishery, register the names of fishermen, mark their boats, &c.

FISHERY, a place where great numbers of fish are caught. The principal fisheries for salmon, herring, mackarel, pilchards, &c. are along the coasts of England, Scotland, and Ireland; for cod, on the banks of Newfoundland; for whales, about Greenland; and for pearls, in the East and West Indies.

Fishery denotes also the commerce of fish, more particularly the catching them for sale. Were we to enter into a very minute consideration of the fisheries established in this kingdom, this article would swell beyond its proper bounds: since fisheries, however, if successful, are not only objects of commercial importance, but also contribute materially to our naval strength, by becoming permanent nurseries for seamen, we shall take notice of some of the most considerable of the British fisheries, and the institutions set on foot for their support. The

situation of the British coasts is the most advantageous in the world for catching fish: the Scottish islands, particularly those to the north, and west, lie most commodious for carrying on the fishing-trade to perfection. Of these advantages the Scots seem indeed to have been abundantly sensible; for their commerce in herrings is even noticed in history so early as the ninth century. The frequent laws which were enacted in the reigns of James III. IV. and V. discover a zeal for the benefit of the country, and the full restoration of these fisheries, which the Dutch had found means to engross. The Scottish fisheries were, however, more particularly indebted to the zealous encouragement of James V. and VI. and the same plan was resumed by Charles I.; but all this was frustrated by the breaking out of the civil wars. In 1661, Charles II. and other persons resumed the business of the fisheries with greater vigour. For this purpose the most salutary laws were enacted by the parliaments of England and Scotland; in virtue of which, all materials used in, or depending upon the fisheries, were exempted from all duties, excise, or imposts whatever. In 1677, a new royal company was established. Besides all the privileges which former companies had enjoyed, the king granted this new company a perpetuity, with power to purchase lands; and also 20*l.* to be paid them annually out of the customs of the port of London, for every dogger or buss they should build, and send out, for seven years to come. Most of the busses had been built in Holland, and manned with Dutchmen; on which pretence the French, who were then at war with Holland, seized six out of seven vessels, with their cargoes and fishing-tackle: and the company being now in debt, sold, in 1680, the remaining stores, &c. A number of gentlemen and merchants raised a new subscription of 60,000*l.* under the privileges and immunities of the former charter. This attempt also came to nothing. Soon after the Revolution, this business was again resumed upon a more extensive scale; the proposed capital being 300,000*l.* of which 100,000*l.* was to have been raised by the surviving patentees or their successors, and 200,000*l.* by new subscribers; but it did not succeed. In 1749, the house of commons appointed a committee to inquire into the state of the herring and white fisheries, and to consider the most probable means of extending the same. A subscription of 500,000*l.* was immediately filled in the city, by a body of men who were incorporated for twenty-one years, by the name of "*The Society of the Free British Fishery.*" Every encouragement was held out by government, both to the society, and to individuals, who might embark in this national business. A bounty of 30*s.* per ton, was to be paid annually out of the customs for fourteen years, to the owners of all decked vessels or busses, from twenty to eighty tons burden, which should be built after the commencement of the act, for the use of, and fitted out and employed in, the said fisheries, whether by the society or any other persons. The Dutch, however, who were perfect masters of the arts of fishing and curing, and also in full possession of the European markets, maintained their ground against this formidable company. In 1786, the public attention was again called to the state of the British fisheries. In the house of commons a committee inquired into this great source of national wealth. It appeared that the best way of improving the fisheries was, to encourage the inhabitants living nearest the seat of them to become fishers; and it being found that the north-western coast of the kingdom, though abounding with fish and fine harbours, were utterly destitute of towns, an act was passed for incorporating certain persons therein named, by the style of "*The British Society for extending of the Fisheries, and improving the Sea-coasts of this Kingdom;*" and to enable them to subscribe a joint stock, and therewith to purchase lands, and build thereon free towns, villages, and fishing stations in the highlands and islands in that part of Great Britain called Scotland, and for other purposes.

Anchovy Fishery.—The anchovy is caught in the months of May, June, and July, on the coasts of Catalonia, Provence, &c. at which season it constantly repairs up the straits of Gibraltar into the Mediterranean. Collins says they are also found in plenty on the western coasts of England and Wales. The fishing for them is chiefly in the night-time; when a light being put upon the stern of their little fishing-vessels, the anchovies flock round and are caught in the nets. But then it is asserted to have been found by experience, that the anchovies taken thus by fire are neither so good, so firm, nor so proper for keeping, as those which are taken without fire. When the fishery is over, they they cut off the heads, take out their gall and guts, and then lay them in barrels, and salt them with *bay* salt. Being put on the fire, they dissolve almost in any liquor: or they are made into sauce by mincing them with pepper, &c. Some also pickle anchovies in small delft or earthen pots, made on purpose, of two or three pounds weight, more or less, which they cover with plaister to keep them the better. No other fish has the flavour of the anchovy, which should be chosen small, fresh pickled, white on the outside and red within, and mellow; the bones moist and oily; the flesh should be highly flavoured, the liquor reddish, and have a fine smell. If genuine, they have round backs; for those which are flat or large are sardines, sprats, and other small fish, which are preserved in imitation of

them; but which are easily distinguished, not only by the shape of the whole fish, but by the construction of the back-bone, which in an anchovy is triangular, in the sprat and other small fish cured in imitation of them, flat.

Cod Fishery. — There are two kinds of cod-fish; the one green or white, the other dried or cured; though they are the same fish differently prepared: the former being sometimes salted and barrelled, then taken out for use; and the latter having lain for a competent time in salt, and then dried in the sun or smoke. The chief fisheries for green cod are in the bay of Canada, on the great bank of Newfoundland, on the isle of St. Peter, and the isle of Sable; to which places vessels resort from many parts of Europe and America. They are from 100 to 150 tons burden, and will catch from 30,000 to 40,000 cod each. The most essential part of the fishery is, to have a master who knows how to cut up the cod, is skilled to take off the head properly, and above all a good salter, on which the preserving of them, and consequently the success of the voyage, depend. The best season is from the beginning of February to the end of April; the fish, which in the winter retire to the deepest water, coming then on the banks, and fattening extremely. What are caught from March to June keep well; but those taken in July, August, and September, when it is warm on the banks, are apt to spoil soon. Each fisher takes but one at a time, yet the most expert will take from 350 to 400 in a day; but that is the most, the weight of the fish, and the great coldness on the bank, fatiguing very much. As soon as they are caught, the heads are taken off; they are opened, gutted, and salted; and the salters store them in the bottom of the hold, head to tail, in beds a fathom or two square; putting layers of salt and fish alternately, but never mixing fish caught on different days. When they have lain thus for three or four days to drain off the water, they are placed in another part of the ship, and salted again; where they remain till the vessel is loaded.

The principal fishery for dry cod, is from Cape Rose to the Bay des Exports, along the coast of Placentia, in which compass there are several commodious ports for the fish to be dried in. These, though of the same kind with the fresh cod, are much smaller, and therefore fitter to keep, as the salt penetrates more easily into them. The fishery of both is much alike; only the latter is most expensive, as it takes up more time, and employs more hands, and yet scarcely half so much salt is spent in this as in the other. The bait is herring, of which great quantities are taken on the coast of Placentia.

The right, and manner, of fishing, are regulated by statute as follows: — By 2 & 3 Ed. 6. c. 6. the Admiralty shall not exact any fees from fishermen from the voyage to Iceland, Newfoundland, or elsewhere, on pain of treble damages.

By 15 Car. 2. c. 7. no vessel shall go on a fishing voyage for Iceland and Westmona until the 10th of March, on forfeiture of the ship.

By 15 Car. 2. c. 16. no toll shall be levied in Newfoundland for any fish of English catching, nor any net cast near any harbour in Newfoundland to take the spawn of poor John, or the like, except for taking of bait only, on forfeiture.

None shall destroy any house, or stage, or utensils of fishing, in Newfoundland or Greenland, on pain of double the value. *Ibid.*

By 10 & 11 Will. 3. c. 25. all the king's subjects shall have free trade to Newfoundland, and no alien shall bait or fish there; none shall throw any annoyance into harbours, or destroy any stage there.

The first fishing ship, entering the harbour in the fishing season, shall be admiral for that time, the second vice-admiral, and so on, and shall see the rules in this act executed. *Ibid.*

Persons possessed of several places shall make their election which to abide in, and give their resolution to any after-comer, in forty-eight hours after demand, and, in case of difference, admirals shall proportion the place. *Ibid.*

No fisherman, or inhabitant of Newfoundland, shall possess any stage until all fishing ships be provided, except they have built them themselves. *Ibid.*

By-boat keepers shall not meddle with house or stage belonging to any fishing ships: they shall carry two fresh men in six, and the inhabitants shall employ them; the master of a fishing ship shall carry one fresh man in five, and make oath thereof, and have every fifth man a green man. *Ibid.*

Marks of boats or train vats shall not be obliterated without the owner's consent: standing trees shall not be rinded, nor woods fired, necessary fuel excepted; sayns shall not be annoyed, nor nets, baits, or the like stolen. *Ibid.*

Admirals shall keep a journal, and deliver a copy thereof to the privy-council. They shall determine differences between the fishers and inhabitants, with power to appeal to the king's officers. *Ibid.*

By 26 Geo. 3. c. 26. certain bounties were granted to ships employed in the Newfoundland fishery, which have been continued, modified, and regulated by divers subsequent statutes. See 1 Geo. 4. c. 103.

By 41 Geo. 3. c. 77. salted salmon or cod-fish may be imported from Newfoundland or the coast of Labrador by British subjects, and shall on certain conditions be allowed a bounty of 3*s.* per quintal or cwt.; and such fish may be exported without repayment of the bounty. See *App.* BOUNTIES.

As fast as the masters arrive, they unrig all

their vessels, leaving nothing but the shrouds to sustain the masts; and in the meantime they provide a tent on shore, covered with branches of trees, with sails over them, with a scaffold of great trunks of pines, 12, 15, 16, and often 20 feet high, commonly from 40 to 60 feet long, and about one-third as much in breadth. While the scaffold is preparing, the crew are fishing; and as fast as they catch, they bring their fish ashore, and open and salt them upon moveable benches; but the main salting is performed on the scaffold.

When the fish have taken salt, they wash and hang them to drain on rails; when drained, they are laid on a sort of stages, which are small pieces of wood laid across, and covered with branches of trees, having the leaves stripped off for the passage of the air. On these stages they are disposed, a fish thick, head against tail, with the back uppermost, and are turned carefully every twenty-four hours. When they begin to dry, they are laid in heaps ten or twelve thick, in order to retain their warmth; and every day the heaps are enlarged, till they become double their first bulk; then two heaps are joined together, which they turn every day as before: lastly, they are salted again, beginning with those first salted; and being laid in huge piles, they remain in that situation till they are carried on board the ships, where they are laid on the branches of trees disposed for that purpose, upon the ballast, and round the ship, with mats to prevent their contracting any moisture. The cod supplies four kinds of commodities, viz. the sounds, the tongues, the roes, and the oil, which is extracted from the liver. The first are salted at the fishery, together with the fish, and put in barrels of from 600 to 700 pounds. The tongues are cured in like manner, and brought in barrels of from 400 to 500 pounds. The roes are also salted in barrels, and serve to cast into the sea to draw fish together, and particularly pilchards. The oil comes in barrels of from 400 to 520 pounds; it is called cod-oil, and is used in dressing leather. Divers statutes have been passed on the subject of it. See 48 Geo. 3. c. 20. and title *ante* NEWFOUNDLAND. In Scotland, they catch a small kind of cod on the coasts of Buchan, and all along the Murray Frith on both sides; as also in the Frith of Forth, Clyde, &c. which is much esteemed. They salt and dry them in the sun upon rocks, and sometimes in the chimneys; indeed there are few places now on the north, and north-east, coasts of the kingdom where cod is not preserved in considerable quantities, from Bridlington, and Filey, bays on the Yorkshire coast, to Berwick.

Herring Fishery.—Our great stations for this fishery are off the Shetland and Western Isles, the coast of Norfolk, and the Isle of Man. There are two seasons for herring-fishing; the first from June to the end of August; and the second in autumn, when the fogs become very favourable for this kind of fishing. In the late king's reign, many vigorous efforts were made, and bounties allowed, for the encouragement of the British herring-fisheries: the first was at 30*s.* per ton, to every buss of 70 tons and upwards. This bounty was afterwards raised to 50*s.* per ton, to be paid to such adventurers as were entitled to it by claiming it at the place of rendezvous. The busses are from 20 to 90 tons burden, but the best size is 80 tons. The bounties now payable are by 55 Geo. 3. c. 94. on every buss of certain tonnage, &c. 3*l.* per ton; and on every barrel of 32 gallons cured and landed, 4*s.* A vessel of 80 tons ought to take 10 lasts, or 120 barrels of herrings to clear expenses, the price of the fish to be a guinea a barrel. A ship of this size ought to have 18 men, and three boats; one of 20 tons should have six men; and every five tons above require an additional hand. To every ton are 250 yards of net; so a vessel of 80 tons carries 20,000 square yards; each net is twelve yards long, and ten deep; and every boat takes out from 20 to 30 nets, and puts them together, so as to form a long train; they are sunk at each end of the train by a stone, which weighs it down to the full extent: the top is supported by buoys made of sheep-skins, with a hollow stick at the mouth, fastened tight; through this the skin is blown up, and then stopped with a peg, to prevent the escape of the air. Sometimes these buoys are placed at the top of the nets; at other times the nets are suffered to sink deeper, by lengthening the cords fastened to them, every cord being, for that purpose, ten or twelve fathoms long; but the fisheries are generally in more shallow water.

Of the Scots' fishery in the Western Isles, the following account is given by Mr. Pennant: "The fishing is always performed in the night, unless by accident. The busses remain at anchor, and send out their boats a little before sun-set; which continue out, in winter and summer, till day-light; often taking up and emptying their nets, which they do ten or twelve times a night, in case of good success. During winter it is a most dangerous and fatiguing employ, by reason of the greatness and frequency of the gales in these seas, and in such gales are the most successful captures; but by the providence of Heaven, the fishers are seldom lost, and what is wonderful, few are visited with illness. They go out well prepared, with a warm great-coat, boots, and skin aprons, and a good provision of beef and spirits. The same good fortune attends the busses, which in the tempestuous season, and in the darkest nights, are continually shifting in these narrow seas from harbour to harbour. Sometimes 80 barrels of herrings are taken

in a night by the boats of a single vessel." To this may be added another account, published 1818, by Laing: "These seas (about the Shetland Islands) abound with cod, turbot, haddock, ling, lobsters, crabs, oysters, &c. and, at certain seasons, vast shoals of herrings. In June, they appear in surprising columns, and perform the circuit of these islands; after which they totally disappear. They are divided into columns of 5 or 6 miles long, and 3 or 4 broad; and in their passage, the water is propelled before them like an impetuous current. Vessels from many nations used to rendezvous in Bressay Sound. The Dutch especially carried on this fishery very extensively. They had 500 busses, under convoy of 4 ships of war; but a French fleet of 6, in 1703, engaged them, sunk the admiral's ship, and the rest fled. Their boats destroyed about 400 of the Dutch fishing vessels; and since then their fishery has declined. The fishing business here engrosses the whole attention of the men, who resort to it in light skiffs, which they get from Norway. Their export of fish to foreign markets, especially Spain and Italy, amounts to several hundred tons. So prevalent is this rage for fishing, that the only land used for husbandry is that along the sea-coast; which bears no proportion to that which lies waste and uncultivated." The herrings are preserved by salting, after the entrails are taken out. The last mentioned is an operation performed by the country people, and this employs both women and children; but the salting is only intrusted to the crew of the busses. The fish are laid on their backs in the barrels, and layers of salt between them. The entrails are not lost, for they are boiled into an oil; 8000 fish will yield ten gallons, valued at one shilling the gallon. A vessel of 80 tons takes out 244 barrels of salt: a drawback is allowed for each barrel used by the foreign, or Irish, exportation of the fish; but there is a duty per barrel for the home-consumption, and the same for those sent to Ireland. The barrels are made of oak-staves, chiefly from Virginia; the hoops are from several parts of our island, and are either of oak, birch, hazel, or willow; the last from Holland, liable to a duty. The barrels cost about 3*s.* each; they hold from 500 to 800 fish, according to the size of the fish; and are made to contain 32 gallons. The barrels are inspected by proper officers: a cooper examines if they are statutable and good; if faulty, he destroys them, and obliges the maker to stand to the loss. Herrings are cured either white (*i. e.* pickled), or red. Of the first, those done by the Dutch are the most esteemed, being distinguished into four sorts, according to their sizes; the best are those that are fat, fleshy, firm, and white, salted the same day they are taken with good salt, and well barrelled. The British-cured herrings are little inferior, although not quite equal, to the Dutch; for in opposition to all their endeavours to conceal the secret, their method of curing, lasting, or casking the herrings, has been discovered, and is as follows: After they have hauled in their nets, which they drag in the stern of their vessel backwards and forwards in traversing the coast, they throw them upon the ship's deck, which is cleared of every thing for that purpose: the crew is separated into divisions, and each division has a peculiar task: one part opens and guts the herrings, leaving the melts and roes; another cures and salts them, by lining or rubbing their inside with salt; the next packs them, and between each row and division they sprinkle handfuls of salt; lastly, the cooper heads the casks very tight, and they are then stowed in the hold. Red-herrings must lie twenty-four hours in the brine, inasmuch as they are to take all their salt there; and when they are taken out, they are spitted; that is, strung by the head on little wooden spits, and then hung in a chimney made for that purpose. After this process, a fire of brushwood, which yields much smoke, but no flame, being made under them, they remain there till sufficiently smoked and dried, and are afterwards barrelled up for keeping.

The white herring-fishery has been the subject of numerous legislative provisions, especially by the 48 G. 3. c. 110.; 51 G. 3. c. 101.; 52 G. 3. c. 153.; 54 G. 3. c. 102.; but lastly by 55 G. 3. c. 94. which repeals certain provisions of the anterior statutes, amends others, and renders the whole thus amended perpetual. This statute, which is too voluminous to be the subject of more than a reference here, regulates the burdens, and limits the bounties, of vessels employed in this trade; directs the size and structure of the barrels in which the fish shall be packed; the measure of the crans by which herrings shall be bought and sold; the description of nets by which they are to be caught; the mode by which disputes between the officers and the curers shall be settled; empowers the commissioners of excise to remit penalties and forfeitures; to alter regulations made by them, according to statute of 48 Geo. 3.; and directs that all penalties shall be recovered, levied, and mitigated, as under the laws of customs and excise. Several of the bounties granted by former acts of parliament to encourage this fishery, are repealed, and further regulations made concerning the fishery by stat. 1 & 2 Geo. 4. c. 79.

Lobster Fishery. — Lobsters are taken along the British Channel, in the neighbourhood of Arbroath in Scotland, and on the coast of Norway, whence they are brought to London for sale; and also in the Frith of Forth. By 10 & 11 W. 3. c. 24. no lobster is to be taken under eight inches in length, from the peak of the nose to the end of the middle fin of the tail; and by

9 Geo. 2. c. 33. no lobsters are to be taken on the coast of Scotland from the 1st of June to the 1st of September. The best lobsters, with which the London market is now supplied, come from Heligoland: they are of a deeper black, and have their flesh much more firm, than any others.

Mackarel Fishery. — The mackarel is a summer-fish of passage, found in large shoals, in different parts of the ocean, not far north; but especially on the French and English coasts. The fishing is usually in the months of April, May, June, and even July, according to the place. They enter the English Channel in April, and proceed up the Straits of Dover as the summer advances; so that by June they are on the coasts of Cornwall, Sussex, Normandy, Picardy, &c. where the fishery is most considerable. They are an excellent food fresh, and not to be despised when well prepared, pickled, and put up in barrels; a method of preserving them chiefly practised in Cornwall. The fish is taken either with a line, or nets; the latter mode is usually performed in the night-time. The rules observed in the fishing for mackarel are much the same as those already mentioned in the fishery of herrings. There are two ways of pickling them: the first is by opening and gutting them, and filling the belly with salt, crammed in as hard as possible with a stick; which done, they range them in strata, or rows, at the bottom of the vessel, strewing salt between the layers. In the second way, they put them immediately into tubs full of brine, made of fresh water and salt, and leave them to steep till they have imbibed salt enough to make them keep; after which they are taken out and barrelled up, care being used to press them close down. Mackarel are not cured, or exported, as merchandise, except a few by the Yarmouth and Lowestoffe merchants, but are generally consumed at home; especially in the city of London, and the sea-ports between the Thames and Yarmouth east, and the Land's-End of Cornwall west.

Oyster Fishery.—This fishery is principally carried on at Colchester in Essex; Faversham and Milton in Kent; the Isle of Wight; the Swales of the Medway; and Tenby on the coast of Wales. From Faversham and the adjacent parts the Dutch have sometimes loaded a hundred large hoys with oysters in a year. They are also taken in large quantities near Portsmouth, and in all the creeks and rivers between Southampton and Chichester; many of which are carried about by sea to London and to Colchester, to be fed in the pits about Wivenhoe and other places. There are some beds of them on the north-east coast of Lincolnshire, and others on the Brighton coast. Considerable quantities are also taken at Porto Bello, on the Frith of Forth, by which Edinburgh and places adjacent are supplied in a most plentiful manner. In the road to Musselburgh, they have a very large oyster with a white shell, very much scalloped, called the Pandore oyster. In Edinburgh they preserve this fish some time by keeping them in sea-water, and throwing in a little meal, which is changed every other day.

The breed of oysters is protected by divers statutes. The 2 Geo. 2. c. 19. was made for regulating, well-ordering, and improving the oyster-fishery in the river Medway, under the authority of the mayor and citizens of Rochester.

By 31 Geo. 3. c. 51. persons unlawfully catching oysters or brood within the limits of any fishery, may be prosecuted at the sessions, and punished by fine and imprisonment: but the act is not to extend to the taking of floating fish. Sect. 1, 2.

Justices may issue warrants for apprehending offenders, and, for want of sureties, may commit them till the quarter-sessions. Sect. 3.

Persons found taking, or using engines for taking oysters or brood, refusing to discover themselves, may be seized. Sect. 4.

But no justice is to commit, or require a security from, any person, without a recognizance is entered into to prosecute. Sect. 5.

And persons may be discharged from confinement upon entering into a recognizance of 20*l*. Sect. 6.

This act is not to affect any act in force respecting any particular oyster-fishery, or to preclude a prosecution at the common law. Sect. 7, 8.

The 48 Geo. 3. c. 144. recites this previous statute of the 31st Geo. 3. and extends the punishment of felony to the offences described by it, viz. transportation for seven years, or imprisonment not exceeding three years. Taking the *fry* or *spat* of oysters by a *dredge* with the intent to remove them for further growth in another place, is not such a taking as is prohibited by the 3d Jac. 1. c. 12. *Bridges* v. *Richardson, E. T.* 54 G. 3.

Pilchard Fishery.—The chief pilchard-fisheries are along the coasts of Dalmatia, Brittany, Cornwall, and Devonshire. That of Dalmatia is very plentiful: that of Brittany employs annually about 300 ships. That on the coast of Cornwall employs a great number of men on the sea, training them to naval affairs; as well as women and children at land, in salting, pressing, washing, and cleaning; in making boats, nets, ropes, casks, and all the trades depending on their construction and sale. The poor are fed with the offals of the captures, the land with the refuse of the fish and salt. Ships are often freighted hither with salt, and into foreign countries with the fish, carrying off at the same time part of our tin. Every hogshead, together

with the bounty allowed for each exported, and the oil made out of each, amounts, one year with another, at an average, to the price of 1*l.* 13*s.* 3*d.*

The numbers that are taken, at one shooting out of the nets, are amazingly great. The season is from June to September. On the coasts of France they make use of the roes of the cod-fish as a bait; which, thrown into the sea, makes them rise from the bottom, and run into the nets. On our coasts there are persons posted ashore, who, spying the colour of the water where the shoals are, make signs to the boats to go among them to cast their nets. When taken, they are brought on shore to a warehouse, where they are laid upon broad piles, supported with backs and sides; and as they are piled, they salt them with *bay-salt;* in which lying to soak for 30 or 40 days, they run out much blood, with dirty pickle and bittern: then they wash them clean in sea-water; and when dry, barrel, and press them hard down, to squeeze out the oil, which issues out at a hole in the bottom of the cask.

Salmon Fishery.—The chief salmon-fisheries in Europe are in England, Scotland, and Ireland, in the rivers, and on the sea-coasts adjoining to the rivers' mouths. The rivers most distinguished for salmon in Scotland are, the Tweed, the Clyde, the Tay, the Dee, the Don, the Spey, the Ness, the Bewley, &c. in most of which it is very common, about the height of summer, especially if the weather happens to be very hot, to catch four or five score of salmon at a draught. The chief rivers in England for salmon are the Tyne, the Trent, the Severn, and the Thames. The fishing is performed with nets, and sometimes with locks or weirs made on purpose, which in certain places have iron or wooden grates so disposed, in an angle, that being impelled by any force in a contrary direction to the course of the river, they may give way, and open a little at the point of contact, and immediately shut again, closing the angle. The salmon, therefore, coming up into the rivers, are admitted into these grates, which open, and suffer them to pass through, but shut again and prevent their return. The salmon is also caught with a spear, which they dart into him when they see him swimming near the surface of the water. It is customary likewise to catch them with a candle and lanthorn, or wisp of straw set on fire; for the fish, naturally following the light, are struck with the spear, or taken in a net spread for that purpose, and lifted with a sudden jerk from the bottom.

The capture of salmon in the Tweed, about the month of July, is prodigious. In a good fishery, often a boat-load, and sometimes near two, are taken in a tide. The coopers in Berwick immediately begin to salt the salmon thoroughly in pipes and other large vessels, and afterwards barrel them to send abroad, or to the London markets.

Most of the salmon taken before April, or to the setting in of the warm weather, is sent fresh to London in baskets; unless now and then the vessel is disappointed by contrary winds of sailing immediately; in which case the fish is brought ashore again to the cooper's offices, and boiled, pickled, and kitted, and sent to the London markets by the same ship, and fresh salmon put in the baskets in lieu of the stale ones. Some fish are sent in this manner to London the latter end of September, when the weather grows cool; but then the fish are full of roes, grow very thin-bellied, and are not esteemed so palatable.

Scotland possesses great numbers of fine fisheries on both sides of that kingdom. The Scotch in early times had most severe laws against the killing of this fish; insomuch that the third offence was made capital, by a law of James IV. Before that, the offender had power to redeem his life. They were thought, in the time of Henry VI. a present worthy of a crowned head; for in that reign the Queen of Scotland sent to the Duchess of Clarence ten casks of salted salmon, which Henry directed to pass duty-free. The salmon are cured in the same manner as at Berwick, and a great quantity is sent to London in the spring; but after that time, the adventurers begin to barrel and export them to foreign countries; but that commerce is less than it was in former times.

Ireland, particularly the north, abounds with this fish; the most considerable fishery is at Cranna, on the river Ban, about a mile and a half from Coleraine. The mouth of this river faces the north; and is finely situated to receive the fish that roam along the coast in search of an inlet into fresh water, as they do all along that end of the kingdom which opposes itself to the northern ocean. In the Ban they fish with nets 18 score yards long, and are continually drawing night and day the whole season, which lasts about four months, two sets, of sixteen men each, alternately relieving one another. The best drawing is when the tide is coming in. A few miles higher up the river is a weir, where a considerable number of fish, that escape the nets, are taken. Large quantities are likewise taken in the Boyne, the Shannon, &c.

With regard to the manner of curing salmon; when the fish are taken, they are opened along the back, the guts and gills, and the greatest part of the bones removed, so as to make the inside as smooth as possible. They then salt the fish in large tubs made for the purpose, where they lie a considerable time soaking in brine; and about October, they are packed close up in barrels,

and sent to London, or up the Mediterranean. They have also in Scotland a great deal of salmon salted in the common way, which, after soaking in brine a competent time, is well pressed, and then dried in smoke; this is called kipper. It is chiefly made for home-consumption; and if properly cured and prepared, is reckoned very delicious fish. Wales is also famous for its salmon-fisheries, as well as for the curing of the fish. Large quantities are taken in the rivers of the principality, both south and north, and when cured, are preferred in London to those from the northern parts of the kingdom. After what has been premised respecting the protection of the breed of salmon, at the commencement of this title, it is not thought necessary to notice the subject further.

Sturgeon Fishery.—The greatest sturgeon fishery is in the mouth of the Volga, on the Caspian Sea; where the Muscovites employ a great number of hands, and catch them in a kind of inclosure, formed by huge stakes, representing the letter Z repeated several times. These fisheries are open on the side next the sea, and close on the other, by which means the fish ascending in its season up the river, is embarrassed in these narrow angular retreats, and is easily killed with a harpoon-iron. Sturgeons, when fresh, eat deliciously; and in order to make them keep, they are salted or pickled in large pieces, and put in kegs of from 30 to 50lbs. weight. But the great object of this fishery is the roe, of which the Muscovites are extremely fond, and of which is made the caviar, or kavia, so much esteemed by the Italians.

Tunny Fishery.—The tunny was a fish well known to the ancients, and made a great article of commerce: there are still very considerable tunny-fisheries on the coasts of Sicily, as well as in several other parts of the Mediterranean. The nets are spread over a large space of sea by means of cables fastened to anchors, and are divided into several compartments. The entrance is always directed, according to the season, towards that part of the sea from which the fish are known to come. A man placed upon the summit of a rock high above the water, gives the signal of the fish being arrived; for he can discern from that elevation what passes under the waters, much better than any person nearer the surface. As soon as notice is given that the shoal of fish has penetrated as far as the inner compartment, or the chamber of death, the passage is drawn close, and the slaughter begins. The undertakers of these fisheries pay an acknowledgment to the king, or the lord upon whose land they fix the main stay or foot of the tonnara; they make the best bargain they can; and till success has crowned their endeavours, obtain this leave for a small consideration; but the rent is afterwards raised in proportion to their capture. The tunny enters the Mediterranean about the vernal equinox, travelling in a triangular phalanx, so as to cut the waters with its point, and to present an extensive base for the tides and currents to act against and impel forwards. These fish repair to the warm seas of Greece to spawn, steering their course thither along the European shores, but as they return, approach the African coast; the young fry is placed in the van of the squadron as they travel. They come back from the east in May, and abound on the coast of Sicily and Calabria about that time. In autumn they steer northward, and frequent the neighbourhood of Amalfi and Naples; but during the whole season stragglers are occasionally caught. When taken in May, the usual time of their appearance in the Calabrian bays, they are full of spawn, and their flesh is then esteemed unwholesome, the milts and roes particularly. To prevent these bad effects, the natives fry them in oil, and afterwards salt them. There are considerable quantities of this fish consumed annually in the two Sicilies. From the beginning of May to the end of October it is eaten fresh, and all the rest of the year salted. The most delicate part is the muzzle. The belly salted was called *tarantallum*, and accounted a great delicacy by the Romans; its present name is *surra*. The rest of the body is cut into slices, and put into tubs.

Turbot Fishery.—Turbots are taken chiefly off the north coast of England, and others off the Dutch coast; they grow to a large size, viz. from 25 to 30 pounds weight. The largest turbot (as well as several other kinds of flat fish) are taken by the hook and line, for they lie in deep water; the method of taking them in weirs, or staked nets, being very precarious. When the fishermen go out to sea, each person is provided with three lines, which are coiled on a flat oblong piece of wicker-work; the hooks being baited, and placed regularly in the centre of the coil. Each line is furnished with fourteen score of hooks, at the distance of six feet two inches from each other. The hooks are fastened to the lines upon sneads of twisted horse-hair, 27 inches in length. When fishing, there are always three men in each coble, and consequently nine of these lines are fastened together, and used as one line, extending in length near three miles, and furnished with 2520 hooks. An anchor, and a buoy, are fixed at the first end of the line, and one more at the end of each man's lines; in all four anchors, which are commonly perforated stones, and four buoys made of leather, or cork. The line is always laid across the current. The tides of flood, and ebb, continue an equal time upon our coast, and, when undisturbed by winds, run each way about six hours; they are so rapid that the fishermen can only shoot, and haul their lines, at the turn of the

tide, and therefore the lines always remain upon the ground about six hours. The same rapidity of the tides prevents them using hand-lines; therefore two of the people commonly wrap themselves in the sail, and sleep, while the other keeps a strict look-out, for fear of being run down by ships, and to observe the weather: for storms often rise so suddenly, that it is with extreme difficulty they can sometimes escape to the shore, leaving their lines behind. Besides the coble, the fishermen have also a five-men boat, which is 40 feet long, and 15 broad, and 25 tons burden. This boat is decked at each end, but open in the middle, and has two large lug-sails. All our able fishermen go in these boats to the herring-fishery at Yarmouth in the end of September, and return about the middle of November. The boats are then laid up till the beginning of Lent, at which time they go off in them to the edge of the Dogger, and other places, to fish for turbot, cod, ling, skate, &c. They always take two cobles on board; and when they come upon their ground, anchor the boat, throw out the cobles, and fish in the same manner as those do who go from the shore in a coble; with this difference only, that here each man is provided with double the quantity of lines, and instead of waiting the return of the tide in the coble, they return to their boat, and bait their other lines; thus hauling one set and shooting another at every turn of the tide. They most commonly run into harbour twice a week to deliver their fish. The best bait is fresh herring, cut in pieces of a proper size: the five-men boats are always furnished with nets for taking them. Next to herrings are the lesser lampreys. The next baits in esteem are small haddocks cut in pieces, sand-worms, and limpets, here called flidders; and when none of these can be had, they use bullock's liver. The hooks are two inches and a half long in the shank, and near an inch wide between the shank and the point. The line is made of small cording, as it is always tarred before it is used. Turbots are extremely delicate in their choice of baits. Turbot, sturgeon, lobsters, anchovies, stock-fish, and eels, are excepted out of the prohibitions enacted against foreigners importing fish into this kingdom, by 1 Geo. 1. c. 18. and 9 Geo. 2. c. 33.

Whale-Fishery.—The following abstract of the history and practice of the Greenland whale-fishery is taken from the work of an intelligent voyager, and published in the present year, J. Laing. The English began the whale-fishery immediately after its discovery by Barentz, a Dutchman, in 1596. They had formidable rivals in the Dutch, who in 46 years caught 32,900 whales, the oil and whalebone of which sold for about 15,800,000*l.* The season for beginning the voyage is April, as it is necessary to commence fishing in May. The manner of fishing is to make fast to an iceberg (a mass of floating ice which is stationary), and then prepare the lines, &c. In every boat there is a line 720 fathoms long, to the end of which is fixed an harpoon, about eight feet five inches long; the iron part is better than two feet long, and is extremely sharp. On each side of the point is placed a barb, or wither, diverging from the harpoon at an angle of nearly 40 degrees, to prevent the instrument from flinching and losing hold. There are several lances, or spears, about six feet long, the points of which are about two inches broad; by these the whales are killed. after being struck with the harpoon.

A boat's crew consists of a harpooner, a boat-steerer, a line-manager, and three or four men, more or less, according to the size of the boat. When a whale is seen from the ship, one or more boats are sent in pursuit, and if they get close to it, the harpooner strikes it with his harpoon; but should the boat not get near enough for this purpose, he heaves the harpoon at the whale with great skill. As soon as the animal finds itself wounded it descends, dragging the line fastened to the harpoon after it with such velocity, that one of the crew is instantly obliged to pour water on the stern of the boat to prevent its taking fire by the intense friction. A hatchet is always at hand to cut the line in the event of its getting entangled. A large whale will sometimes run out the lines of two boats (1500 fathom). As soon as a whale is struck, they hoist a flag, or jack, in the boat, which being seen in the ship, the crew call out "a fall, a fall," and all hands that can be spared go off in the boats, and repair to the place where it is expected the whale will rise to breathe. When it appears, they strike it again and again. When the whale becomes fatigued and is severely wounded, it throws up water mixed with blood, and immediately the boats surround it, and dispatch it with their spears. As soon as it is killed, it is towed by the boats to the ship, and being made fast by tackles placed at the nose and tail, is immediately stripped of its blubber. This process is called "*flinching*," and is speedily performed. The harpooners and their assistants cut the blubber into long stripes, which are hoisted into the ship, cut into smaller pieces, and thrown into the hold, from whence they are again brought upon deck, to be pared and barrelled. The blubber being brought upon deck, the fleshy parts are pared off, and it is then placed, piece by piece, on a block, having three iron spikes on the top, to keep it steady. Here it is skinned by a harpooner, and then it is ready to be *chopped*. When it is chopped, it is let down to a tub in the *hold*, and from thence put, piece by piece, into the bung-holes of the casks, which are fixed for the purpose of receiving it previous to sailing from home.

Linnæus says the common whale was

commonly 160 feet long; but in the seas of Spitzbergen, at this day, they seldom exceed 70 feet, which is, perhaps, because they are killed before they have arrived at their full growth. The head is of a triangular shape, and one-third of the whole fish. They have no teeth, but merely laminæ in the upper jaw, like those in the bill of a duck, closely set together, and black. The tongue is from 18 to 20 feet long, consisting of a soft spongy fat, and frequently yielding five, or six, barrels of oil. The throat is not more than four inches wide. The body tapers gradually to the tail, which is often above 20 feet broad. The colour of the whale varies with its age, the back of some being black, of others black and white, and of some white. Their skin is smooth, lubricated, and about one inch thick. Their bodies immediately under the skin are covered with a layer of fat (the blubber) from 12 to 18 inches thick, according to the age and size of the fish. A large one will produce 12, 20, and even sometimes 25 tons of oil, the price of which varies from 30*l.* to 45*l.* per ton. The ordinary quantity of oil produced from whales of different sizes is generally proportioned to the sizes of the bones, in a ratio nearly approaching to the following:

Bone in feet.	Oil in tons.
2	3
4	4
6	5½
8	9
10	13
12	20

There occur exceptions to this rule of proportion, but they are not frequent, and generally in favour of the oil. Whalebone was formerly an article of great value in commerce, even of more consideration than the blubber, and sold for 600*l.* per ton. Its price, however, now, when compared with the other more valuable part, is an object of little attention to the whale fishers. By an ancient flower of the royal prerogative, the *tails* of all the whales belong to the queen, as a perquisite to her majesty's wardrobe, but the claim to this privilege has ceased with the value of the article. The principal uses to which whalebones are now applied are spokes to wheels of light carriages of pleasure, fishing-rods, riding driving-whips, and walking-sticks.

The following statements bring under one view the comparative exertions of different countries, in the prosecution of the whale-fishery, for the last two centuries.

Dutch Whale Fishery.—This fishery was first carried on, to any extent at least, by a company, which sent thither annually a few ships, to the exclusion of the rest of their countrymen, and who also endeavoured to exclude foreigners. In the year 1613, the company's ships amounted to seven sail, who, on their arrival at Spitzbergen, found there fifteen Dutch, French, and Flemish ships, besides English interlopers. Next year, the Dutch sent eighteen sail, of which four were men-of-war. In 1615, the king of Denmark sent a squadron of three men-of-war to assert his exclusive right, but with such indifferent success, that his majesty thought fit to give up the point. In 1617, our company were more lucky than in any other year, and actually made one thousand nine hundred ton of oil. The Dutch made, for many years after, very indifferent voyages; and, as their great statesman M. De Witt well observes, had certainly been forced to relinquish the trade, had it not been laid open by the dissolution of their Greenland company, to which he attributes their having, in his time, beat the English, and almost all other nations, out of that trade, which they then carried on to a prodigious extent.

The following is a list of the ships sent from Holland to the Greenland, and Davis' Straits, whale-fishery, from the year 1661 to 1788, both inclusive, with an account of the number of whales catched each year:

A List of Greenland, and Davis' Straits, Ships, from Holland, since the Year 1661, *with the Number of Fish caught each Year.*

Years.	*Ships.*	*Fish.*	*Years.*	*Ships.*	*Fish.*
1661	133	452	1672	War with England, no Ships out.	
1662	149	862	1673		
1663	202	932	1674		
1664	193	782	1675	147	900
1665	War with England, no Ships out.		1676	145	812
1666			1677	145	785
1667			1678	120	1118
1668	155	573	1679	126	792
1669	138	1013	1680	151	1373
1670	148	792	1681	175	876
1671	158	1088	1682	195	1444

A List of Greenland, and Davis' Straits, Ships, from Holland, since the Year 1661, *with the Number of Fish caught each Year*—continued.

Years.	*Ships.*	*Fish.*	*Years.*	*Ships.*	*Fish.*
1683	242	1338	1729	184	229
1684	233	1153	1730	168	248
1685	209	1283	1731	164	298
1686	189	664	1732	176	314
1687	194	621	1733	184	360
1688	214	340	1734	186	327
1689	160	241	1735	185	496
1690	117	785	1736	191	587
1691	2	War with France.	1737	196	504
			1738	195	472
1692	32	56	1739	192	728
1693	90	175	1740	187	665
1694	63	161	1741	178	312
1695	97	187	1742	173	558
1696	122	428	1743	185	937
1697	131	1279	1744	187	1494
1698	139	1483	1745	184	568
1699	151	775	1746	180	1036
1700	173	913	1747	164	776
1701	208	2071	1748	94	278
1702	224	687	1749	157	619
1703	207	644	1750	158	590
1704	130	652	1751	162	330
1705	157	1678	1752	159	546
1706	151	966	1753	166	639
1707	131	126	1754	171	672
1708	122	533	1755	181	720
1709	126	192	1756	186	508
1710	137	62	1757	180	423
1711	117	631	1758	159	371
1712	108	373	1759	155	464
1713	93	237	1760	154	454
1714	108	1291	1761	161	357
1715	134	698	1762	165	189
1716	153	535	1763		
1717	179	392	1764	161	224
1718	139	280	1765	165	477
1719	211	346	1766	167	189
1720	228	455	1767	165	179
1721	260	733	1768	160	600
1722	254	1101	1769	152	1127
1723	233	314	1770	150	523
1724	232	358	1771	150	143
1725	226	530	1772	131	768
1726	218	244	1773	134	444
1727	202	402	1774	130	450
1728	182	363	1775	129	105

A List of Greenland, and Davis' Straits, Ships, from Holland, since the Year 1661, *with the Number of Fish caught each Year*—continued.

Years.	*Ships.*	*Fish.*	*Years.*	*Ships.*	*Fish.*
1776	123	509	1783	55	330
1777	116	427	1784	62	198
1778	111	306	1785	65	300
1779	105	168	1786	67	476
1780	82	476	1787	67	239
1781	War with England, no Ships out.		1788	69	190
1782					

N. B. From the year 1719 are included the Davis' Straits Ships.

From this period the Dutch whale-fishery rapidly declined, and was at length totally annihilated during the late war.

English Whale Fishery.—The English Whale Fishery, like that of Holland, was originally carried on by an exclusive company. The first association of merchants for this purpose was soon dissolved; but owing to successive grants of the same kind, the trade continued fettered for a considerable period posterior to the Revolution. During this time it was, as might have been expected, carried on with almost no success.—In 1724, the South Sea Company embarked largely in this department of industry; but having, in the course of eight years, incurred an immense loss, they were glad to abandon it. In 1733, the government being determined to encourage this fishery, a bounty of 20*s*. per ton was granted to all ships of 200 tons and upwards, employed therein; as this bounty, however, was found insufficient, in 1749 it was doubled. This extraordinary encouragement, by factitiously determining a portion of the national capital into this channel, had at last a considerable effect; but a long time elapsed ere the English could, even with these superior advantages, successfully compete with the Dutch. Since this epoch many alterations have been made in the laws respecting the Greenland fishery The reader will find a full account of this fishery, and other useful information, in the work recently published by Captain Scoresby.

Number of English and Scottish vessels employed in the Greenland Whale-fishery, and of their tonnage, from 1771 *to* 1800, *both inclusive.*

	England.		Scotland.	
Years.	*Vessels.*	*Tons.*	*Vessels.*	*Tons.*
1771	50	14,700	9	2,797
1772	50	15,378	9	2,797
1773	55	16,712	10	3,016
1774	65	19,770	9	2,773
1775	96	29,131	9	2,773
1776	91	27,047	7	2,251
1777	77	21,917	7	2,251
1778	71	20,291	5	1,587
1779	52	16,907	3	956
1780	50	14,900	4	1,282
1781	34	9,859	5	1,459
1782	38	11,122	6	1,764
1783	47	14,268	4	1,095
1784	89	27,224	7	2,047
1785	136	41,741	13	3,865
1786	162	49,426	23	6,997
1787	219	64,286	31	9,057
1788	216	63,399	31	8,910
1789	133	38,751	28	7,846
1790	130	30,290	22	5,898
1791	93	27,598	23	6,308
1792	73	21,496	28	5,487
1793	38	8,437	14	3,813
1794	47	12,906	13	3,480
1795	34	9,135	10	2,613
1796	42	11,516	9	2,317
1797	50	13,757	10	2,614
1798	56	16,140	10	2,614
1799	57	16,731	10	2,629
1800	51	15,077	10	2,652

American Whale Fishery.—The whale fishery first attracted the attention of the Americans in 1690, and originated at the island of Nantucket, in boats from the shore. In 1715, six sloops, of thirty-eight tons burden each, were employed in this fishery, from that island. For many years their adventures were confined to the American coast, but as whales grew scarce here, they were extended to the Western Islands, and to the Brazils, and at length to the North, and South, Seas. For a long time, the Dutch seemed to monopolize the whale fishery, which they followed, with success, in the Greenland or Northern Seas.

As early as 1663, they had two hundred and two ships employed in this fishery, and in 1721, as many as two hundred and sixty; in 1788, the number was reduced to sixty-nine, and for many years past, not only has

this branch of their commerce, but almost every other, been completely annihilated. In 1731, the Americans had about thirteen hundred tons of shipping employed in this fishery along their coast. About the year 1750, the whale left the American coast. The hardy enterprise and activity of the American sailor, however, soon followed him in every part of the Northern, and Southern, Seas.

From 1771 to 1775, Massachusetts employed, annually, one hundred and eighty-three vessels, of thirteen thousand eight hundred and twenty tons, in the northern whale fishery, and one hundred and twenty one vessels, of fourteen thousand and twenty-six tons, in the southern; navigated by four thousand and fifty-nine seamen. The peculiar mode of paying the seamen, in these hazardous voyages, has contributed not a little to the success of the voyages themselves. Each has a share in the profits of the voyage, and is dependent on his own exertions for the reward of his toils. Whether he shall be rich or poor, depends on his activity in managing the boat, in pursuit of the whale, and his dexterity in directing the harpoon. This has led to a spirit of enterprise and hardihood never surpassed, if ever equalled, by the seamen of any nation in the world.

During the war of the American revolution, this fishery was destroyed; on the return of peace, it recovered, by degrees; and from 1787 to 1789, ninety-one vessels, of five thousand eight hundred and twenty tons, were annually employed in the northern fishery, and thirty-one vessels, of four thousand three hundred and ninety tons, in the southern, with one thousand six hundred and eleven seamen. The quantity of spermaceti oil taken annually, from 1771 to 1775, was thirty-nine thousand three hundred and ninety barrels, and of whale oil eight thousand six hundred and fifty. From 1787 to 1789, the quantity of spermaceti taken annually was seven thousand nine hundred and eighty barrels, and whale oil thirteen thousand one hundred and thirty. In the representation made to Congress in the year 1790, by the legislature of Massachusetts, it is stated that, before the late war, about four thousand seamen, and twenty-four thousand tons of shipping, were annually employed from that state in the whale fishery, and that the produce thereof was about 350,000*l.* lawful money, or about 1,160,000 dollars. A great part of this fishery has been carried on from Nantucket, where it originated, a small island about fifteen miles in length, and two or three miles in breadth, situated about thirty miles from the coast. Before the revolutionary war, this small island had sixty-five ships, of four thousand eight hundred and seventy-five tons, annually employed in the northern, and eighty-five ships, of ten thousand two hundred tons, in the southern fishery. From 1787 to 1789, it had only eighteen ships, of one thousand three hundred and fifty tons, in the northern, and eighteen ships, of two thousand seven hundred tons, in the southern fishery. For many years past, this fishery has been carried on from this island, and from New-Bedford, a large commercial and flourishing town on the coast, in its neighbourhood, and has employed from fifteen thousand to eighteen thousand tons of shipping, principally in the Southern Seas. Although Great Britain has, at various times, given large bounties to her ships employed in this fishery, yet the whalemen of Nantucket and New-Bedford, unprotected and unsupported by any thing but their own industry and enterprise, have generally been able to meet their competitors in a foreign market. The value of spermaceti, and common, whale oil, whalebone, and spermaceti candles exported since 1802, has been as follows:—

	Whale (common) oil and bone.	Spermaceti oil and candles.
	Dolls.	*Dolls.*
1803	280,000	175,000
1804	310,000	70,000
1805	315,000	163,000
1806	418,000	182,000
1807	476,000	139,000
1808	88,000	33,000
1809	169,000	136,000
1810	222,000	132,000
1811	78,000	273,000
1812	56,000	141,000
1813	2,500	10,500
1814	1,000	9,000

The common whale oil finds a market in the West Indies, Great Britain, France, Spain, and Portugal. The greatest part of the spermaceti oil is carried to Great Britain. The late war between the United States and Great Britain has again almost annihilated the cod, and whale, fisheries. While in the years previous to the restrictive system and the war, the fisheries furnished articles for exportation to an amount of more than three millions of dollars, in 1814 the exports of the produce of the fisheries was reduced to the sum of 188,000 dollars.

There have been many statutes passed for the encouragement of the Greenland whale fisheries, which it is unnecessary to do more than refer to, and *that* is most appositely done in the body of the last statute on the subject, 55 Geo. 3. c. 39. It enacts that an act made in the 26 Geo. 3. intituled, "An act for the further support and encouragement of the fisheries carried on in the Greenland Seas and Davis's Streights," which was to be in force for five years, from the twenty-fifth day of December 1786; and also so much of an act, made in the 29 Geo. 3 in-

tituled, "An act for further encouraging and regulating the Newfoundland, Greenland, and Southern whale fisheries, as relates to the fisheries carried on in the Greenland Seas and Davis's Streights;" which, by an act made in the 32 Geo. 3. were amended and continued until the twenty-fifth day of December 1798; and which were by several subsequent acts further continued; and by two acts passed in the 42d and 44th years of Geo. 3. were amended and further continued; and by three acts, of the 46th, 48th, and 50th Geo. 3. were further continued until the twenty-fifth day of March 1815, shall be revived from the said twenty-fifth day of March 1815, and further continued until the twenty-fifth of March 1820.

And further, that an act made in the 46th of Geo. 3. intituled, "An act for allowing, until the signature of preliminary articles of peace, vessels employed in the Greenland whale fishery to complete their full number of men at certain ports," shall be and the same is hereby revived, from the expiration thereof, and shall be continued from thence until the twenty-fifth day of March 1820. By stat. 1 Geo. 4. c. 33., continued to 31st January, 1824, by stat. 3 Geo. 4. c. 104. several laws relating to the encouragement of the Greenland whale fisheries, and allowing vessels employed therein to complete their full number of men at certain ports, are amended and continued.

Southern Whale Fishery.—By 53 Geo. 3. c. 155. (which was for renewing the charter of the India Company, and regulating their trade,) it is enacted by sect. 32. that it shall not be lawful for any vessel fitted and clearing out conformably to the 35 Geo. 3. *for regulating the Southern Whale Fishery*, to go to, touch at, or stay at, any port or place upon the continent of Asia, from the river Indus to the town of Malacca inclusive, or to any island under the government of the said India Company to the north of the Equator, nor to the said Company's factory at Bencoolen, or its dependencies, nor to the dominions of the emperor of China, without a licence in writing from the Court of Directors specially authorising the same.

The 55 Geo. 3. c. 45. recites, that it is proper to encourage the fishery carried on by his majesty's European subjects in the seas to the southward of the Greenland Seas and Davis's Streights, for the purpose of taking whales and other creatures being in those seas, by continuing certain premiums granted by 51 Geo. 3. "for continuing the premiums allowed to ships employed in the Southern Whale Fishery;" and enacts, that the several premiums after mentioned shall be paid and allowed to certain ships or vessels employed in the said fishery, under the limitations, &c. contained in the said act, and also in an act of 35 Geo. 3. mentioned in the said act, and under the limitations, restrictions, and regulations expressed in this present act.

For eight of such ships or vessels which shall be so fitted and cleared out between the first day of January and the thirty-first day of December 1815, and between the first day of January and thirty-first day of December in each of the four succeeding years, and shall sail to the southward of the Equator and there carry on the fishery, and shall return before the first day of December in the year subsequent to that in which they cleared out to some port in Great Britain, there shall be paid and allowed three hundred pounds to each of the eight such ships which shall so sail and first arrive within the times hereinbefore mentioned with the greatest quantity of oil or head-matter taken together, being not less in the whole than twenty tons in each of such ships or vessels, and being the produce of one or more whale or whales or other creatures being in those seas taken and killed by the crews of every such ship or vessel respectively. Sect. 2.

And for four other such ships or vessels which shall be so fitted or cleared out, and shall sail within the time hereinbefore mentioned, and proceed to the southward of thirty-six degrees of south latitude, and shall there *bonâ fide* carry on the said fishery, and shall not return until after the expiration of fourteen calendar months from the day on which they cleared out, but before the thirty-first day of December in the second year after their clearing out, to some port in Great Britain, there shall be paid and allowed four hundred pounds to each of such ships or vessels which shall so sail and arrive within the time hereinbefore last mentioned with the greatest quantity of oil and head-matter taken together, being not less in the whole than twenty tons, and being the produce of any whale or whales or other creatures being in those seas, and taken and killed by the crew of such ship or vessel. Sect. 3.

And for ten other ships or vessels which shall be so fitted and cleared out between the first day of January and the thirty-fist day of December 1815, and between the first day of January and the thirty-first day of December in each of the four succeeding years, and shall double Cape Horn, or pass through the Streights of Magellan into the South Seas, and carry on the said fishery during the space of four months to the westward of Cape Horn in those seas, or shall double the Cape of Good Hope and carry on the said fishery during the space of four months to the eastward of one hundred and five degrees of east longitude from London, and shall not return to some port of Great Britain until after the expiration of sixteen calendar months from the day on which they cleared out; but before the thirty-first day of December in the second year after their clearing out, there shall be paid

and allowed six hundred pounds to any one of such ships or vessels which shall so sail and arrive within the times herein last mentioned with the greatest quantity of oil and head-matter taken together, being not less in the whole than thirty tons, and being the produce of any whale or whales or other creatures being in those seas and taken and killed by the crew of such ship or vessel in the said voyage, either outward or homeward; and there shall be paid and allowed five hundred pounds to each of nine of such ships and vessels last before mentioned, which shall so sail and arrive within the times herein last before mentioned, with the next greatest quantity of oil and head-matter taken together, being not less in the whole than thirty tons, and being the produce of any whale or whales or other creatures being in those seas and taken and killed by the crew of such ship or vessel in the said voyage, either outward or homeward. Sect. 4.

And all ships which shall clear out for the Southern Whale Fishery, and shall return to any port in Ireland with a cargo of oil the produce of the said fishery within the period limited by this act, shall be entitled to all the benefits and advantages arising from bounties, remission of duties, or otherwise, granted by the said recited acts of the 35 and 51 Geo. 3. in the like manner and to the same extent as if such ships had returned to any port in Great Britain. Sect. 5.

And no boat used as, and commonly called, a *whale boat*, belonging to any ship or vessel employed in the said fishery to the Greenland seas or Davis's Streights, or in the fishery carried on in the seas to the southward of the Greenland Seas and Davis's Streights, shall be liable to seizure for or on account of her built, dimensions, or construction; provided, on the return of such ship or vessel from the fisheries at the end of every season, such boat shall be laid up by the owner or owners thereof in such place or places as shall be approved of by the principal officer of his majesty's customs of the port at which such ship or vessel shall arrive, and shall not be employed or made use of in any way whatever but in the said fisheries. Sect. 6.

FISH-HOOK, or Fishing-hook, (*Fish-hooks.* Ger. *Angeln, Fischangeln.* Du. *Hoeken.* Da. *Medekroge.* Sw. *Krokar, Metkrokar.* Fr. *Hameçons.* It. *Ame.* Sp. *Anzuelos.* Port. *Anzoes.* Rus. *Udi.* Pol. *Wedy,*) in general, ought to be long in the shank, somewhat thick in the circumference, the point even and straight; the bend should be in the shank. For setting the hook on, use strong but small silk, laying the hair on the inside of the hook; for if it is on the outside, the silk will fret it and cut it asunder.

FISHING-NETS. The assize of nets are regulated by the act of 1 Geo. 1. c. 18. s. 4. Old nets, for making paper, may be imported duty free. 2 Geo. 1. c. 7. s. 10.

FITCH, or Vetch, a small kind of wild bean, which is esteemed excellent fodder for horses.

FLAG, a general name for colours, standards, ancients, banners, ensigns, &c. which are frequently confounded with each other. The fashion of pointed or triangular flags, as now used, came from the Mahometan Arabs, or Saracens, upon their seizing Spain, before which time all the ensigns of war were stretched, or extended on cross pieces of wood, like the banners of a church. The pirates of Algiers, and throughout the coasts of Barbary, bear an hexagonal flag.

Flag is more particularly used at sea, for the colours, ancients, standards, &c. borne on the top of vessels, to notify the person who commands the ship, or what nation it is, and whether it is equipped for war or trade. The admiral in chief carries his flag on the maintop; the vice-admiral on the foretop; and the rear-admiral on the mizen-top. Besides the national flag, merchant-ships frequently bear lesser flags on the mizen-mast, with the arms of the city where the master ordinarily resides; and on the foremast, with the arms of the place where the person who freights them lives.

"*To lower or strike the Flag,*" is to pull it down upon the cap, or to take it in, out of respect or submission, due from all ships or fleets inferior to those any way justly their superiors. To lower or strike the flag in an engagement is a sign of yielding. The way of leading a ship in triumph is to tie the flags to the shrouds or the gallery, in the hind part of the ship, and let them hang down towards the water, and to tow the vessels by the stern.

"*To heave out the Flag,*" is to put out, or put abroad, the flag.

"*To hang out the white Flag,*" is to ask quarter; or it shows when a vessel is arrived on a coast, that it has no hostile intention, but come to trade, or the like.

The red flag is a sign of defiance or battle.

FLAGEOLET, (It. *Flauticello,*) a small flute, blown by means of a little ivory pipe with flexible sides, placed at top of the instrument.

FLAG-OFFICERS, those who command the several squadrons of a fleet, such as the admirals, vice-admirals, and rear-admirals. The flag-officers in our pay are the admiral, vice-admiral, and rear-admiral, of the white, red, and blue.

FLAG-SHIP, a ship commanded by a general or flag-officer, who has a right to carry a flag, in contradistinction to the secondary vessels under its command.

FLAG-STAVES, are staves set on the top-gallant-masts, serving to let fly, or unfurl, the flag.

FLAGON, a vessel or measure of wine, containing two quarts.

FLANEL, or Flannel, (Ger. and Sw. *Flanell.* Du. Da. and Rus. *Flanel.* Fr.

Flanelle. It. *Flanella.* Sp. *Franela, Flanela.* Port. *Baetilha.* Pol. *Flanela,*) a kind of slight, loose, woollen stuff, composed of a woof and warp, and woven on a loom with two treadles, after the manner of baize. The flannels of England and those of Wales are most esteemed, of which large quantities are exported.

FLASK, (*Flasks.* Ger. *Flaschen.* Du. *Vlessen.* Da. *Flasker.* Sw. *Flasker.* Fr. *Flacons.* It. *Fiascha, fiaschetta.* Sp. and Port. *Frascos, Redomas.* Rus. *Sklanki.* Pol. *Flaszy,*) is a thin glass bottle, which is generally used to hold Florence oil, and as such is imported by us from Italy. The flasks of oil are always wickered, and then packed up in small chests and half chests. Some flasks are made in different parts of England, principally for home use.

FLAT, in the sea language. "To flat in the foresail," is to hale it in by the sheet, as near the ship's side as possible; which is done when a ship will not fall off from the wind.

FLATTERS. *See* GOLD and SILVER WIRE-DRAWERS.

FLAX, (Ger. *Flachs.* Du. *Vlasch.* Da. *Hör, Hærr.* Sw. *Lin, Hör.* Fr. *Lin.* It. and Sp. *Lino.* Port. *Linho.* Rus. *Len, Lon.* Pol. *Len.* Lat. *Linum,*) is a plant having a slender, round, hollow stalk, about two feet high: its bark is full of filaments, like hemp; the leaves are long, narrow, and pointed; it bears a blue flower, to which succeeds a roundish fruit about the size of a pea, containing ten little seeds, full of an oily substance or meal. There are 25 species, of which the most remarkable are, 1. The *usitatissimum,* or common annual flax. 2. The *perenne,* or perennial Siberian flax, with umbellate clusters of large blue flowers. The first species is cultivated in the fields for the use of the manufacturers. The second sort is chiefly ornamental.

For the cultivation of flax, a free, open, deep loam; and all grounds that produced the preceding year a good crop of turnips, cabbage, potatoes, barley, or broad-clover, or have been formerly laid down rich, and kept for some years in pasture, are best. If seed is sown early, and the flax not allowed to stand for seed, a crop of turnips may be got after the flax that same year; the second year a crop of rye or barley may be taken; and the third year, grass-seeds are sometimes sown along with the linseed. Of preceding crops, potatoes and hemp are the best preparation for flax. If the ground be free and open, it should be but once ploughed, and that as shallow as possible. It should be laid flat, reduced to a fine garden-mould by harrowing, and all stones and sods should be carried off; except a little pigeons' dung for cold or sour ground, no other dung should be used; because it produces too many weeds, and throws up the flax thin and poor upon the stalk. The brighter in colour, and heavier the seed is, the better; that which when bruised appears of a light or yellowish green, fresh in the heart, oily, and smells and tastes sweet, may be depended upon. Dutch seed of the preceding year's growth, for the most part, answers best; but it seldom succeeds if kept another year. It ripens sooner than any other foreign seed. Philadelphia seed produces fine lint and few bolls, and answers best in wet cold soils. The quantity of linseed sown should be proportioned to the condition of the soil; for if the ground be in good heart, and the seed sown thick, the crop will be in danger of falling before it is ready for pulling. The time for sowing linseed is from the middle of March to the end of April, as the ground and season answer. Late sown linseed may grow long, but the flax upon the stalk will be long and poor. Flax ought to be weeded, when the crop is about four inches long; if longer deferred, the weeders could not avoid breaking or bending the stalks. Quicken grass should be taken up; for, being strongly rooted, the weeding of it always loosens a great deal of the lint. If there be an appearance of a settled drought, it is better to defer the weeding, than by that operation to expose the tender roots of the flax to the drought. When the crop grows so short and branchy as to appear more seed than flax, it ought not to be pulled before it is thoroughly ripe; but if it grows long and not branchy, the seed should be disregarded, and all the attention given to the flax. In the last case it ought to be pulled after the bloom has fallen, when the stalk begins to turn yellow, and before the leaves fall, and the bolls turn hard and sharp-pointed. When the stalk is small, and carries few bolls, the flax is fine; but the stalk of coarse flax is gross, rank, branchy, and carries many bolls. When the flax has fallen, and lies, such as lies ought to be immediately pulled, whether it has grown enough or not, as otherwise it will rot altogether. When parts of the same field grow unequally, only what is ready should be pulled, and the rest should be suffered to stand till it ripens. The flax-raiser ought to be at pains to pull and keep by itself each different kind of lint which he finds in his field; what is long and fine by itself; what is long and coarse by itself; what is short and fine by itself; what is short and coarse by itself; and in like manner every other kind by itself that is of the same size and quality. If the flax be more valuable than the seed, it ought by no means to be stacked up; for its own natural juice assists it greatly in watering; whereas, if kept long unwatered, it loses that juice, and the harle adheres so much to the boon, that it requires longer time to water, and even the quality of the flax becomes harsher and coarser. Besides, the flax stacked up is in great danger from ver-

min and other accidents; the water in spring is not so soft and warm as in harvest; and near a year is lost of the use of the lint; but if the flax is so short and branchy as to appear most valuable for seed, it ought, after pulling, to be stacked and dried upon the field, as is done with corn; then stacked up for winter, rippled in spring; and the seed should be well cleaned from bad seeds, &c. If the flax is to be regarded more than the seed, it should, after pulling, be allowed to lie some hours upon the ground to dry a little, and so gain some firmness, to prevent the skin or harle, which is the flax, from rubbing off in the rippling; an operation which ought by no means to be neglected, as the bolls, if put into water along with the flax, breed vermin there, and otherwise spoil the water. The bolls also prove very inconvenient in the grassing and breaking. The handfuls for rippling should not be great, as that endangers the lint in the rippling comb. After rippling, the flax-raiser will be able to assort each size and quality of the flax by itself more exactly than he could before. In watering, a running stream wastes the lint, makes it white, and frequently carries it away. Lochs, by the great quantity and motion of the water, also waste and whiten the flax. Both rivers and lochs water the flax quicker than canals. The greater way the river or brook has run, the softer, and therefore the better, will the water be. Springs, or short runs from hills, are too cold, unless the water is allowed to stand long in the canal. Water from coal or iron is injurious. A little of the powder of galls thrown into a glass of water will discover if it comes from minerals of that kind, by turning it into a dark colour, more or less tinged in proportion to the quantity of metal it contains. When the water is brought to a proper heat, small plants will be rising quickly in it, numbers of small insects and reptiles will be generating there, and bubbles of air rising on the surface. If no such signs appear, the water is scarcely warm enough, or is otherwise unfit for flax. Moss-holes, when neither too deep, nor too shallow, frequently answer well. The proper season for watering flax, is from the end of July to the end of August; doing this as soon as possible after pulling is very advantageous. The flax being sorted after rippling, as before mentioned, should next be put in beets, never larger than a man can grasp with both his hands, and tied very slack with a band of a few stalks or rushes. The beets should be put into the canal slope-ways, half standing upon end, the root-end uppermost. Upon the crop-ends, when uppermost, vermin frequently breed, destructive of the flax, which are effectually prevented by putting the crop-end downmost. The whole flax in the canal ought to be carefully covered from the sun with divots; the grassy side of which should be next the flax, to keep it clean. If it is not thus covered, the sun will discolour the flax, though quite covered with water. If the divots are not weighty enough to keep the flax entirely under water, a few stones might be laid above them; but the flax should not be pressed to the bottom. When the flax is sufficiently watered, it feels soft to the gripe, and the harle parts easily, with the boon or show, which last is then become brittle, and looks whitish. When these signs are found, the flax should be taken out of the water, beet after beet; each gently rinsed in the water, to cleanse it of the filth which has gathered about it in the canal; and as the lint is then very tender, and the beet slackly tied, it must be carefully and gently handled. Great care ought to be taken that no part be over done, and as the coarsest imbibes water soonest, if different kinds are mixed together, a part will be rotted, when the rest is not sufficiently watered. When lint taken out of the canal is not found sufficiently watered, it may be laid in a heap for 12, 18, or 24 hours, which will have an effect like more watering; but this operation is nice, and may prove dangerous in unskilful hands. After the flax is taken out of the canal, fresh lint should not be put a second time into it, until the former water is run off, and the canal cleaned, and supplied with a fresh quantity of water. Short heath is the best field for grassing flax; as, when wet, it fastens to the heath, and is thereby prevented from being blown away by the wind; the heath also keeps it a little above the earth, and so exposes it more equally to the weather. Long-grass grounds should be avoided, as the grass will grow through the lint, and frequently spots, tenders, or rots it: grounds exposed to violent winds should also be avoided. The flax, when taken out of the water, must be spread very thin upon the ground; and being then also very tender, it must be gently handled; it ought never to be spread during a heavy shower, as that would wash and waste the harle too much, which is then excessively tender, but soon after becomes firm enough to bear rains, which, with the open air and sunshine, cleans, softens, and purifies it to the degree wanted, and makes it blister from the boon. In short, after the flax has got a little firmness by being a few hours spread in dry weather, the more rain and sunshine it gets the better. If there be little danger of high winds carrying off the flax, it will be much the better for being turned about once a week; if not turned, it ought to be the more thinly spread. The spreading of flax and hemp, which requires a great deal of ground, enriches it greatly. The flax-raiser should spread his first row of flax at the end of the field opposite to the point whence the most violent wind commonly comes, placing the root-ends foremost; he makes the root-ends of every other row

overlap the crop-ends of the former row three or four inches, and binds down the last row with a rope; by which means the wind does not easily get below the lint; and as the crop-ends are seldom so fully watered as the root-ends, the over-lapping has an effect like giving the crop-ends more watering. A dry day ought to be chosen for taking up the flax; and if there be no appearance of high wind, it should be loosed from the heath or grass, and left loose for some hours, to make it thoroughly dry. As a great quantity of flax can scarcely be all equally watered and grassed, and as the different qualities will best appear at lifting the flax from the grass; therefore at that time each different kind should be gathered together, and kept by itself; that is, all of the same colour, length, and quality. The smaller the beets lint is made up in, the better for drying, and the more convenient for stacking, &c. and in making up these beets, as in other operations upon flax, it is of great consequence that the lint be laid together as it grew, the root-ends together, and the crop-ends together.

Exclusive of the large quantities of flax grown in the United Kingdom, especially in Ireland, the importation is very considerable from Riga, Narva, Petersburgh, and Flanders. Of the flax imported from the Baltic, that from Riga deserves the preference. The laws for the encouragement of the manufacture of flax and cotton, were amended and continued by 3 Geo. 4. c. 25.

FLAX-DRESSER. The flax-dresser prepares the flax for the spinners, by combing it on heckles of different degrees of fineness, according to the nature of the flax, and the uses for which it is designed.

FLAX-SEED, or LINSEED, (GER. *Leinsaat.* DU. *Leinzaad.* DA. *Hörrfröe.* SW. *Linfrö.* FR. *Graine de lin, Lin, Linette.* IT. *Linseme.* SP. *Linaza.* PORT. *Linhacha.* RUS. *Semja lenjanoe.* POL. *Sieme lniane.* LAT. *Lini semen.*) The seed which produces the flax is chiefly imported by us from Holland, as well as from Philadelphia, New York, Boston, and other parts of North America. This seed has many useful properties; it is employed in the composition of several medicines, and from it is drawn by expression the oil, denominated linseed-oil, which in quality is not unlike the oil of nuts, for which it is sometimes used in painting, and burning. That which is drawn without the help of fire is used in medicine. The Dutch flax-seed is the best sort we import.

FLEECE, the covering of wool, shorn off the bodies of sheep. *See* WOOL.

FLEECY-HOSIERY, (GER. *Englischer ges und heits flanell, Gewirktes pelzwerk.* FR. *Tricotage à toison,*) a very useful kind of manufacture, in which fine fleeces of wool are interwoven into a cotton piece of the common stocking texture, making stockings, socks, waistcoats, and other clothing, for persons afflicted with complaints requiring warmth, and for common use in cold climates.

FLEET, commonly implies a company of ships of war, belonging to any prince or state; but sometimes it denotes any number of trading ships, employed in a particular branch of commerce.

In sailing, a fleet of men of war is usually divided into three squadrons; the admiral's, the vice-admiral's, and the rear-admiral's squadron; all which, being distinguished by their flags and pendants, are to put themselves, and, as near as may be, to keep themselves, in their customary places, viz. the admiral, with his squadron, to sail in the van, that so he may lead the way to all the rest in the day-time, by the sight of his flag on the maintop-mast head; and in the night-time, by his lights or lanterns. The vice-admiral and his squadron are to sail in the centre, or middle of the fleet; the rear-admiral, and the ships of his squadron, to bring up the rear; but sometimes other divisions are made, and those composed of the lighter ships and the best sailers, are placed as wings to the van, centre, and rear.

Merchant fleets generally take their denomination from the place they are bound to, as the Turkey fleet, East India fleet, Jamaica fleet, Leeward Island fleet, Lisbon fleet, &c.; these, in time of peace, go in fleets for their mutual aid and assistance: in time of war, besides this security, they likewise procure convoys of men of war, to escort them to the places whither they are bound, or to a certain place or latitude. Ships taking the benefit of convoy obtain a return of premium on the insurance effected on the ship and cargo; for which *see* INSURANCE.

FLINT, (*Gun-flints.* GER. *Feuersteine, Flintensteine.* DU. *Vuursteenen.* DA. *Fyrstene, Ildstene.* SW. *Rössflintor.* FR. *Pierres à fusil, à briquet, à feu.* IT. *Pietre focaje.* SP. *Pedernales.* PORT. *Pedreneiras.* RUS. *Kremen.* POL. *Krgemien, Skalka.* LAT. *Lapis Sclopetarius, Pyromachus,*) a stone very useful in modern war; is found in pieces of different sizes, and usually of a figure more or less globular, commonly among chalk, and often arranged in some kind of order; its texture is compact, its fracture smooth; always covered with a white crust; specific gravity from 2.58 to 2.63; colour varies from honey-yellow to brownish-black; very brittle, and breaks into splinters in every direction; two pieces of flint rubbed smartly together phosphoresce, and emit a peculiar odour. The manufacture of gun-flints, &c. is chiefly confined to England, and two or three departments of France; the operation is exceedingly simple, and a good workman will make 1000 flints a day; the whole art consists in striking the stone repeatedly with a kind of mallet, and bringing off at each

stroke a splinter, sharp at one end, and thicker at the other; the splinters are afterwards shaped at pleasure, by laying the line at which it is wished they should break, upon a sharp instrument, and then giving them small blows with a mallet. Flints are an article of exportation to the East Indies, particularly to China.

FLOAT *of a fishing-line*, the cork or quill that floats or swims above the water.

Float also signifies a certain quantity of timber, bound together with rafters athwart, and put into a river to be conveyed down the stream; and even sometimes to carry burdens down a river with the stream.

FLOAT-BOARDS, those boards fixed to water-wheels of undershot mills, serving to receive the impulse of the stream, whereby the wheel is carried round.

FLOCKS, coarse locks of the long sort of wool, generally in use for ordinary bedding, and for mattrasses.

FLOOD, among seamen, is when the tide begins to come up, or the water begins to rise; then they call it young-flood, after which it is quarter-flood, half-flood, and high-flood.

FLOOD-MARK, the mark which the sea makes on the shore, at flowing-water, and at the highest tide; it is also called high-water mark.

FLOOKING, among miners, a term used to express a peculiarity in the load of a mine. The load or quantity of ore is frequently intercepted in its course, by the crossing of a vein of earth or stone, or some different metallic substance, in which case the load is moved to one side, and this transient part of the load is called a flooking.

FLORIN, a species of coin, of different value, according to the different countries in which it is current. The French florin, an imaginary money, is equivalent to 1*s.* 0½*d.*; the florin of the Netherlands, also imaginary, passes for 1*s.* 6*d.*; the golden florin of Holland, for 2*s.* 7$\frac{1}{10}$*d.*; the silver florin of Poland, Prussia, Germany, and Livonia, for 1*s.* 2*d.*; the Italian florin of exchange, for 1*s.* 6$\frac{6}{13}$*d.*; and the common florin of Italy, an imaginary money, for 9*d.* *See* MONIES *in App.*

FLOTA, in Spanish commerce, implies the same as the appellation Fleet does among us. *See* GALLEONS.

FLOTSAM, *Jetsam*, and *Lagan*. *Flotsam* is when a ship is sunk or cast away, and the goods float on the sea; *Jetsam* is when a ship is in danger of being sunk, and to lighten the ship the goods are cast into the sea, and the ship notwithstanding perishes; and *Lagan* is when the goods so cast into the sea are so heavy that they sink to the bottom, and therefore the mariners fasten to them a buoy or cork, to enable them to find them again. *5 Rep.* 106. *b.* The king shall have flotsam, jetsam, and lagan, when the ship is lost, and the owners of the goods are not known, but not otherwise, F. N. B. 122. Where the proprietors of goods may be known, they have a year and a day to claim flotsam. *See* INSURANCE.

FLOUR, (Ger. *Feines mehl, Semmelmehl.* Du. *Bloem.* Da. *Sigtet meel.* Sw. *Siktadtmjöl.* Fr. *Fleur de farine.* It. *Fiore.* Sp. *Flor.* Port. *Flor de farinha,*) the meal of wheat-corn, finely ground and sifted. There are three qualities of flour, denominated *firsts*, *seconds*, and *thirds*, of which the first is the purest. The Scotch flour is of inferior quality. Flour-mills are put in motion by the application of various forces: wind, water, steam, and sometimes, but very rarely now, by animals. The mechanism of the grinding part of these is nearly the same, and well understood. Flour is frequently imported by us from New York, Philadelphia, and many other parts of America, in barrels. *See* AMERICA *and* CORN.

FLUTE, (*Flutes.* Ger. *Flöten.* Du. *Fluiten.* Da. *Flöjter.* Sw. *Flojter.* Fr. *Flûtes.* It. *Flauti.* Sp. *Flautas.* Port. *Frautas.* Rus. *Fleitii.* Pol. *Flety,*) is an instrument of music, the simplest of all those of the wind kind. There are two sorts of flutes, the common, and the *German* flute; the former is played on by blowing it with the mouth, and the tones or notes are changed by stopping, or opening, the holes disposed for that purpose along its sides; the latter is entirely different, the top is stopped with a tampion, or plug, and the lower lip is applied to a hole about two inches and a half, or three inches, distant from the end. This instrument is usually about a foot and a half long, rather larger at the upper end than the lower, and perforated with holes, besides that for the mouth, the lowest of which is stopped, and opened, by the little finger's pressing on a brass, or sometimes a silver key, like those in hautboys, bassoons, &c.

FLY-BOAT, a large vessel with a broad bow, used in the coasting-trade, some of which carry 800 tons.

FODDER, or Fother, in mining, a measure containing twenty-two hundred and a half weight, though in London but twenty hundred weight. Eight pigs of lead are called a fodder or fother of lead. *See* WEIGHTS *and* MEASURES.

FOIL, among glass-grinders, a sheet of tin, incorporated with quicksilver, &c. laid on the back of a looking-glass to make it reflect. *See* FOLIATING.

Foil, among jewellers, a thin leaf of metal placed under a precious stone, in order to increase its brilliancy, or give it an agreeable and different colour. These foils are made of either copper, gold, or gold and silver together; the copper foils are commonly known by the name of Nurenberg, or German foils. They are prepared as follow: procure the thinnest copper-plates; beat them gently upon a well-polished anvil,

with a polished hammer, as thin as possible: and placing them between two iron plates, as thin as writing-paper, heat them in the fire; then boil the foils in a pipkin, with equal quantities of tartar and salt, constantly stirring them till by boiling they become white; after which, taking them out and drying them, give them another hammering till they are made fit for the purpose; care must be taken not to give the foils too much heat, for fear of melting; nor must they be too long boiled, for fear of attracting too much salt. The manner of polishing these foils is to take a plate of the best copper, one foot long, and about five or six inches wide, polished to the greatest perfection; bend this to a long convex, fasten it upon a half roll, and fix it to a bench or table; then take some chalk, washed clean, and filtered through a fine linen cloth, till it is as fine as possible; and having laid some on the roll, and wetted the copper all over, lay the foils upon it, and with a polishing-stone and the chalk, polish them till they are as bright as a looking-glass; after which they must be dried, and laid up secure from dust.

FOLIATING *of looking-glasses*, the spreading the plates over, after they are polished, with amalgam, in order to reflect the image. A thin blotting-paper is spread on the table, and sprinkled with fine chalk; and then a fine lamina or leaf of tin, called foil, is laid over the paper; upon this mercury is poured, which is to be distributed equally over the leaf with a hare's foot, or cotton; over this is laid a clean paper, and over that the glass plate, which is pressed down with the right hand, and the paper drawn gently out with the left: this being done, the plate is covered with a thicker paper, and loaded with a greater weight, that the superfluous mercury may be driven out, and the tin adhere more closely to the glass. When it is dried, the weight is removed, and the looking-glass is complete. Some add an ounce of marcasite, melted by the fire; and lest the mercury should evaporate, pour it into cold water; and when cooled, squeeze it through a cloth or through leather. Some add a quarter of an ounce of tin and lead to the marcasite, that the glass may dry the sooner.

Foliating of globe looking-glasses, is done as follows: take five ounces of quicksilver, and one ounce of bismuth; of lead and tin half an ounce each: first put the lead and tin into fusion, then put in the bismuth, and when you perceive that in fusion too, let it stand till it is almost cold, and pour the quicksilver into it; after this, take the glass globe, which must be very clean, and the inside free from dust; make a paper funnel, which put into the hole of the globe as near to the glass as you can, so that the amalgam, when you pour it in, may not splash, and cause the glass to be full of spots; pour it gently, in and move it about, so that it may touch every where. If you find the amalgam begin to get curdly and fixed, then hold it over a gentle fire, and it will easily flow again; and if you find it too thin, add a little more lead, tin, and bismuth to it. The finer and clearer your globe is, the better will the looking-glass be.

FOLIO, or FOLIUM, *in books of accounts*, is applied to the page or leaf of a journal, ledger, &c. in which the account of any transaction, &c. is recorded, the whole book being paged, or *folioed*, as merchants term it.

Folio, among booksellers, signifies a large book, the pages of which are formed by a sheet of paper once doubled.

FOOT is a long measure, consisting of twelve inches. Geometricians divide the foot into ten digits, and the digit into ten lines.

Foot, square, is the same measure both in breadth and length, containing 144 square or superficial inches.

Foot, cubic, or *solid*, is the same measure in all the three dimensions, length, breadth, and depth of thickness, containing 1728 cubic inches. The foot is of different lengths in different countries. The Paris royal foot exceeds the English by nine lines; the ancient Roman foot of the capital consisted of four palms, equal to $11\frac{7}{16}$ inches English. Rhineland or Leyden foot, by which the northern nations go, is to the Roman foot as 950 to 1000. The proportion of the principal feet of several nations, compared with the English, are as follow:—

The English foot being divided into 1000 parts, or into twelve inches, the other feet will be as follow:—

	1000 pts.	feet.	inch.	lines.
London foot	1000	0	12	0
Amsterdam	942	0	11	3
Antwerp	946	0	11	2
Bologna	1204	1	2	4
Bremen	964	0	11	6
Cologne	954	0	11	4
Copenhagen	965	0	11	6
Dantzick	944	0	11	3
Dort	1184	1	2	2
Frankfort on the Maine	948	0	11	4
The Greek	1007	1	0	1
Lorrain	958	0	11	4
Mantua	1569	1	6	8
Mechlin	919	0	11	0
Middleburgh	991	0	11	9
Paris royal	1068	1	0	9
Prague	1026	1	0	3
Rhineland or Leyden	1038	1	0	4
Riga	1831	1	9	9
Roman	967	0	11	6
Old Roman	970	0	11	8
Scotch	1005	1	0	$\frac{5}{7}$
Strasburg	920	0	11	0
Toledo	899	0	10	7
Turin	1062	1	0	7
Venice	1162	1	1	9

Foot of the forest, *pes forestæ*, in our ancient customs, contained 18 inches, or $1\frac{1}{2}$ of the common foot.

FORE-CASTLE *of a ship*, that part where the foremast stands. It is divided from the rest by a bulk-head. *See* SHIP.

FORE-FOOT, in the sea-language, signifies one ship's lying, or sailing, across another's way; as if two ships being under sail, and in ken one of another, one of them lying in her course with her stem so much a-weather the other, that holding on their several ways, neither of them altering their courses, the windward ship will run a-head of the other; then it is said, such a ship lies with the other's fore-foot.

FOREIGN *Attachment*. *See* ATTACHMENT, *Foreign*.

Foreign Courts. Upon a principle of the law of nations, every state being free, independent, and uncontrollable, the sentence of any foreign court of competent jurisdiction is not to be called in question, but is admitted as evidence of the fact upon which it is founded. If, however, in such sentence any foreign jurisdiction should state the evidence, upon which its sentence or device is founded, subsequent evidence may be admitted to disprove such evidence, and consequently the sentence or decree which is a deduction from it. But where it is peremptorily given as a sentence, it is conclusive evidence which the English courts will not allow to be questioned.

FOREIGNERS, are persons subject to a foreign state, to which they owe an allegiance, and although made free denizens or naturalized in Great Britain, they are nevertheless expressly disabled by the act of settlement from bearing offices in the government, from being members of the privy council, or members of parliament. *See* ALIENS.

FOREIGN *Plantations;* a writ of error lies here upon any of the judgments in foreign plantations, or in any dominions belonging to Great Britain. *Vaugh.* 402.

Foreign state, is the dominion of a foreign power. Thus, if any foreign subject purchase goods in London, and then depart privately to his own country, the owner of the goods may have a certificate from the Lord Mayor of London, on an affidavit being made of the sale and delivery of the goods, upon which the proper court, in that state, will execute a legal process upon the party. At the instance of an ambassador also, or consul, any criminal flying from justice to any foreign state, may be delivered up to the laws of the country where the crime was committed. Where any contract is made abroad, if the party be resident in England, it may be recovered by the English courts. Lending money to a foreign prince, without licence, prohibited. 3 Geo. 2. c. 5.

Foreign seamen, serving two years on board British ships, whether of war, trade, or privateers, during the time of war, shall be deemed natural-born subjects.

FOREMAST of a ship, that which carries the fore-sail and fore-top-sail yards. Its length is usually $\frac{8}{9}$ of the main-mast; and the fore-top-gallant-mast is half the length of the fore-top-mast.

FOREMAST-MEN, are those on board a ship that take in the top-sails, sling the yards, furl the sails, bowse, trice, and take their turn at the helm, &c.

FORE-REACH, in the sea-language: a ship is said to fore-reach upon another, when, both sailing together, one sails better, or outgoes the other.

FORESTALLING, is the buying or bargaining for any corn, cattle, or any merchandise, by the way, before it comes to other market or fair to be sold; or by the way, as it comes from beyond the seas, or otherwise, towards any city, port, haven, or creek of this realm, to the intent to sell the same again at a higher price. At the common law, all endeavours to enhance the price of any merchandise, and all the practices which have an apparent tendency thereto, whether by spreading false rumours, or by purchasing things in a market before the accustomed hour, or by buying and selling again the same thing in the same market, or by any other such-like devices, are highly criminal, and punishable by fine and imprisonment. 1 *Haw.* 234. And by 12 Geo. 3. c. 71. several statutes made from time to time against these offences in general were repealed. But though these offences are no longer combated by these statutes, they are still punishable upon indictment at the common law, by fine and imprisonment; as also by 3 & 4 Edw. 6. c. 19. which remains unrepealed by 12 Geo. 3. as to cattle.

And in a recent case it has been decided, that the following are offences at common law not done away by the repeal of the stat. 5 & 6 Edw. 6. c. 14, *Rex* v. *Waddington*. *Hil.* 41 Geo. 3. 1 *East's Rep.* 143.

Spreading rumours with intent to enhance the price of any commodity in the hearing of the growers, dealers, and others, that the stock is nearly exhausted, and there will be a scarcity, with intent to induce them not to bring the commodity to market for sale for a long time, and thereby greatly to enhance the price:

Endeavouring to enhance the price by persuading divers dealers not to take the commodity to market, and to abstain from selling for a long time:

Engrossing large quantities, by buying from many particular persons by name, certain quantities, with intent to resell the same for an unreasonable profit, and thereby to enhance the price:

Getting into his hands large quantities, by contracting with various persons for the purchase, with intent to prevent the same being brought to market, and to resell at an

exorbitant profit thereby, and buying large quantities with the like intent:

Engrossing a commodity while growing, by forehand bargains with like intent, such as buying all the growth in particular parishes, or the like:

And to forestall any commodity which is become a common victual and necessary of life, or used as an ingredient in the making or preservation of any victual, though not formerly used or considered as such (as for instance hops), is an offence at common law.

FORGE, properly signifies a small furnace, in which smiths and other artificers of iron or steel, &c. heat their metals red-hot, in order to soften and render them more malleable and manageable on the anvil. The forge used by the several operators in iron is very simple: we shall instance that of the blacksmiths, to which all the rest are reducible, the construction of which is as follows: The hearth or fire-place of the forge is to be built up from the floor with brick, about two feet and a half, or more, according to the purpose. If the forge be intended for heavy work, the hearth must lie lower than it need be for light work; the forge may be of what breadth is thought convenient. It may be built with hollow arches underneath, to make convenient receptacles: the back of it is built upright to the top of the ceiling, and inclosed over the fire-place with a hovel, which ends in a chimney to carry away the smoke. In the back of the forge, against the fire-place, is fixed a thick iron plate, with a taper pipe in it about five inches long, which pipe comes through the back of the forge. Into this taper pipe is placed the nose or pipe of the bellows: the office of this is to preserve the pipe of the bellows, and the back of the forge about the fire-place, from burning. Immediately before the back is placed, at about two feet distance, the trough, which reaches commonly the whole breadth of the forge, and is as broad as is thought necessary. The bellows is placed behind the back of the forge, having one of its boards so fixed, that it can neither move upwards nor downwards. At the ear of the upper board is fastened a rope or chain, which reaches up to the rocker, and is fastened there to the furnace end of the handle. This handle is fastened across a rock-staff, which moves between two cheeks upon the centre-pins, in two sockets; so that by drawing down this handle the moving board of the bellows rises; and by a considerable weight set on the top of its upper board, sinks down again, and by this alternate motion performs the office of a pair of bellows.

Forge is also used for a large furnace, in which iron ore, taken out of the mine, is melted down; or it is more properly applied to another kind of furnace, where the iron ore, melted down and separated in a former furnace, and then cast into sows and pigs, is heated and fused over again, and beaten afterwards with large hammers, and thus rendered more soft, pure, ductile, and fit for use. Of these there are two kinds: the first is called the finery, where the pigs are worked into gross iron, and prepared for the second, which is called the chafery, where it is further wrought into bars fit for use.

FORGERY, is where a person counterfeits the signature of another with intent to defraud, which by the law of England is made a capital felony. Forgery may be committed by making a mark in the name of another person: it may also be committed in the name of a person who never had existence: and it may be committed of an instrument, though such an instrument as the one forged does not exist either in law, or fact. Indorsing a real bill of exchange with a fictitious name is forgery; although the use of a fictitious name was not essential to the negotiation. It was so decided respecting a forged *indorsement* on a bill of exchange, in Bolland's and in Tuft's cases, at the Old Bailey (1 *Leach C. L.* 97, and 2 *Leach*, 206.); in Taylor's case, respecting a forged *receipt* on a similar instrument (4 *Term R.* 28.); and, lastly, as to *drawing* a bill of exchange in a fictitious name, in Nashe's case, at the Old Bailey, in 1813. A forged note, made in imitation of a Bank note, although the word *pound* be omitted in the body of it, or although there be no water-mark on the paper, is a counterfeit note for the payment of money. Altering an entry of money received, made by a cashier of the Bank, in the bank-book of a person keeping cash there, by prefixing a figure to increase the amount of the sum received, is forging a receipt for money. But if a person, who has for many years been known by a name which was not his own, afterwards assume his real name, and in that name draw a bill of exchange, he will not be guilty of forgery, although such bill was drawn for fraudulent purposes. If any person shall falsely make, forge, or counterfeit, or cause or procure to be falsely made, forged, or counterfeited, or willingly aid or assist in falsely making or counterfeiting, any deed, will, bond, writing obligatory, bill of exchange, promissory note for payment of money, acquittance, or receipt, either for money or goods, with intent to defraud any person; or shall utter or publish the same as true, knowing the same to be false, forged, or counterfeited, he shall be guilty of felony without benefit of clergy; but not to work corruption of blood, or disherison of heirs. 2 Geo. 2. c. 25. Forging or imitating stamps to defraud the revenue is forgery by the several stamp acts; and the receiving of them is made single felony, punishable with seven years' transportation. 12 Geo. 3. c. 48. Counterfeiting the signature of a member of parliament to the

direction of a letter, with intent to defraud the revenue of the post-office, is also made a forgery by statute, punishable by transportation. But the statutes respecting this offence, as well as the decided cases, are so extremely numerous, and so diversified, that for the *former* we must refer the reader to 1 *Dick. Pract. Expos.* p. 549, and for the *latter* to *Leach. C. L. and E. P. C.*

FORGING, in smithery, the beating or hammering iron on the anvil, after having first made it red-hot in the forge, in order to extend it into various forms, and fashion it into works. There are two ways of forging and hammering iron; one is by the force of the hand, in which there are usually several persons employed: the other is by the force of a water-mill, or other equivalent power of machinery, which raises and works several huge hammers beyond the force of man; to the strokes of which the workmen present large lumps or pieces of iron, which are sustained at one end by the anvils, and at the other end by iron chains fastened to the ceiling of the forge. This last way of forging is only used in the largest works, as anchors for ships, &c. which usually weigh several thousand pounds. For the lighter works, a single man serves to hold, heat, and turn with one hand, while he hammers with the other. Each purpose the work is designed for requires its proper heat; for if it be too cold, it will not feel the weight of the hammer, (as the smiths call it, when it will not batter under the hammer;) and if it be too hot, it will red-sear, that is, break or crack under the hammer. The several degrees of heat the smiths give their irons, are, first, a blood-red heat; secondly, a white-flame heat; and thirdly, a sparkling or welding heat.

FORLE, or Fulle, a copper coin, made and current in Egypt; it is also called *bulbe* or *bulba*.

FORM, *Printer's*, an assemblage of letters, words, and lines, ranged in order, and so disposed into pages by the compositor; from which, by means of ink and a press, the printed sheets are drawn. Every form is inclosed in an iron chase, or frame, wherein it is firmly locked by a number of pieces of wood; some long and narrow, and others of the form of wedges. There are two forms required for every sheet, one for each side; and each form consists of more or fewer pages, according to the size of the book. *See* PRINTING.

FOSSIL, denotes in general all things dug out of the earth, whether they have been formed there by nature, as metals, stones, salts, earths, and other minerals, or deposited in the bowels of the earth by earthquakes, deluges, or other extraordinary means. *See* METAL, STONE, and MINERALS.

FOUANG, or Foang. *See* BAAT.

FOUL, in the sea language, is used when a ship has been long untrimmed, so that the grass, weeds, or barnacles, grow to her sides under water. A rope is also foul, when it is either tangled in itself, or hindered by another, so that it cannot run or be overhauled.

Foul imports also the running of one ship against another. The damages occasioned by running foul, are of the nature of those in which both parties must bear a part. They are usually made half to fall upon the sufferer, and half upon the vessel which did the injury: but in cases where it is evidently the fault of the master of the vessel, he alone bears the damage.

FOUL-WATER. A ship is said to make foul-water, when, being under sail, she comes into such shoal-water, that though her keel does not touch the ground, yet it comes so near it, that the motion of the water under her raises the mud from the bottom.

FOUNDER, an artist who casts metals, in various forms, for different uses, as guns, bells, statues, printing characters, candlesticks, buckles, &c. whence they are denominated gun-founders, bell-founders, figure-founders, letter-founders, founders of small works, &c.

FOUNDERY, or Foundry, is the place or workhouse which is furnished with forges, or furnaces, for melting, and casting, all sorts of metals, particularly brass, iron, bell-metal, &c.

The sand used in casting brass, &c. is yellowish, and soft; but after it has been used, it becomes black, on account of the charcoal dust used in the moulds.

Every time this sand is to be used, they work and tew it several times over a board about a foot square, which is placed over a kind of trunk or box, into which it may fall from off the board. This tewing is performed with a roller or cylinder about two feet long, and two inches in diameter, and a species of knife made of the blade of a sword; with these two instruments the sand is rolled, and cut, alternately, and is at length turned down into the box or trough underneath.

Then taking a wooden board, or table, of a length, and breadth, proportionate to the quantity of things to be cast, the workman puts round this a frame or ledge, and thus makes a sort of mould. This is afterwards filled with the sand before prepared, and moderately moistened; which done, they take either wooden, or metallic, models or patterns of the things intended to be cast, apply them on the mould, and press them down in the sand, so as to leave their form indented; along the middle of the mould is placed half a little cylinder of brass, which is to be the master-jet or canal for running the metal; being so disposed as to touch the ledge on one side, and only to reach the last pattern on the other; from this are placed several lesser jets or branches, reaching to

each pattern, whereby the metal is conveyed through the whole frame.

The first frame being thus finished, they turn it upside down, and take out the patterns from the sand, to effect which, they first loosen them a little all round with a small cutting instrument.

They next proceed to work the counterpart or other half of the mould after the same manner, with the same patterns, exactly similar to the former, excepting that it has pins, which, entering into corresponding holes on the other, make, when both are joined together, the two cavities of the pattern fall exactly upon each other.

The frame being thus moulded, is carried to the melter or founder, who, after enlarging the principal jet, or canal, of the counterpart, with a kind of knife, adding the cross-jets or canals to the several patterns in both, and sprinkling them over with mill-dust, sets them to dry in an oven.

When both parts of the mould are sufficiently dried, they are joined together by means of pens; and to prevent their starting or slipping aside by the force of the metal, which is poured in flaming hot through a hole contrived at the master-jet, they lock them in a kind of press, either with screws, or, if the mould be too large for this, with wedges.

The moulds thus put in the press, are ranged near the furnace, to be in readiness to receive the metal as it comes out of the crucible.

While the moulds are thus preparing, the metal is put in fusion in an earthen crucible, of a size proportionate to the quantity of metal intended to be cast.

Some of the smaller work-founders' furnaces are like a smith's forge; others stand a few feet under ground, for the more easily and safely taking out a pot of metal, which is done by means of circular tongs, that grasp round the top of the crucible.

When the metal is melted, the workman pours it through the chief canal of each mould, which conveys it to every distinct pattern.

When the moulds become cool, the frames are unscrewed or unwedged, and the cast-work taken out of the sand, the latter of which is worked over again for other castings.

Such is the process of founding articles in general use; there are also various descriptions of founderies upon a larger scale; as founderies of statues, cannon, bells, types, &c. the processes of which are different, according to the respective articles upon which they are employed.

FOUNDING. *See* FOUNDERY.

FOUNT, or Font, among printers, a set or quantity of letters, and all the appendages belonging thereto, as numeral characters, quadrats, points, &c. cast by a letter-founder, and sorted. Founts are large or small, according to the demand of the printer, who orders them by the hundred weight, or by sheets. When a printer orders a fount of five hundred, he means that the fount, consisting of letters, points, spaces, quadrats, &c. shall weigh 500 lbs. When he demands a fount of ten sheets, it is understood, that with that fount he shall be able to compose ten sheets, or twenty forms, without being obliged to distribute, that is, take them to pieces. *See* PRINTING.

FOX-SKINS. There is, perhaps, no animal whose fur is subject to greater variety than the fox. The skin of this quadruped in the south of Europe is generally red; but in some parts of America, Asia, and the north of Europe, there are black, white, grey, variegated, and fawn-coloured foxes. The fox-skins of these parts of the world are greatly superior to ours, especially the black and white, which are uncommonly fine, and sell at very high prices. The Turks and Russians are the chief traders in the fox-skins of the north of Europe. We import some of the article from Asia, but more from North America. Fox-skins are employed in the making of muffs, tippets, trimmings for garments, &c.

FRAIL, a basket made of rushes, &c. in which figs, raisins, and the like, are packed up. It usually contains about 75 lb. weight.

FRAMES, (Ger. *Rahmen*, *Einfassung*. Du. *Raamen*, *Raamten*. Da. *Ramer*. Sw. *Ramar*. Fr. *Cadres*. It. *Quadri*, *Cornici*. Sp. *Marcos de cuadros*. Port. *Quadros*. Rus. *Ramü*. Pol. *Ramy*,) or engines for weaving stockings. Penalties for exporting them 7 & 8 W. 3. c. 20. s. 8. Frame-work knitters are within 12 Geo. 1. concerning combinations of workmen, c. 34. s. 8. and frames are protected by divers statutes, particularly 57 Geo. 3. c. 126. which makes it felony to destroy them. This statute, however, will expire in 1820. 3 *Dick. Pract. Expos.* 684. To prevent imposition in the manufacture of stockings, *see* act of 6 Geo. 2.

FRAME-WORK-KNITTING, is an expeditious mode of knitting stockings, by means of a frame made of steel or polished iron. This invention has been variously attributed; by some to William Lee, M. A. of St. John's College, Cambridge, at so early a period as 1589, whilst by others it has been fixed at a much later period, and the credit of the invention has been assigned to a student at Oxford, who, having improvidently married a poor young woman, an innkeeper's daughter, and being reduced to extreme distress, they entirely supported themselves by knitting stockings, at which the woman was very expert; the student invented a species of loom or frame-work which is now become common, and which enables us to export silk-stockings, in vast quantities, and to great advantage, to those

very countries whence we formerly used to import them, and others of a different texture to most parts of the world.

FRANC, or Frank, an ancient coin, either of gold or silver, struck and current in France. *See* MONIES *in App.*

FRANKFORT-BLACK, (Ger. *Kupferdruckerschuärze.* Du. *Franforten zwartzel.* Da. *Tydsksværte.* Sw. *Fysksvärta.* Fr. *Noir d'Allemagne.* It. *Nero di Germania.* Sp. *Negro de Alemania.* Port. *Negro de Alemanha.*) *See* BLACK.

FRANKINCENSE. (Ger. *Weihrauch.* Du. *Wierook.* Da. *Virog, Virak.* Sw. *Veirauch, Virack.* Fr. *Encens, Encens fin ou mâle, Oliban.* It. *Incenso, olibano.* Sp. *Incienso, Incienso macho, Olibano.* Port. *Incenso, Incenso macho, Olibano.* Rus. *Ladon, prostoi.* Pol. *Kadzidlo.* Lat. *Thus, Olibanum.*) *See* GUM *Olibanum.*

FRAUD, is any deceitful practice contrary to the plain rules of common honesty. It is necessary, however, here to observe, that in these impositions or deceits, where common prudence might guard persons from the offence, the party cannot be indicted, but the person injured is left to his remedy by action; but when false weights or measures are used, or such methods taken to defraud or deceive, as people cannot by ordinary care and prudence guard against, there the affair is indictable.

If an infant goes about the town, and, pretending to be of age, defrauds persons, by taking credit for goods, and then insisting on his nonage, the person injured cannot recover the value of the goods, but may indict and punish the infant so falsely obtaining credit as a common cheat.

Producing papers, purporting to be orders from abroad, and under pretence of being a merchant, obtaining goods, or to sell spirituous wine for a genuine commodity, under pretence of being a merchant and broker, have been held to be false pretences, and will consequently subject the party to an indictment.

By 33 Hen. 8. persons falsely or deceitfully obtaining or getting into their hands or possession any money, goods, chattels, jewels, or other things, of any other person, by colour and means of any privy false token or counterfeit letter, made in another name to a special friend or acquaintance, for the obtaining money, and who shall be convicted thereof, shall be liable to the punishment of imprisonment or the pillory.

By 30 Geo. 2. c. 24. all persons who *knowingly* and *designedly*, by false pretence or pretences, shall obtain from any person money, goods, wares, or merchandises, with intent to cheat or defraud any person of the same, shall be deemed offenders against law and the public peace; and the court before whom such offenders shall be tried, shall, in case they be convicted of any of the said offences, order such offenders to be fined and imprisoned, or publicly whipped, or to be transported as soon as conveniently may be, according to the laws made for transporting of felons, for the term of seven years, as the court shall think fit. Sect. 1.

And by 52 Geo. 3. c. 64. the offence is extended to the fraudulently obtaining *bonds, bills of exchange, bank-notes, promissory-notes,* or other *securities* for payment of money, *warrants and orders* for payment of money, or delivery of goods, and all other *valuable things. See* 1 *Dick. Pract. Expos. title* Cheat.

FRAUDS, *Statute of,* 29 Car. 2. s. 3. This is one of the most important laws in our statute book. The inclination of the courts of law seemed, for a considerable time, to be for taking cases out of this statute by some legal nicety; but, of late years, courts of justice have favoured a more strict interpretation. *See Howe* v. *Palmer,* 3 *B. & A.* 321. *Tempest* v. *Fitzgerald,* 3 *B. & A.* 684. The clauses which are most important to mercantile readers will be shortly adverted to.

The 4th section enacts, that no action shall be brought to charge persons with the contracts therein mentioned, or with the debt, &c. of another person, unless the agreement, &c., or some memorandum thereof, be reduced into writing. In the construction of this clause it was decided, in *Wain* v. *Warlters, 5 East,* 10., which case has since been recognized by the Courts of King's Bench and Common Pleas, that not only the agreement, but the consideration for such agreement, must be in writing. *Jenkins* v. *Reynolds,* 3 *B. & B.* (*C. P.*) 14. and *Saunders* v. *Wakefield,* 4 *B. & A.* (*K. B.*) 595. Mercantile persons should therefore (particularly in taking guarantees, which must always be in writing,) be careful, before coming to the agreement, to insert some such words as the following: — "*In consideration that you will furnish A. B. with such and such goods,* &c. we engage," &c.

The question in cases of guarantee, as to whether any agreement comes within this clause of the statute, always is, whether the goods, &c. were actually furnished and sold to the party sued, or to the third person, or, in other words, whether the third person be liable. If the third person be liable, and the person sued only chargeable in his default, the case is strictly within the statute, and must be reduced to writing; but if the goods are really sold to the party sued, and delivered to a third person, then a verbal contract is sufficient, provided it does not come within the 17th clause of the statute, which will now be adverted to.

By the 17th section of the statute, no contract for sale of goods, &c. for the price of 10*l.* or upwards, shall be good, unless the buyer shall accept part of the goods, &c. or give some earnest, &c. or some note or memorandum in writing, of such bargain being made and signed by the party to be charged, &c., or his agent, &c.

The memorandum of a broker is in general considered as binding the parties, as being the signature of a person who is regarded in law as the agent of both parties. There are other important clauses in the statute which do not come within the compass of this work.

FREE - CITIES. *See* HANSE-TOWNS.

FREEDOM *of a* CORPORATION, the right of enjoying all the privileges belonging to it, is regularly obtained by serving an apprenticeship of seven years: but sometimes purchased, and sometimes conferred by way of compliment.

FREEZE, or FRIEZE, (GER. *Fries.* DU. *Vries.* DA. *Fres.* SW. *Fris.* FR. *Frison, Reveche.* IT. *Frisa, Rovescio.* SP. & PORT. *Frisa.* RUS. *Boika.* POL. *Kuczbaia,*) a coarse kind of woollen stuff, or cloth, for winter wear; so called as being friezed or napped on one side. The manufacture of friezes is chiefly confined to Yorkshire.

FREIGHT, in navigation and commerce, is the consideration of money agreed to be paid for the use or hire of a ship, or, in a larger sense, the burden of such ship. The freight is most frequently determined for the whole voyage, without respect to time; sometimes it depends on time: in the former case it is either fixed at a certain sum for the whole cargo, or so much per ton, barrel bulk, or other weight or measure, or so much per cent. on the value of the cargo.

When a whole ship is freighted, if the master suffer any goods, besides those of the freight, to be put on board, he is liable for damages. If the voyage be completed according to the agreement, without any accident, the master has a right to demand the freight before the delivery of the goods; but if such delivery is prevented by negligence or accidents, the parties will be reciprocally responsible as follows. If the merchant should not load the ship within the time agreed on, the master may engage with another, and recover damages. If the merchant recals the ship after she is laden and sailed, he must pay the whole freight; but if he unloads before the ship has actually sailed, he will in such case only be responsible for damages. If the merchant load goods which it is not lawful to export, and the ship is prevented from proceeding on that account, he must nevertheless pay the freight. If the master is not ready to proceed on the voyage at the time stipulated, the merchant may load the whole or part of the cargo on board another ship, and recover damages; but any real casualties will release the master from all damages. If an embargo is laid on the ship before she sails, the charter-party is dissolved, and the merchant pays the expenses of loading and unloading; but if the embargo is only for a short limited time, the voyage shall be performed when it expires; and neither party is liable for damages.

If the master sails to any other port than that agreed on, without necessity, he must sail to the port agreed on at his own expense, and is also liable for any damages in consequence of it.

If a ship is taken by the enemy, and retaken or ransomed, the charter-party continues in force. If the master transfers the goods from his own ship to another, without necessity, and they perish, he is responsible for the full value, and all charges; but if his own ship is in imminent danger, the goods may be put on board another ship at the risk of the owner.

If a ship is freighted out and home, and a sum agreed for the whole voyage, nothing becomes due until the return of the ship. If a certain sum is specified for the homeward voyage, it is due, although the correspondent abroad should have no goods to send home. A ship was freighted to a particular port and home, a particular freight agreed upon the homeward voyage, with an option reserved for the correspondent to decline it, unless the ship arrived before a certain day. The master did not go to the port agreed on, and therefore became liable to damages; the obligation being absolute on his part, and conditional only on the part of the freighter.

If the goods are damaged without fault of the ship or master, the owner is not obliged to receive them and pay the freight, but he must either receive or abandon the whole; he cannot receive those that are not damaged, and reject the others. If the goods are damaged through the insufficiency of the ship, the master is liable for the same; but if it is owing to stress of weather he is not accountable.

If part of the goods is thrown overboard, or taken by the enemy, the part delivered pays freight.

The master is accountable for all the goods received on board by himself and mariners, unless they perish by the act of God, or the king's enemies. The master is not liable for leakage of liquors, nor accountable for contents of packages, unless packed in his presence. *See* CHARTER-PARTY.

FRENCH BERRIES. (GER. *Fransche Beirer.* DU. *Geele Besser.* DA. *Avignonsfrö.* IT. *Coccoli di spincervino.*) The berries of the Rhamnus infectorius (*Nerprun de Teinturiers*) are used considerably in the middle and south of France, to give a yellow dye. They are gathered unripe, bruised, steeped, and then boiled in water, mixed with the ashes of vine stalks to give a body, and then passed through fine linen. The colour thus prepared is called *stil de grain.* It is a fine yellow, chiefly used in silk-dyeing, but is very fugitive, especially in the sun. They grow abundantly in the south of France,

and particularly at Avignon, whence their French name of *Graines d'Avignon.*

FRIESLAND GREEN, called also Brunswick green, is made by moistening copper filings with a solution of sal ammonia, in close vessels; the precipitate is washed and dried. This preparation is employed with oil, and also for staining paper.

FRIGATE, a ship of war. A frigate has commonly two decks, whence that called a light frigate is a frigate with only one deck. All ships of war that carry from twenty to fifty guns, are called frigates. *See* SHIP.

FRIGATOON, a Venetian vessel, commonly used in the Adriatic Sea, with a square stern, and carrying only a mainmast, mizen, and bowsprit.

FRINGE, (Ger. *Fransen.* Du. *Franjes.* Da. *Frynder.* Sw. *Fransar.* Fr. *Franjes.* It. *Franje.* Sp. and Port. *Franjas.* Rus. *Buchrama.* Pol. *Frezli,*) a well-known ornament for dress, or furniture, usually composed of silk, thread, gold, silver, or flaxen threads. The making of gold and silver fringe, frogs, and tassels, is performed by the lacemen; but is chiefly done by women upon the hand. The making of silk fringe is performed in the loom by the livery-lace weavers. Silk fringe is prohibited from being imported. 13 & 14 Car. 2. c. 13. s. 2.

FRIT, or Fritt, in the glass manufacture, is the matter or ingredients of which glass is to be made, when they have been calcined or baked in a furnace. There are three kinds of frit: the first, crystal frit, or that for crystal or clear glass, is made with salt of pulvarine and sand. The second and ordinary frit is made of the bare ashes of the pulvarine or barilla, without extracting the salt from them. This makes the ordinary white or crystal glass. The third is frit for green glasses, made of common ashes, without any preparation. This last frit will require ten or twelve hours baking. The materials in each are to be finely powdered, washed, and searced; then equally mixed, and frequently stirred together in the melting pot. *See* GLASS.

FRONTINIAC, a luscious French white wine. *See* WINE.

FRUIT. (Ger. *Obst, Früchte.* Du. *Ooft.* Da. *Frugt.* Sw. *Fruckt.* Fr. *Fruit.* It. *Frutta, Frutte.* Sp. and Port. *Fruta.* Rus. *Owoschtsch.* Pol. *Owoc.* Lat. *Fructum.*) The appellation of fruit is bestowed by commercial men upon those species of fruit, such as oranges, lemons, almonds, raisins, currants, apples, &c. &c. which constitute articles of importation from foreign countries. The chief countries of Europe which export fruit are France, Spain, Portugal, and some islands in the Mediterranean.

Every person who shall bark any fruit-tree, shall forfeit to the party grieved treble damages by action at the common law, and also 10*l.* to the king. 37 Hen. 8. c. 6.

Every person who shall rob any orchard or garden, or dig or pull up any fruit-trees, with intent to take the same away, (the same not being felony by the laws of this realm,) shall, on conviction before one justice, give to the party such satisfaction for damages as such justice shall appoint; and in default of payment to be whipped. 43 Eliz. c. 7.

And with respect to what shall be deemed felony by the laws of this realm, the distinction seems to be, that if they are any way annexed to the freehold, as trees growing, or apples growing upon the trees, then taking and carrying them away is not felony, but trespass only, for a man cannot steal part of a freehold; but if they are severed from the freehold, as wood cut, or apples gathered from the trees, then the taking of them is not a trespass only, but felony. *Id.*

Fine and imprisonment may be inflicted on persons destroying fruit-trees. 1 Geo. 1. c. 48.

FRUITERER, a dealer in all kinds of foreign and domestic fruit.

FULLER. The business of the *fuller* is to clean, scour, mill, and thicken, woollen cloths; and is chiefly to be met with in the countries where the woollen manufacture flourishes: there are, however, several of this business in and about London.

FULLERS' EARTH, (Ger. *Walkererde.* Du. *Voläarde.* Da. *Walkejorde.* Sw. *Valklera, Valkjord.* Fr. *Terre à foulon.* It. *Terra da purgatori.* Sp. *Tierra de batan.* Port. *Greda de pizoeiro.* Rus. *Schiffernaia glina.* Lat. *Terra fullonum,*) a species of clay, of a greyish ash-coloured brown, in all degrees from very pale to almost black, and it has generally something of a greenish cast. It is very hard and firm, of a compact texture, of a rough and somewhat dusty surface that adheres slightly to the tongue. It is very soft to the touch, not staining the hands, nor breaking easily between the fingers. It has a little harshness between the teeth, and melts freely in the mouth. Thrown into water, it makes no ebullition or hissing; but swells gradually in bulk, and falls into a fine soft powder. It makes no effervescence with nitrous acid. This earth is used by fullers to take grease out of their cloth before they apply the soap. It is essential to fullers' earth that the particles of silica should be very fine, otherwise they would cut the cloth. Any clay possessed of this property may be considered as fuller's-earth; for it is the alumina alone which acts upon the cloth, on account of its strong affinity for greasy substances. Fuller's-earth is found in many parts of England, but that which Hampshire produces is esteemed the best. There is a species of this earth found in some parts of Turkey which is considered of great use in medicine.

Fullers' earth, fulling and *scouring clay,* penalties on exporting them, 12 Car. 2. 13 & 14 Car. 2. 9 & 10 Will. 3. c. 40. 6 Geo. 1. c. 21. s. 32.

FULLING is the art of cleansing,

scouring, and pressing cloths, stuffs, and stockings, to render them stronger, closer, and firmer: it is also sometimes called *milling*.

The process of fulling cloths is performed by a species of water-mill, thence called a *fulling* or *scouring* mill.

The cloths intended for fulling are generally first dipped in urine, then in a solution of fullers' earth and water, and lastly in soap, dissolved in hot water. Some think the urine ought to be abandoned, both on account of its disagreeable smell and its sharp saline properties, which frequently render the cloths dry and harsh.

The alternate pressure, communicated by the pestles or stampers to the stuff under operation, occasions, in its advanced stages, an effect analogous to that produced upon hats in the operation of felting: thus the fibres of wool which compose one of the threads, whether of the warp or woof, assume a progressive motion, first introducing themselves amongst those of the contiguous threads, then into those which follow, so that gradually all the threads both of the warp and woof become completely felted; consequently it may be cut without being liable to unravel; and further, as the threads of both the warp and woof are more intimately combined, the web which acquires a greater degree of thickness, forms likewise a warmer clothing.

Stockings, caps, &c. are fulled in a mode something different from that of mills, which is either by the feet or hands, or a kind of rack or wooden machine armed with teeth of the same materials, or, which would be an improvement, horses' or bullocks' teeth.

In this process, also urine, green soap, white soap, and fullers'-earth, are employed. Stockings manufactured in a loom should be fulled with soap alone, but earth may likewise be added for dressing those that have been knit.

By this process, knit worsted hose are less subject to *run*, if a stitch should happen to drop.

FUN, a Chinese weight. It is likewise a species of money of uncertain value.

FUNDS, *Public*. When the practice was first adopted of borrowing money of individuals for defraying the extraordinary expenses of the state, the produce of some particular tax was generally appropriated as the fund, out of which the principal and interest of the debt was to be discharged. The possession of the acknowledgment given to government for the money advanced, establishing a right to receive the payments from the fund originally agreed upon, the sale of these securities was considered as a sale of the claim upon the fund, and as the acknowledgments given were of different kinds, the general application of the provision on which they rested was found more convenient for purposes of business: thus the sale, or purchase, of the government securities was commonly called the sale or purchase of the public funds, till at length the expression has so far varied from its original signification, that instead of meaning the revenue out of which public debts or the interest of them is payable, it denominates the capital of such debts, in which sense it is generally used. Variations in the saleable value of the public funds at first were caused chiefly by political events, which were supposed to affect either the authority of those by whom the debts were contracted, or the means of paying them; but since their great increase has induced many persons to make buying, and selling, shares therein a regular trade, the fluctuations of the current price in general depends principally on the proportion of buyers to sellers, and on the schemes and combinations in which they engage in support of their respective speculations. The chief part of the public funds consists of perpetual annuities, or those debts on which a stipulated rate of interest is to continue to be paid, unless the principal should be redeemed; the other parts consist of annuities for a certain number of years, and life annuities. The perpetual annuities are distinguished by different titles, according to the rate of interest they pay, or the time and purpose of their creation; and when government, by a new loan, contracts an additional debt, bearing a certain fixed interest, it is usual to add the capital thus created to the amount of that part of the public debt which bears the same interest and denomination, and to add the produce of the taxes imposed for payment of the interest of such new debt to the fund provided for paying the interest of the former capital, thus consolidating the old and new debts, and making the interest payable out of the general produce of the same fund; hence we have 3 per cent. 4 per cent. and 5 per cent. consolidated annuities. The reduced 3 per cent. annuities take their title from having originally consisted of sums which had been borrowed at higher rates of interest, and reduced at different periods to 3 per cent. The navy 5 per cents. are so called from having been created by funding navy and victualling bills. The long annuities have been granted at different periods, and for different terms. The short annuities expired 5th January, 1808. The imperial 3 per cent. annuities, and annuities for 25 years, arose from loans to the emperor of Germany, the dividends on which were guaranteed by the government of this country.

The public funds were formerly all payable and transferrable at the exchequer; but they are now generally payable at the Bank or South Sea house. The dividend payable

to the proprietors of Bank stock is 7 per cent.; on South Sea stock 3½ per cent. Transfers of stock in any of the government funds, if made on the appointed transfer days, are free from any expense to the parties, but the same stock cannot be transferred twice on the same day. The person who transfers property in the funds, or his broker, must be known to the witnessing clerk, or some person known must be produced to vouch for his being the identical person he is represented to be. The seller's receipt should be kept by the buyer, as a voucher for the transfer, till one dividend has been received.

The dividends on Bank stocks are payable the day after they become due; but the dividends on the stock of other companies, and on the government funds, are not payable till about a week after. The space between the shutting, and opening, the books of any stock, is usually about six weeks. At the time of shutting, the dividends due are carried to a separate account, and cannot be transferred with the stock of the proprietor, the warrants being filled up in the name the stock stands in when the books shut, and of course are payable only to him or his attorney. All letters of attorney, to sell, or accept, stock, or to receive dividends, should be taken out at the respective offices, in order that the description may exactly accord with that in the Bank books, and there must be a separate letter of attorney for each different stock. Letters to sell must be deposited in the proper office prior to sale, as must also probates of wills, till registered. Acting personally, after granting a letter of attorney, revokes the power of the letter. Any one trustee, after the acceptance of the whole trust, may receive dividends; and, upon the death of any of the trustees being proved by producing their wills, or a certificate of burial, the survivor may transfer the stock.

Persons having occasion to invest money in the public funds, generally employ a broker, to whom the party must give his name, place of abode, and usual additions, with the sum intended to be purchased; but a work, called "*Every Man his own Broker*," contains every thing necessary to be known by persons transacting business in the funds; it is therefore more than unnecessary to enter more minutely into the subject here. If a broker be employed, the *mode* of effecting the transaction rests with him; and if no such assistance be sought, much more instruction than could be conveyed consistently with our prescribed limits, would be essentially necessary.

With respect to powers of attorney, it may be necessary to observe, that they are to be had only at the respective offices where the stock lie, whether at the Bank, South Sea or India houses. Of these, some are only for receiving dividends, some for buying, and others for selling; and general ones are for buying and selling, and receiving of dividends. These last convey an absolute and unlimited power, and have sometimes been given by ignorant persons in the room of others, who have thereby put their property into the hands of those who have made a bad use of it. The misapplication of powers confided to bankers, brokers, and others, respecting the buying, selling, &c. of government, and other, public securities, gave occasion to stat. 52 Geo. 3. c. 63., by which it is enacted, that if any banker, broker, merchant, or other agent, in whose hands any money, bill, note, draft, cheque, or order for the payment of money, shall be placed, with orders in writing signed by the party depositing the same, to invest such money, or the money to which such bill, note, &c. shall relate, in the purchase of any stock, or other government, or other securities, or in any other way specified in such order, shall *in any manner apply to his own use and benefit* any such money, bill, note, &c. *in violation of good faith*, &c. and with intent to defraud, shall be deemed guilty of a misdemeanor, and shall be sentenced to transportation for a term not exceeding 14 years. The persons above described are also prohibited, by another section of the statute, from selling or pledging any debenture, bill, or other security, and from transferring, assigning, or negociating any debenture, bill, or other security, with a similar intent, under a similar penalty.

As the prices of the several funds are continually fluctuating, and there is frequently a considerable difference in the interest produced by investing money in different funds, the following table of the prices which each fund should be at, to produce an equal interest, will be found very useful to persons investing their money in these securities.

TABLE, *shewing the comparative Value per Cent. of the several Public Funds, and the annual Interest produced by* 100*l. invested at different Prices.*

3 per cents.	4 per cents.	5 per cents.	Bank stock. 7 pr. ct.	Ind. st. 10½ pr. cents.	Annual Interest. £.	s.	d.	
51	68	85	119	178½	5	17	7	
51¾	69	86¼	120¾	181⅛	5	15	11	The funds transferrable at the Bank of
52½	70	87½	122½	183¾	5	14	3	England are, viz.
53¼	71	88¾	124¼	186⅜	5	12	8	5 per cent. navy ann.
54	72	90	126	189	5	11	1	3 per cent. consols
54¾	73	91¼	127¾	191⅝	5	9	6	3 per cent. 1726
55½	74	92½	129½	194¼	5	8	1	3 per cent. deferred
56¼	75	93¾	131¼	196⅞	5	6	7	Bank stock
57	76	95	133	199½	5	5	3	5 per cent. 1797 and 1802
57¾	77	96¼	134¾	202⅛	5	3	10	4 per cent. consols
58½	78	97½	136½	204¾	5	2	6	3 per cent. reduced
59¼	79	98¾	138¼	207⅜	5	1	3	Long annuities
60	80	100	140	210	5	0	0	3 per cent. imperial ann.
60¾	81	101¼	141¾	212⅝	4	18	9	Imperial annuity, 25 years
61½	82	102½	143½	215¼	4	17	6	Irish 5 per cent.
62¼	83	103¾	145¼	217⅞	4	16	4	Irish annuities.
63	84	105	147	220½	4	15	2	
63¾	85	106¼	148¾	223⅛	4	14	0	Transferrable at the South Sea house, viz.
64½	86	107½	150½	225¾	4	13	0	South Sea stock
65¼	87	108¾	152¼	228⅜	4	11	11	3 per cent. new S.S. ann.
66	88	110	154	231	4	10	10	3 per cent. 1751
66¾	89	111¼	155¾	233⅝	4	9	10	3 per cent. old S.S. ann.
67½	90	112½	157½	236¼	4	8	10	
68¼	91	113¾	159¼	238⅞	4	7	10	
69	92	115	161	241½	4	6	11	
69¾	93	116¼	162¾	244⅛	4	6	0	
70½	94	117½	164½	246¾	4	5	1	
71¼	95	118¾	166¼	249⅜	4	4	2	
72	96	120	168	252	4	3	3	
72¾	97	121¼	169¾	254⅝	4	2	5	
73½	98	122½	171½	257¼	4	1	7	
74¼	99	123¾	173¼	259⅞	4	0	9	
75	100	125	175	262½	4	0	0	

Various causes contribute to alter the prices of the funds. In proportion as the demands of government increase, the interest of money will rise; and individuals, from a prospect of employing their money more advantageously in new loans, will sell out of the old funds; especially those which bear the lowest interest. This will happen as early as possible, because the advantage will be the greater; therefore speculators will crowd to market as soon as they have intelligence of a rupture with any considerable power, that they may sell before the fall increases.

Should the events of war prove unsuccessful, and we lose valuable settlements abroad, the funds will fall, from a concurrence of sellers, many of them merchants, who depend on remittances from the conquered places, and for want of them are obliged to part with their funded property. The apprehensions of more misfortunes will likewise engage others in the same predicament.

Powerful alliances formed against the interest of the kingdom, having a tendency to endanger its political existence as an independent state, will affect the funds; for the public defence must require unusual supplies, which, increasing the value of money, by the great demand for it, will lower the price of the old funds.

It is scarcely necessary to observe, that occurrences of a contrary complexion must tend to an opposite result.

When the nation enjoys perfect tranquillity, when there is no sudden large demand for money, nor any considerable sums in specie poured into the kingdom, no variation beyond two per cent. in the price of the funds ought to take place: if it do, independent of the following causes, it may be considered as *artificial*, and *a trick of the alley*.

1st. Orders from foreigners to vest very considerable sums in the funds, at any stated times.

2dly. Any extraordinary demand for stock, in consequence of large remittances from our foreign possessions: or,

3dly. The concurrence of any fortuitous external demand, at the moment of a periodical demand for stock, by *the commissioners for liquidating the national debt.*

Of the last-mentioned subject, as immediately connected with the public funds, it is necessary to say something before we close this article.

By 26 Geo. 3. c. 31. commissioners were appointed for the reduction of the national debt, and it was enacted that 250,000*l.* shall be set apart quarterly out of the surplusses of the sinking fund; and in case of a deficiency in the said surplusses, the same shall be carried on as a charge, on the subsequent quarters.

Surplusses remaining (after former incumbrances are provided for) shall be applied in payment of former deficiencies, and of so much of the quarterly sum of 250,000*l.* as they will extend to pay. *Ibid.*

Deficiencies at the end of any year shall be made good out of the supplies granted the same year. *Ibid.*

The monies set apart quarterly, shall be paid into the Bank; and shall be applied in reducing the national debt. Officers of the exchequer are not to issue the produce of the sinking fund. before payment of the 250,000*l.* quarterly, and the redeemed stock shall be transferred to the commissioners, and the dividends shall be received by the Bank, and placed to the commissioners' account. *Ibid.*

When any stock shall be placed to the account of the commissioners, no money shall be issued for the management thereof. And monies placed to the account of the commissioners shall be applied in redemption of annuities at or above par. *Ibid.*

The commissioners are empowered, if they shall think expedient, to subscribe towards any public loan; and the speaker of the house of commons, the chancellor of the exchequer, the master of the rolls, the accountant-general in chancery, and the governor and deputy governor of the Bank, for the time being respectively, shall be commissioners, who are to appoint clerks and officers *Ibid.*

The Bank shall pay such money vested in the commissioners, as shall be ordered by them, and shall make up their accounts with them annually, which shall be laid before the parliament annually. *Ibid.*

Commissioners are to lay an account of their proceedings before parliament; and before the commissioners for auditing the public accounts. *Ibid.*

Forging any certificate made by virtue of this act is felony *without* clergy. *s.* 21.

By 27 Geo. 3. c. 13. from July 5th 1787, the sum of 250,000*l.* directed by 26 Geo. 3. c. 31. to be set apart at the exchequer quarterly, shall be set apart out of the consolidated fund, and the provisions of that act shall continue in force. *Ibid.*

From May 10th, 1787, all monies reserved for payment of annuities on lives, which shall not have been claimed for three years prior to January 5th, 1787, or which shall thereafter not be claimed for three years, shall be placed to the account of the commissioners for reducing the national debt. *Ibid.*

The exchequer shall transmit, by April 5th annually, an account of annuities fallen in by death, or unclaimed for three years, to the treasury, who are to cause the same to be placed to the account of the said commissioners. *Ibid.*

But if any claimants of annuities so appropriated shall thereafter appear, they are to be paid out of any money applicable for the payment of annuities. *Ibid.*

By 32 Geo. 3. c. 55. the exchequer shall keep a separate account of the interest of new loans, and if provision be not made for paying them off within forty-five years, an additional sum, equal to one-hundredth part of the stock, to be issued from the exchequer quarterly and placed to the account of the commissioners. *s.* 3.

And if such loans be raised by annuities for any term longer than forty-five years, one-hundredth part of such as may be expected to be then out-standing shall be issued: the computation of such value is to be made under the direction of the commissioners, and copies delivered to the speaker; and the speaker is to certify to the treasury and exchequer the amount of the additional sum to be issued. *s.* 4.

Sums to be issued under this act to be issued in the order the loans have taken place. *s.* 5.

Whenever there remains not money of the consolidated fund to pay the further sum to be issued in consequence of any new loan, the deficiency shall be made good, as directed by 26 Geo. 3. c. 91. s. 6.

Any deficiency in the quarterly payments, which may arise at the end of the year, shall be made good out of any supplies granted for the current or any preceding year. *s.* 7.

Monies placed to the account of the commissioners to be applied in the purchase of such redeemable annuities as shall be at or above par, according to 26 Geo. 3. and the stock redeemed to be transferred to their account, and the dividends to be placed thereto: but sums placed to their account in consequence of any new loan to be kept separate. *s.* 8.

Persons counterfeiting certificates, guilty of felony without clergy. *s.* 9.

Subsequent to the passing the act for the redemption of the public debt, an additional annual sum of 200,000*l. has, under the authority of several acts, annually passed for that purpose, been issued from the exchequer over and above the quarterly sum of* 250,000*l.*

And by 42 Geo. 3. c. 71. it is enacted, that the said sum of 200,000*l.* heretofore an-

nually issued shall be a permanent charge, and paid quarterly out of the British consolidated fund to the Bank for the commissioners. *s.* 4.

The money placed to the account of the commissioners under this and the former acts shall accumulate, and be applied in redemption of the public annuities, until the whole shall be paid off, within forty-five years from their respective creation. *s.* 5.

By 48 Geo. 3. c. 142. the commissioners for the reduction of the national debt, are empowered to accept transfers of stock in the 3*l.* per cent. consols, or reduced Bank annuities, for the purchase of life annuities, for a single life, or the life of a nominee; or the lives of two nominees; in doing which, the party may name himself; but the nominees must not be under thirty-five, and previously to the transfer, the parties are to produce certificates or good proof of the age of the nominees. *s.* 1—5.

The purchasers of life annuities on single lives, upon the transfer of stock in manner directed by the act, are to be entitled to the annuities as specified in the schedule D, and the purchasers of life annuities, on the continuance of two lives, are to be entitled to the annuities specified in schedule E. *s.*7,8,9.

Annuitants may make further purchases on the lives of original nominees without fresh certificates; but the annuities on the life of one nominee are not to exceed 1000*l.* nor for two nominees 1500*l.* *s.* 12—14.

Persons appointed by the commissioners, for reducing the national debt, may accept stock from the purchasers, the dividends whereof shall be afterwards received, and constitute a part of the sinking fund. *s.* 14.

The annuities are to be payable half yearly, at the same days as the stock transferred, and on the death of a single life, or the survivor of two lives, after the last half-yearly payment, one quarter's annuity is to be paid to the personal representative, at the next half-yearly dividend. *s.* 15.

To prevent frauds in the receipt of annuities, certificates must be produced from the minister of the parish, or, in his absence, the churchwardens and overseers, or from some justice, of the existence of the life of the nominee, with an affidavit or affirmation annexed of the identity of the party, upon production whereof at the Bank, the annuity shall be payable. *s.* 18.

And certificates of the death of a single or surviving nominee must be also produced, to enable the personal representative to receive the quarterly share. *s.* 19.

These life annuities are transferrable, and are to be free from taxes, except such as dividends of consols and reduced annuities are liable to, and shall be deemed personal estate. *s.* 20, 21.

Penalty on producing false certificates and affidavits, or receiving annuities after the deaths of nominees, 500*l.* *s.* 22, 23.

Annuities ceasing to revert to the sinking fund. *s.* 24.

The certificates, transfers of stock, and life annuities, are to be exempt from stamp duties. *s.* 25.

Persons making false affidavits, guilty of perjury. *s.* 26.

Persons forging registers, certificates, names of witnesses thereto, or the certificate of any judge, baron, justice, or magistrate, or any certificates of the commissioners or cashier, or clerk to the Bank, or the names of persons in any transfer, or any receipt, or letter of attorney, or who shall personate the nominee, or shall utter any such forged certificate, or instrument as aforesaid, shall be guilty of felony without clergy. *s.* 28.

Penalties may be recovered in the name of the attorney-general at Westminster, or in Dublin, in the court of exchequer, and in Scotland in the name of the advocate-general, to be applied to the sinking fund; but the commissioners may give the informer one half. *s.* 29.

By 49 Geo. 3. c. 64. the commissioners may grant under the last act annuities of an annual amount for the life of any one nominee, or for the lives of two nominees, and of the life of the longer liver of them, so as the same do not exceed 3000*l.* per ann.

Several subsequent statutes have passed making further provision for the reduction of the debt, and for the regulation of the commissioners, &c. (*ex. gr.*) 53 Geo. 3. c. 35.; 58 Geo. 3. c. 66.; but further notice of them here would exceed our limits. *See further, title* SINKING FUND. However, a provision, pregnant with consequences of importance, is made by 57 Geo. 3. c. 130.; which directs the Bank of England to open an account, (*on account of the commissioners for the reduction of the national debt,*) to be called "the Fund for the Banks for Savings," and to receive any sum not less than 50*l.* to the same, from these institutions respectively. *s.* 9, 10.

The commissioners are to issue debentures in favour of such institutions, bearing interest at 3*d. per cent.* per day. And to lay out all monies so received by them in Bank annuities, with the interests which shall from time to time arise. *s.* 14.

But these debentures shall not be transferrable. They shall not be liable to stamp duties, and may be renewed if lost; but if any false declaration shall accompany the payment of such monies to the Bank, *they shall be forfeited to the commissioners.* *s.* 15, 16, 17.

Accounts to be laid before parliament annually. *s.* 18.

Investments restricted to saving banks, the rules of which prohibit a subscription of more than 100*l.* the first year, and of 50*l.* any year after, except the same shall be contributed by any friendly society. *s.* 19.

FUR, or Furr, (Ger. *Pelzwerk, Rauchwerk.* Du. *Bont, Bontwerk.* Da. *Foer-*

verk, *Pelsverk*. Sw. *Foderrverk*, *Pelsverk*. Fr. *Fourrure*. It. *Pellicce*. Sp. *Peleteria*. Rus. *Mächkaja ruchläd*. Pol. *Futro*, *Futrowizna*, *Kosmacizna*,) the skins of quadrupeds, which are dressed with alum without depriving them of their hair: the skins chiefly used are those of the sable, ermine, bear, beaver, hare, &c.

The furs used at present are brought from North America by the Hudson's Bay Company, from Russia, and from other northern countries, and are of great value, particularly the skins of bears, ermines, foxes, and sables. The skins of hares and rabbits are mostly brought from the northern parts of England, and Ireland. The wool which these skins yield, as well as that of the beaver, is principally employed by hatters. The other species of fur are used as a part of the dress of females. The commerce which we carry on with North America in the article of fur alone is important. Some notion of its commencement, and progress, may be extracted from a valuable work, written by Sir Alexander Mackenzie, from which the following is a very brief extract.

"The fur trade, from the earliest settlement of Canada, was considered of the first importance to that colony. The country was then so populous, that, in the vicinity of the establishments, the animals whose skins were precious, in a commercial view, soon became scarce, if not altogether extinct. They were, it is true, hunted at former periods, but merely for food and clothing. The Indians, therefore, to procure the necessary supply, were encouraged to penetrate into the country, and were generally accompanied by some of the Canadians, who found means to induce the remotest tribes of natives to bring the skins which were most in demand to their settlements, in the way of trade.

"Those who thus accompanied the natives on their hunting and trading excursions, became so attached to the Indian mode of life, that they lost all relish for their former habits and native homes. Hence they derived the title of *Coureurs des bois*, became a kind of pedlars, and were extremely useful to the merchants engaged in the fur trade; who gave them the necessary credit to proceed on their commercial undertakings. Three or four of these people would join their stock, put their property into a birch-bark canoe, which they worked themselves, and either accompanied the natives in their excursions, or went at once to the country where they knew they were to hunt. At length, these voyages extended to twelve or fifteen months, when they returned with rich cargoes of furs, and followed by great numbers of the natives. During the short time requisite to settle their accounts with the merchants, and procure fresh credit, they generally contrived to squander away all their gains, when they returned to renew their favourite mode of life.

"Indifference about amassing property, and the pleasure of living free from all restraint, soon brought on a licentiousness of manners which could not long escape the vigilant observation of the missionaries, who had much reason to complain of their being a disgrace to the Christian religion; by not only swerving from its duties themselves, but by thus bringing it into disrepute with those of the natives who had become converts to it; and, consequently, obstructing the great object to which those pious men had devoted their lives. They, therefore, exerted their influence to procure the suppression of these people, and, accordingly, no one was allowed to go up the country to traffic with the Indians, without a licence from the government.

"At first these permissions were, of course, granted only to those whose character was such as could give no alarm to the zeal of the missionaries: but they were afterwards bestowed as rewards for services on officers, and their widows; and they who were not willing or able to make use of them, were allowed to sell them to the merchants, who necessarily employed the *Coureurs des bois* in quality of their agents; and these people, as may be imagined, gave sufficient cause for the renewal of former complaints: so that the remedy proved, in fact, worse than the disease.

"At length, military posts were established at the confluence of the different large lakes of Canada, which, in a great measure, checked the evil; and now a number of able and respectable men, retired from the army, prosecuted the trade in person, under their respective licences, with great order and regularity, and extended it to such a distance, as, in those days, was considered to be an astonishing effort of commercial enterprise. These persons and the missionaries having combined their views at the same time, secured the respect of the natives, and the obedience of the people necessarily employed in the laborious parts of this undertaking. These gentlemen denominated themselves commanders, and not traders, though they were entitled to both those characters: and, as for the missionaries, if sufferings and hardships in the prosecution of the great work which they had undertaken, deserved applause and admiration, they had an undoubted claim to be admired and applauded; they spared no labour, and avoided no danger in the execution of their important office; and it is to be seriously lamented, that their pious endeavours did not meet with the success which they deserved: for there is hardly a trace to be found, beyond the cultivated parts, of their meritorious functions.

"At an early period of their intercourse with the savages, a custom was introduced of a very excellent tendency, but which was

soon unfortunately discontinued, of not selling any spirituous liquor to the natives. This admirable regulation was for some time observed, with all the respect due to the religion by which it is sanctioned, and whose severest censures followed the violation of it. A painful penance could alone restore the offender to the suspended rites of the sacrament. The casuistry of trade, however, discovered a way to gratify the Indians with their favourite cordial, without incurring the ecclesiastical penalties, by giving, instead of selling, it to them.

" Notwithstanding all the restrictions with which commerce was oppressed under the French government, the fur trade was extended to an immense distance, and surmounted many most discouraging difficulties, while, at the same time, no exertions were made from Hudson's Bay to obtain even a share of the trade of a country which, according to the charter of that company, belonged to it, and, from its proximity, is so much more accessible to the mercantile adventurer.

" Of these trading commanders, I understood, that two attempted to penetrate to the Pacific Ocean, but the utmost extent of their journey never was ascertained, owing, indeed, to a failure of the undertaking.

" For some time after the conquest of Canada, this trade was suspended, which must have been very advantageous to the Hudson's Bay Company, as all the inhabitants to the westward of Lake Superior, were obliged to go to them for such articles as their habitual use had rendered necessary. Some of the Canadians who had lived long with them, and were become attached to a savage life, accompanied them thither annually, till mercantile adventurers again appeared from their own country, after an interval of several years, owing, as I suppose, to an ignorance of the country in the conquerors, and their want of commercial confidence in the conquered. There were, indeed, other discouragements, such as the immense length of the journey necessary to reach the limits beyond which this commerce must begin; the risk of property; the expenses attending such a long transport; and an ignorance of the language of those who, from their experience, must be necessarily employed as the intermediate agents between them and the natives. But, notwithstanding these difficulties, the trade, by degrees, began to spread over the different parts to which it had been carried by the French, though at a great risk of the lives, as well as the property, of their new possessors, for the natives had been taught by their former allies to entertain hostile dispositions towards the English, from their having been in alliance with their natural enemies the Iroquois; and there were not wanting a sufficient number of discontented, disappointed people to keep alive such a notion; so that for a long time they were considered and treated as objects of hostility.

" Hence it arose, that it was so late as the year 1766, before which the trade commenced from Michilimakinac. The first who attempted it were satisfied to go the length of the river Camenistiquia, about thirty miles to the eastward of the Grande Portage, where the French had a principal establishment, and was the line of their communication with the interior country. It was once destroyed by fire. Here they went and returned successful in the following spring to Michilimakinac. Their success induced them to renew their journey, and incited others to follow their example. Some of them remained at Camenistiquia, while others proceeded to and beyond the Grande Portage, which, since that time, has become the principal entrepôt of that trade, and is situated in a bay, in latitude 48° north, and longitude, 90° west. After passing the usual season there, they went back to Michilimakinac as before, and, encouraged by the trade, returned in increased numbers. One of these, Thomas Curry, with a spirit of enterprise superior to that of his cotemporaries, determined to penetrate to the furthest limits of the French discoveries in that country, or, at least, till the frost should stop him. For this purpose he procured guides and interpreters who were acquainted with the country, and with four canoes arrived at Fort Bourbon, which was one of their posts, at the west end of the Cedar Lake, on the waters of the Saskatchiwine. His risk and toil were well recompensed, for he came back the following spring with his canoes filled with fine furs, with which he proceeded to Canada, and was satisfied never again to return to the Indian country.

" From this period people began to spread over every part of the country, particularly where the French had established settlements.

" A Mr. James Finlay was the first who followed Curry's example, and with the same number of canoes, arrived, in the course of the next season, at Nipawee, the last of the French settlements on the bank of the Saskatchiwine river, in latitude nearly 43½° north, and longitude 103° west: he met with good fortune, as he followed, in every respect, the example of his predecessor.

" As may be supposed, there were now people enough ready to replace them, and the trade was pursued with such avidity, and irregularity, that in a few years it became the reverse of what it ought to have been. An animated competition prevailed, and the contending parties carried the trade beyond the French limits, though with no benefit to themselves or neighbours: the Hudson's Bay Company, who, in the year 1774, and not till then, thought proper to move from home to the east bank of

Sturgeon Lake, in latitude 53° 56′ north, and longitude 102° 15′ west, became more jealous of their fellow subjects, and perhaps with more cause, than they had been with those of France.

"This competition gave a fatal blow to the trade from Canada, and, with other incidental causes, contributed to its ruin. This trade was carried on in a very distant country, out of the reach of legal restraint, and where there was a free scope given to any ways or means in attaining advantage. The consequence was not only the loss of commercial benefit to the persons engaged in it, but of the good opinion of the natives, and the respect of their men, who were inclined to follow their example. Thus did they waste their credit and their property with the natives, till the first was past redemption, and the last was nearly exhausted; so that towards the spring in each year, the rival parties found it absolutely necessary to join, and make one common stock of what remained, for the purpose of trading with the natives, who could entertain no respect for persons who had conducted themselves with so much irregularity and deceit. The winter, therefore, was one continued scene of disagreement and quarrels. To such a height had they carried this licentious conduct, that they were in a continual state of alarm, and were even frequently stopped to pay tribute on their route into the country; though they had adopted the plan of travelling together in parties of 30 or 40 canoes, and keeping their men armed; which sometimes, indeed, proved necessary for their defence.

"Thus was the trade carried on for several years, and consequently becoming worse and worse, so that the partners, who met them at the Grande Portage, naturally complained of their ill success. But specious reasons were always ready to prove that it arose from circumstances which they could not at that time controul; and encouragements were held forth to hope that a change would soon take place, which would make ample amends for past disappointments.

"It was about this time that Mr. Joseph Frobisher, one of the gentlemen engaged in the trade, determined to penetrate into the country yet unexplored, to the north and westward; and, in the spring of the year 1775, met the Indians from that quarter on their way to Fort Churchill, at Portage de Traite, so named from that circumstance on the banks of the Missisippi, or Churchill river, latitude 55° 25′ north, longitude 103¾° west. It was, indeed, with some difficulty that he could induce them to trade with him, but he at length procured as many furs as his canoes would carry. In this perilous expedition he sustained every kind of hardship incident to a journey through a wild and savage country, where his subsistence depended on what the woods and the waters produced. These difficulties, nevertheless, did not discourage him from returning in the following year, when he was equally successful. He then sent his brother to explore the country still further west, who penetrated as far as the lake of Isle à la Croix, in latitude 55° 26′ north, and longitude 108° west.

"He, however, never after wintered among the Indians, though he retained a large interest in the trade, and a principal share in the direction of it till the year 1798, when he retired to enjoy the fruits of his labours.

"The success of this gentleman induced others to follow his example, and in the spring of the year 1778, some of the traders on the Saskatchiwine river, finding they had a quantity of goods to spare, agreed to put them into a joint stock, and gave the charge and management of them to Mr. Peter Pond, who, in four canoes, was directed to enter the English river, so called by Mr. Frobisher, to follow his track, and proceed still further, if possible, to Athabasca, a country hitherto unknown but from Indian report. In this enterprise he at length succeeded, and pitched his tent on the banks of the Elk river, by him erroneously called the Athabasca river, about 30 miles from the Lake of the Hills, into which it empties itself.

"Here he passed the winter of 1778-9; saw a vast concourse of the Knisteneaux and Chepewyan tribes, who used to carry their furs annually to Churchill; the latter by the barren grounds, where they suffered innumerable hardships, and were sometimes even starved to death. The former followed the course of the lakes and rivers, through a country that abounded in animals, and where there was plenty of fish: but though they did not suffer from want of food, the intolerable fatigue of such a journey could not be easily repaid to an Indian: they were, therefore, highly gratified by seeing people come to their country to relieve them from such long, toilsome, and dangerous journeys; and were immediately reconciled to give an advanced price for the articles necessary to their comfort and convenience. Mr. Pond's reception and success was accordingly beyond his expectation; and he procured twice as many furs as his canoes would carry. They also supplied him with as much provision as he required during his residence among them, and sufficient for his homeward voyage. Such of the furs as he could not embark, he secured in one of his winter huts, and they were found the following season, in the same state in which he left them.

"These, however, were but partial advantages, and could not prevent the people of Canada from seeing the improper conduct of some of their associates, which rendered it dangerous to remain any longer

among the natives. Most of those who passed the winter at the Saskatchiwine, got to the Eagle hills, where, in the spring of the year 1780, a few days previous to their intended departure, a large band of Indians being engaged in drinking about their houses, one of the traders, to ease himself of the troublesome importunities of a native, gave him a dose of laudanum in a glass of grog, which effectually prevented him from giving further trouble to any one, by setting him asleep for ever. This accident produced a fray, in which one of the traders, and several of the men, were killed, while the rest had no other means to save themselves but by a precipitate flight, abandoning a considerable quantity of goods, and near half the furs which they had collected during the winter and the spring.

"About the same time, two of the establishments on the Assiniboin river were attacked with less justice, when several white men, and a great number of Indians, were killed. In short, it appeared that the natives had formed a resolution to extirpate the traders; and nothing but the greatest calamity that could have befallen the natives, saved the traders from destruction: this was the small-pox, which spread its destructive and desolating power, as the fire consumes the dry grass of the field. The fatal infection spread around with a baneful rapidity which no flight could escape, and with a fatal effect that nothing could resist. It destroyed with its pestilential breath whole families and tribes; and the horrid scene presented to those who had the melancholy and afflicting opportunity of beholding it, a combination of the dead, the dying, and such as, to avoid the horrid fate of their friends around them, prepared to disappoint the plague of its prey, by terminating their own existence.

"The habits and lives of these devoted people, which provided not to-day for the wants of to-morrow, must have heightened the pains of such an affliction, by leaving them not only without remedy, but even without alleviation. Nought was left them but to submit in agony and despair.

"To aggravate the picture, if aggravation were possible, may be added the putrid carcases which the wolves, with a furious voracity, dragged forth from the huts, or which were mangled within them by the dogs, whose hunger was satisfied with the disfigured remains of their masters. Nor was it uncommon for the father of a family, whom the infection had not reached, to call them around him, to represent the cruel sufferings and horrid fate of their relations, from the influence of some evil spirit, who was preparing to extirpate their race; and to excite them to baffle death, with all its horrors, by their own poniards. At the same time, if their hearts failed them in this necessary act, he was himself ready to perform the deed of mercy with his own hand, as the last act of his affection, and instantly to follow them to the common place of rest and refuge from human evil.

"It was never satisfactorily ascertained by what means this malignant disorder was introduced, but it was generally supposed to be from the Mississoaic, by a war party.

"The consequence of this melancholy event to the traders was, that the means of disposing of their goods were cut off, and no furs were obtained but such as had been gathered from the habitations of the deceased Indians, which could not be very considerable. The only fortunate people consisted of a party who had again penetrated to the northward and westward in 1780, at some distance up the Missisippi, or English river, to Lake La Rouge.

"The country being thus depopulated, the traders and their friends from Canada, who, from various causes, already mentioned, were very much reduced in number, became confined to two parties, who began seriously to think of making permanent establishments on the Missisippi river, and at Athabasca; for which purpose, in 1781-2, they selected their best canoe-men, being ignorant that the small-pox penetrated that way. The most expeditious party got only in time to the Portage la Loche, or Mithy-Ouinigam Portage, which divides the waters of the Missisippi from those that fall into the Elk river, to dispatch one canoe strong-handed, and light loaded, to that country; but, on their arrival there, they found, in every direction, the ravages of the small-pox; so that, from the great diminution of the natives, they returned in the spring with no more than seven packages of beaver. The strong woods and mountainous countries afforded a refuge to those who fled from the contagion of the plains: but they were so alarmed at the surrounding destruction, that they avoided the traders, and were dispirited from hunting, except for their subsistence. The traders, however, who returned into the country in the year 1782-3, found the inhabitants in some sort of tranquillity, and more numerous than they had reason to expect, so that their success was proportionably better.

"During the winter of 1783-4, the merchants of Canada, engaged in this trade, formed a junction of interests, under the name of the North-West Company, and divided it into sixteen shares, without depositing any capital; each party furnishing a proportion or quota of such articles as were necessary to carry on the trade: the respective parties agreeing to satisfy the friends they had in the country, who were not provided for, according to this agreement, out of the proportions which they held. The management of the whole was accordingly entrusted to Messrs. Benjamin and Joseph Frobisher, and Mr. Simon

M'Tavish, two distinct houses who had the greatest interest and influence in the country, and for which they were to receive a stipulated commission in all transactions.

"In the spring, two of those gentlemen went to the Grande Portage with their credentials, which were confirmed and ratified.

"The traders in the country, and merchants at Montreal, thus entered into a copartnership, which, by these means, was consolidated and directed by able men, who, from the powers with which they were intrusted, could carry on the trade to the utmost extent it would bear. The traders in the country, therefore, having every reason to expect that their past and future labours would be recompensed, forgot all their former animosities, and engaged with the utmost spirit and activity to forward the general interest; so that, in the following year, they met their agents at the Grande Portage, with their canoes laden with rich furs from the different parts of that immense tract of country. But this satisfaction was not enjoyed without interruption.

"However, this commercial establishment assumed, in 1787, a more solid basis than any hitherto known in the country; and it not only continued in full force, vigour, and prosperity, in spite of all interference from Canada, but maintained at least an equal share of advantage with the Hudson's Bay Company, notwithstanding the superiority of their local situation. The following account of this self-erected concern will manifest the cause of its success:

"It assumed the title of the North-West Company, but was no more than an association of commercial men, agreeing among themselves to carry on the fur trade, unconnected with any other business, though many of the parties engaged had extensive concerns altogether foreign to it. It may be said to have been supported entirely upon credit; for, whether the capital belonged to the proprietor, or was borrowed, it equally bore interest, for which the association was annually accountable. It consisted of twenty shares, equally divided among the persons concerned. Of these, a certain proportion was held by the people who managed the business in Canada, and were styled agents for the Company. Their duty was to import the necessary goods from England, store them at their own expense at Montreal, get them made up into the articles suited to the trade, pack and forward them, and supply the cash that might be wanting for the outfits: for which they received, independent of the profit on their shares, a commission on the amount of the accounts, which they were obliged to make out annually, and keep the adventure of each year distinct. Two of them went annually to the Grande Portage, to manage and transact the business there, and on the communication at Detroit, Michilimakinac, St. Mary's, and Montreal, where they received stores, packed up, and shipped the company's furs for England, on which they had also a small commission. The remaining shares were held by the proprietors, who were obliged to winter and manage the business of the concern with the Indians, and their respective clerks, &c. They were not supposed to be under any obligation to furnish capital, or even credit. If they obtained any capital by the trade, it was to remain in the hands of the agents; for which they were allowed interest. Some of them, from their long services and influence, held double shares, and were allowed to retire from the business at any period of the existing concern, with one of those shares, naming any young man in the company's service to succeed him in the other. Seniority and merit were, however, considered as affording a claim to the succession, which, nevertheless, could not be disposed of without the concurrence of the majority of the concern; who, at the same time, relieved the seceding person from any responsibility respecting the share that he had transferred, and accounted for it according to the annual value or rate of the property; so that the seller could have no advantage but that of getting the share of stock which he retained, realised, and receiving for the transferred share what was fairly determined to be the worth of it. The former was also discharged from all duty, and became a dormant partner. Thus, all the young men who were not provided for at the beginning of the contract, succeeded in succession to the character and advantages of partners. They entered into the company's service for five or seven years, under such expectations, and their reasonable prospects were seldom disappointed: there were, indeed, instances when they succeeded to shares before their apprenticeship was expired, and it frequently happened that they were provided for while they were in a state of articled clerkship. Shares were transferrable only to the concern at large, as no person could be admitted as a partner who had not served his time to the trade. The dormant partner, indeed, might dispose of his interest to any one he chose, but if the transaction were not acknowledged by his associates, the purchaser could only be considered as his agent or attorney. Every share had a vote, and two-thirds formed a majority. This regular and equitable mode of providing for the clerks of the company, excited a spirit of emulation in the discharge of their various duties, and, in fact, made every agent a principal, who perceived his own prosperity to be immediately connected with that of his employers. Indeed, without such a spirit, such a trade could not have become so extended and advantageous as it has since been.

"In 1788, the gross amount of the adventure for the year did not exceed 40,000*l.* but by the exertion, enterprise, and industry of the proprietors, it was brought in eleven years to triple that amount and upwards; yielding proportionate profits, and surpassing, in short, any thing known in America.

"Such, therefore, being the prosperous state of the company, it very naturally tempted others to interfere with the concern in a manner by no means beneficial to the company, and commonly ruinous to the undertakers.

"In 1798 the concern underwent a new form, the shares were increased to forty-six, new partners being admitted, and others retiring."

A recent traveller through this region of America (F. Hall, 1817), thus writes respecting Montreal:—"Besides being still the emporium of the fur trade, its merchants carry on a great traffic with the United States. The fur-traders, or *North-Westers*, as they are familiarly called, take the lead in society: they give the best entertainments, and their ladies take the lead in fashions."

In another place the same author says, "The North West Company drive a gainful traffic with the Indians in the neighbourhood of Milbay, the last settlement on the north bank of the river St. Lawrence; for they buy their furs at a shilling a piece, and sell them such commodities as custom has rendered necessaries at their own price; no pains, nor even violence, being spared to prevent any competition likely to diminish their profits."

"It will not be superfluous (proceeds Mr. Mackenzie), in this place, to explain the general mode of carrying on the fur trade.

"The agents are obliged to order the necessary goods from England in the month of October, eighteen months before they can leave Montreal; that is, they are not shipped from London until the spring following, when they arrive in Canada in the summer. In the course of the following winter they are made up into such articles as are required for the savages; they are then packed into parcels of 90 lbs. weight each, but cannot be sent from Montreal until the May following: so that they do not get to market until the ensuing winter, when they are exchanged for furs, which come to Montreal the next fall, and thence are shipped, chiefly to London, where they are not sold or paid for before the succeeding spring, or even as late as June; which is 42 months after the goods were ordered in Canada, 36 after they had been shipped from England, and 24 after they had been forwarded from Montreal; so that the merchant, allowing that he has twelve months' credit, does not receive a return to pay for those goods, and the necessary expenses attending them, which is about equal to the value of the goods themselves, till two years after they are considered as cash, which makes this a very heavy business. There is even a small proportion of it that requires twelve months longer to bring round the payment, owing to the immense distance it is carried, and from the shortness of the seasons, which prevents the furs, even after they are collected, from coming out of the country for that period.

"This will be better illustrated by the following statement: we will suppose the goods for 1798;

"The orders for the goods are sent to this country	25th Oct. 1796.
They are shipped from London - -	March 1797.
They arrive in Montreal	June 1797.
They are made up in the course of that summer and winter.	
They are sent from Montreal - - - -	May 1798.
They arrive in the Indian country, and are exchanged for furs the following winter - -	1798-9.
Which furs come to Montreal - - - -	Sept. 1799.
And are shipped for London, where they are sold in March and April, and paid for in May or June - -	1800.

"The articles necessary for this trade are coarse woollen cloths of different kinds; milled blankets of different sizes; arms and ammunition; twist and carrot tobacco; Manchester goods; linens and coarse sheetings; thread, lines, and twine; common hardware; cutlery and ironmongery of several descriptions; kettles of brass and copper, and sheet-iron; silk and cotton handkerchiefs; hats, shoes, and hose; calicoes and printed cottons, &c. &c. &c. Spirituous liquors and provisions are purchased in Canada. These, and the expense of transport to, and from, the Indian country, including wages to clerks, interpreters, guides, and canoe-men, with the expense of making up the goods for the market, form about half the annual amount against the adventure.

"This expenditure in Canada ultimately tends to the encouragement of British manufacture; for those who are employed in the different branches of this business, are enabled by their gains to purchase such British articles as they must otherwise forego.

"The produce of the year of which I am now speaking, consisted of the following furs and peltries:

106,000 Beaver skins,
2,100 Bear skins,
1,500 Fox skins,

4,000 Kitt Fox skins,
4,600 Otter skins,
17,000 Musquash skins,
32,000 Marten skins,
500 Buffalo robes, and a quantity of castorum,
1,800 Mink skins,
6,000 Lynx skins,
600 Wolverine skins,
1,650 Fisher skins,
100 Rackoon skins,
3,800 Wolf skins,
700 Elk skins,
750 Deer skins,
1,200 Deer skins, dressed.

"Of these were diverted from the British market, being sent through the United States to China, 13,364 skins, fine beaver, weighing 19,283 pounds. 1,250 fine otters, and 1,724 kitt foxes. They would have found their way to the China market at any rate, but this deviation from the British channel arose from the following circumstance:

"An adventure of this kind was undertaken by a respectable house in London, half concerned with the North-West Company in the year 1792. The furs were of the best kind, and suitable to the market; and the adventurers continued this connection for five successive years, to the annual amount of 40,000*l.* At the winding up of the concern of 1792, 1793, 1794, 1793, in the year 1797, (the adventure of 1796 not being included, as the furs were not sent to China, but disposed of at London), the North-West Company experienced a loss of upwards of 40,000*l.* (their half), which was principally owing to the difficulty of getting home the produce procured in return for the furs from China, in the East India Company's ships, together with the duty payable, and the various restrictions of that company. Whereas, from America there are no impediments; they get immediately to market, and the produce of them is brought back, and perhaps sold in the course of twelve months. From such advantages the furs of Canada will no doubt find their way to China by America."

Since the time when Mr. Mackenzie wrote, this North-West Company has, as it were, absorbed some inferior, but rival, establishments in other parts of America, and the United Companies carry on a more extensive traffic in conjunction, and with more general advantage than they could have done separately. The fur trade has been recently regulated, and a criminal and civil jurisdiction has been established in certain parts of North America, by stat. 1 and 2 Geo. 4. c. 66.

FURLING, in the sea-language, signifies the wrapping up and binding any sail close to the yard; which is done by hawling upon the clew-lines, bunt-lines, &c. which wraps the sail close together, and being found fast to the yard, the sail is furled.

FURLONG, a long measure, equal to $\frac{1}{8}$ of a mile, or 40 poles. In some law-books it is used for the eighth part of an acre.

FURNACE, an utensil to raise and maintain a vehement fire in, whether of coal or wood. Furnaces are used in almost every branch of manufacture, and are principally made at Birmingham, and Sheffield. The materials of which furnaces are constructed ought to be sufficiently proof against the degree of heat to which they are intended to be exposed. Commonly they are built of bricks made of sand and clay, or of cast iron, or of iron-plates, which, the better to be defended against the fire, are coated in the inside to the thickness of an inch with Windsor loam. It has been recently discovered that heat is best retained within any receptacle of ignited fuel, by the introduction of powdered charcoal, from one, to three or four inches in thickness, between an inner, and outer, case or *crust* of brick-work, in which the furnace is supposed to be placed. The burning of the fuel is kept up in the furnace either by a natural current of air, which is caused by the fire itself, and such a furnace is called an air-wind furnace; or it is done by compressed air, conveyed to the furnace by a large bellows, as in blast furnaces.

FURNACES, *Hatters'*, are of three kinds; a small one under the basin, where the wool-makers basin their hats; a larger in the lanking room, under a little copper full of lees and vitriol liquor, where the hats are worked; and a very large one under the great copper, wherein they dye their hats.

FURNACE, *Glass Painters'*, is made of brick, nearly square, and about $2\frac{1}{2}$ feet each way. It is cut horizontally in the middle by a grate, which sustains the pan or shovel the glass is baked in. This furnace has two apertures, one below the grate to put the fuel in at; the other above it, through which the workman spies how the action of the colours goes on.

FURNACE, *Glasshouse*, the place where the ingredients or materials of glass are fused or vitrified.

There are three kinds of furnaces used in the glass-works, viz. the first called the *calcar*, serves to prepare or calcine the *frit* in it. This is made in the fashion of an oven, ten feet long, seven broad, and two deep.

The fuel, which is sea-coal, is put into a trench on one side of *the furnace*, and the flame reverberates from the roof back upon the *frit*. The coals burn in an iron grate, from whence the ashes fall into a hole underneath.

The second is the *working furnace*, in which the metal is melted, or the glass made. The figure of this is round, three yards in diameter and two high, being arched over; round the inside eight or more pots are placed, and piling pots upon these: the number of pots is always double that of the

boccas or mouths, or that of the workmen, that each may have one pot refined to work out of, and another for metal to refine in, while he works out of the former.

The furnace has two partitions; the lower, separating the pots from the fire-place, has a circular hole in the centre, covered with a grate, through which the flame passes, from the fire-place into the furnace; from the arched sides and roof whereof it is reverberated into the melting pots.

The second partition divides this from the *leer* or annealing furnace; through the boccas, or working-holes, the metal taken out of the pots is put into the furnace: these *boccas* are stopped with moveable covers, made of lute and brick, to screen the eyes of the workmen from the fire: in each side of the bocca is a boccarella, out of which coloured glass, or the finer metal is taken from the piling-pot.

To the furnace are also attached ovens or holes, near the *leer*, for the calcining of tartar, iron, &c.

The leer, which consists of a tower, and placed directly over the melting furnace, is employed in annealing and cooling the glass.

FURRIER. The furrier cures, dyes, and makes up several kinds of furs or skins, with the hair on, into muffs, tippets, the lining of robes, &c. He dyes cat-skins, and those of rabbits, so as to imitate the richest and most valuable furs.

FUSTET, (It. *Scotano*. Lat. *Cotinus coriaria*.) the wood of the, yields a fine orange colour, but not at all durable. It is used by the French dyers, but not much in this country, with other colouring substances, particularly cochineal, to modify or heighten their effects, and in this way it is more permanent.

FUSTIAN, (Ger. *Barchent*. Du. *Fustein*. Da. *Olmerdug, Parkken*. Sw. *Parkum*. Fr. *Futaine*. It. *Fustagno, Frustagno*. Sp. *Fustan*. Port. *Fustao*. Rus. *Bumasea*. Pol. *Barchan*,) a kind of cotton stuff, which seems as if it was whaled or ribbed on one side; the principal manufacture of this article is carried on at Manchester, and in its neighbourhood. Deceits in the manufacture of fustian prohibited, 11 Hen. 7. c. 27.

FUSTIC, (Ger. *Gelbholz, Fustick*. Du. *Geelhout*. Da. *Guulholt*. Sw. *Gelbholts*. Fr. *Bois jaune de Bresil*. It. *Legno giallo de Brasilio*. Sp. *Palo del Brasilamarillo*,) a yellow wood, used in dyeing, principally in the islands of Barbadoes, Tobago, &c. The colour it yields is a fine golden yellow. *See* DYEING.

FUTTOCKS, in a ship, the timbers raised over the keel, or the encompassing timbers that make her breadth; of these are first, second, third, and fourth, denominated according to their distance from the keel, those next it being called first or ground futtocks, and the others upper futtocks; those timbers, being put together, make a framebend.

G, The seventh letter of our alphabet, as a numeral was anciently used to denote 400; and with a dash over it, thus, $\overline{G}$, 40,000.

GABEL, Gavel, or Gabelle, was formerly a duty on salt in France, which brought in a very considerable revenue to the king, amounting to almost the one-fourth of the whole duties. It is also a word met with in old records, signifying a tax, rent, custom, or service, paid to the king or other lord.

GAD, among miners, a small punch of iron, with a long wooden handle, used to break up the ore. One of the miners holds this in his hand, directing the point to a proper place, while the other drives it into the vein, by striking it with a sledge-hammer.

GAFFLES, artificial spurs made of steel, or iron, and put on game-cocks. They are chiefly manufactured at Birmingham and Sheffield, &c.

GAGE, or Gauge, in the sea language. When one ship is to windward of another, she is said to have the weather-gage of her. They likewise call the number of feet that a vessel sinks in the water, the ship's gage: this they find by driving a nail into a pike near the end, and putting down beside the rudder till the nail catches hold under it; then as many feet as the pike is under water, is the ship's gage.

GAGE, among letter-founders, a piece of box, or other hard wood, variously notched, the use of which is to adjust the dimensions, slopes, &c. of the different sorts of letters. There are several kinds of these gages, as the *flat-gage*, the *face-gage*, the *italic-gage*, &c.

GALANGAL, (Ger. *Galgant*. Du. *Galinga*. Da. *Galange*. Sw. *Galgarot*. Fr. It. Sp. and Port. *Galanga*. Rus. *Kalgan*. Pol. *Galgan, Kalkan*. Lat. *Galanga*,) is brought to us from China, and of it there are two sorts, the greater and the less. The greater galangal is a knotty root, with several circles on the surface, of a reddish-brown colour on the outside, and a

yellowish-white within, which greatly resembles ginger in its smell, taste, and chemical composition. It is the root of the *Kempferia Galanga*. The lesser, which is most esteemed, is a knotty, jointy root, about an inch long, and about half an inch thick, of a brownish-red coat, pale red colour within, having several circular rings on the outside, of a hot, bitterish, aromatic, biting taste, like pepper, and a fragrant smell. It is used in the East Indies as a spice for seasoning many sorts of dishes. With us it is used as a stomachic, and is made an ingredient in almost all bitter infusions and tinctures.

GALBANUM, a gum issuing from the stem of an umbelliferous plant, growing in Persia and many parts of Africa. It is sometimes met with in the shops in loose granules, called drops and tears, and sometimes in large masses, formed of a number of these blended together; but in these masses some accidental foulness is often mixed with the gum. The single drops usually approach to a roundish, oblong, pear-like form. Galbanum is soft like wax, and, when fresh drawn, white; but it afterwards becomes yellowish, or reddish: it is of a strong smell, of an acid, bitterish taste; it is inflammable in the manner of resin, and soluble in water like gum. It attenuates tough phlegm, and is of service in asthmas and inveterate coughs: also in hysteric complaints.

GALEASSE, a large low-built Venetian vessel, using both sails and oars, and the largest of all the vessels that make use of the latter. It may carry 20 guns, and has a stern capable of lodging a great number of marines. It has three masts, which are never to be lowered or taken down. It has also 32 benches of rowers, and to each bench six or seven slaves, who sit under cover.

GALLEON, a sort of ship, employed in Spain in the commerce of the West Indies. See *title* EUROPE, article SPAIN.

GALLERY, in a ship, that beautiful frame, which is made in the form of a balcony, at the stern of a ship without board; into which there is a passage out of the admiral's or captain's cabin, and is for the ornament of the ship.

GALLEY, a low-built vessel using both sails and oars, and usually carrying only a main-mast and fore-mast, which may be struck or lowered at pleasure. Galleys are chiefly used in the Mediterranean.

GALLO, a silver coin of the kingdom of Cambayo, in the East Indies, weighing one mace, five condorins Chinese.

GALLON, a *measure* of capacity, both for dry and liquid articles, containing four quarts; but these quarts, and consequently the gallon itself, are different, according to the quality of the thing measured. The wine gallon contains 231 cubic inches, and holds eight pounds, five ounces, and two-thirds avoirdupois, of pure water: the beer and ale gallon contains 282 solid inches, and holds ten pounds, three ounces and a quarter avoirdupois, of water; and the gallon of corn, meal, &c. 268 4-5ths cubic inches, and holds nine pounds, eleven ounces and a half of pure water. It is also a *weight*, as 12lb. of honey at the Custom-house; 7½lb. of train-oil; and in the coal-trade at Newcastle, coals are sold by a weight denominated a gallon.

GALLOON, (GER. and DU. *Galoonen*. DA. and SW. *Galoner*. FR. *Galons*. IT. *Galoni*. SP. *Galones*, PORT. *Galoes*. RUS. *Galunii*,) a narrow thick kind of ferret or lace, used to edge or border cloths, sometimes made of wool or thread, and at others of gold or silver, but commonly of mohair or silk. It is mostly used for binding hats, and other parts of wearing apparel; there are two kinds used for binding hats, the coarsest is principally made at Spitalfields, the finer at Coventry; there is also a large manufactory for it at Reading in Berks.

GALLS, (GER. *Gallöpfel*, *Gallus*. DU. *Gallnooten*. DA. *Galdæbler*. SW. *Galläplen*. FR. *Galles*, *Noix de galle*. IT. *Galle*, *Galluze*. SP. *Agallas*. PORT. *Galhas Bugalhos*. RUS. *Tschernilnüe* or *Teschki*. POL. *Galas*. LAT. *Galæ*,) are tumours, produced by the punctures of insects on several species of the oak-tree. Other trees are liable to the same accidents, and produce galls of various forms and sizes, but those of the oak only are used in medicine, and for the purposes of dyeing and making ink. There are two sorts of galls, viz. Oriental and European; the former sort comes to us from Aleppo: they are of the size of a large nutmeg, not of its oblong figure, but round, and have usually a considerable number of tubercles rising on their surface, broad at the base, and terminating in a point; they are of a very solid and firm texture, hard to break, very heavy, and of a whitish and pale brown, and blueish, and sometimes of a blackish colour; when broken, they are somewhat of a paler colour than on the surface, and are of a dense and compact texture, resinous, and of an acerb and very astringent taste.

The European galls, as those of France and Italy, are rounder than those of Aleppo, of the same size, and have perfectly smooth surfaces, without any protuberances; they are of a pale whitish or brownish colour, very light, easily broken, and often spongy and cavernous within; they are of a much less austere taste, and of much less value, both in manufactures and medicine. Galls put in small quantity, into a solution of vitriol in water, though but a very weak one, give it a purple or violet colour, which, as it grows stronger, becomes black, and on this depends our writing-ink, as also a great deal of the art of dyeing, staining leather, and many other of the manufactures. *See* DYEING and INK.

GAMBOGE, (Ger. Da. & Rus. *Gummigutt.* Du. *Gutte gom, Gutta gamba, Gitte gom.* Sw. *Gummigutta.* Fr. *Gomme gutte.* It. *Gomma gutta.* Sp. *Gomma guta, Guta gamba.* Port. *Gomma rom, Gomma guta, Gutta gamba.* Pol. *Gummi-gotta.* Lat. *Gummi guttæ, Gutta gamba, Cambogia,*) *see* GUM, a gum-resin, brought to us in the form of orbicular masses, or of cylindrical rolls of various sizes, and is of a dense, compact, and firm texture, and of a beautiful yellow. It is chiefly brought from Cambaja, in the East Indies, called also Cambodja and Cambogia; and thence it has obtained its names of cambadium, cambogium, and gambogium. The best sort is of a deep yellow or orange colour, breaks shining, and is free from dross; it has no smell, and very little taste, unless kept in the mouth for some time, when it impresses a slight sense of acrimony. It is used in medicine as a strong purgative, but its principal use is as a pigment in water colours, though it does not stand.

GAME, is a species of property difficult to be defined; because, first, it has not been defined by those very laws which have been made for its protection; and, secondly, because different notions are holden respecting it in different countries where it is the subject of exclusive possession. In this country, colloquially at least, the term "Game" is now understood to comprehend only deer, hares, pheasants, partridges, moor, and heath fowl, or grouse. All these descriptions of game, (as well as some other animals, which by some other statutes are treated in a similar light,) are protected by a much greater number of laws than it is necessary to notice here; but as a subject of traffic, it is expedient to mention those particular statutes which prohibit the buying and selling, as well as the mere having the *possession* of game, by any persons not possessing a certain special qualification. The most modern, as well as the most comprehensive statute on this subject, was the 9th Anne, c. 25, which subjected all persons (*not being qualified*) from *selling*, or even *having* in their possession, any game, unless presented to such persons by another who was qualified, to the penalty of 5*l.* per head of game. The 58 Geo. 3. c. 75, makes it unlawful for *any* person, even qualified, to *buy* any game, under a similar penalty of 5*l.* per head. The design of these statutes is obviously, even if it had not been declared to be, for the preservation of the game of this kingdom, but there are no words of exception in them as to game imported from other countries. Of late, however, no inconsiderable quantity of game has been brought in the winter months from abroad, especially of the grouse or heath-fowl kind, from Norway.

GAMING.—Every species of gaming is punishable by the laws of England, in some manner, and in some degree, which it is possible for municipal regulations to reach. Public gaming-houses are prohibited, under severe penalties, by several statutes, especially 33 Hen. 8. c. 9. and 25 Geo. 2. c. 36; and persons gaming in the same are not only made liable to imprisonment, on conviction before justices, by the former of these, extended by 2 Geo. 2. c. 28. 18 Geo. 2. c. 34; but to pecuniary penalties by the latter, as also under certain circumstances, by civil process, by 9 Ann. c. 14.—1 *Dick. Pract. Expos.* 626.

Races, and bets laid on them, have been repeatedly decided to be within these statutes against gaming, at least so far as their illegality, and the recovery of penalties by civil process. 4 *Term R.* 1.

Wagers, or bets on the fate of public characters, have a mischievous tendency, and have been determined to be illegal. *B. R. Gilbert v. Sykes, T. T.* 52 *Geo.* 3.

So, wagers, in which none but the parties laying them can have any interest, and which at the same time have a tendency to a breach of the peace, or even to the restraint or inconvenience of a third person. *B. R. Elthorn v. Kingsman, T. T.* 57 *Geo.* 3.

Gambling policies or insurances, in which the party insured has no interest, are made void by 19 Geo. 2. c. 37. and 14 Geo. 3. c. 48. 2 *Black. Com. Archbold Edit.* 460.

GAMMONING, among seamen, denotes several turns of a rope taken round the bowsprit, and reeved through holes in the knees of the head, for the greater security of the bowsprit.

GANG, in the sea language, the same with the crew. The company with which a ship's boat is manned is called the cockswain's crew or gang.

GANG-WAY, denotes any of the several passages or ways from one part of the ship to the other: and whatever is laid in these passages is said to lie in the gang-way.

GANTAN, a weight used at Bantam in the isle of Java, and in other parts of the East Indies, equal to three Dutch pounds: it is also a measure for pepper, containing exactly three pounds.

GANZAS, or Gauzas, are a species of money made of copper and pewter, by private persons in the kingdom of Pegu, and not in the royal mints. They are of no fixed value, but rise and fall, according to the times of payment for the goods of the country. They are commonly worth from two to three French sous, or from one penny to three halfpence sterling.

GARBLE, the dust, dross, and refuse of spices and drugs.

GARBLED. Drugs, dye-stuffs, &c. are said to be *garbled*, when they are reduced to small, broken fragments.

GARBLER *of spices*, (mentioned in stat. 21 Jac. c. 12.) is an officer of great antiquity in the city of London, who may enter into any shop, warehouse, &c. to view and

search drugs, spices, &c. and to garble the same and make them clean.

GARBLING, is the picking out the worst of any commodity.

GARBOARD-STRAKE, the plank next the keel of a ship, one edge of which is run into the rabbit made in the upper edge of the keel on each side.

GARI, an imaginary specie, or rather the denomination of a sum, used in many parts of the East Indies, and particularly in the late dominions of the great Mogul: one gari of rupees is worth near 4000 rupees.

GARNET, (Ger. *Granaten, Granatsteine.* Du. *Granaaten.* Da. and Sw. *Granater.* Fr. *Grenats.* It. *Granati.* Sp. *Granadas.* Port. *Granadas, Granates.* Rus. *Granatnoi kamen.* Pol. *Granatki.* Lat. *Granati,*) a very beautiful gem of a red colour, with an admixture of blue. When pure and free from blemishes, it is little inferior, in appearance, to the oriental ruby, though only of a middle degree of hardness between the sapphire and common crystal. It is found of various sizes, from that of a pin's head, to an inch in diameter. Among our lapidaries and jewellers, genuine garnets are known by different names, according to their different degrees of colour. 1. The garnet, simply so called, is the finest and most valuable kind, being of a very deep blood-red, with a faint admixture of blue. 2. The rock-ruby, a name very improperly given to the garnet, when it is of a very strong but not deep red, and has a fairer cast of the blue; this is a very beautiful gem. 3. The sorane or serain garnet, that of a yet brighter red, approaching to the colour of native cinnabar, with a faint blue tinge. 4. The almandine, a garnet only a little paler than that called the rock-ruby. Garnets are divided into the oriental or Asiatic, and occidental or European kinds. The first are principally brought from Calicut, Cananor, and Cambay; and the second are common in Italy, Hungary, and Bohemia. They are also occasionally found in the North of Scotland. Some authors have supposed the deeper-coloured garnet to be the same with the carbuncle of the ancients, from which it really differs; since in receiving the sun's beams, it never gives so true a fire-colour as the carbuncle.

GARNET, in a ship, is a tackle having a pendant coming down from the mainmast, with a block well seized to the mainstay, just over the hatchway, to which a guy is fixed to keep it steady; and at the other end is a long tackle-block, in which the fall is reeved, that so by it any goods or casks may be hauled or hoisted into or out of the ship. When this garnet is not used, it is fastened along the stay.

GARNISH, in law-books, signifies to warn; in which sense, to garnish the heir is mentioned in stat. 27 Eliz. c. 3.

GARNISHEE, is used for the third person or party in whose hands money is attached within the limits of the city of London, in the Sheriff's or Mayor's court there; and he is so called, because he has had garnishment or warning not to pay the money, but to appear and answer to the plaintiff-creditor's suit. *See* ATTACHMENT.

GARNISHMENT, is a warning given to a person for his appearance, for the better furnishing the court with parties sufficient to determine the cause. *See* ATTACHMENT.

GAS, among chemists, a term made use of to denote all the aerial and permanently elastic fluids, except the atmospheric air.

GAS-LIGHT. Common pit-coal, when exposed to a certain degree of heat, becomes decomposed; it gives out in the first instance an inflammable gas, consisting of carbon and hydrogen, called *carburetted hydrogen gas,* and sometimes *heavy inflammable air;* it is this which has lately been applied to the furnishing of light in the place of oil, &c. Besides carburetted hydrogen, the gas from coal also contains a proportion of sulphur and carbonic acid. The latter may be separated by merely passing it through lime-water; but to purify it completely from the sulphuretted hydrogen, (which imparts to it the disagreeable smell, and causes that oppression of the breathing complained of by some persons in places in which it is distributed,) it should be first combined with ammoniacal gas, which, uniting with the sulphuretted hydrogen, renders it soluble in water. The ammoniacal gas for this purpose, may be obtained from a mixture of coal and lime, exposed to heat in a retort.

The gas, when purified, is conveyed to a vessel, called the gasometer, where it is subjected to a slight degree of pressure, (about equal to that of a column of water one inch in height,) which, from its being lighter than common air, readily propels it through pipes, to those places to which it is desired to be transmitted.

Carburetted hydrogen gas, when mixed with seven or eight times its bulk of atmospheric air, explodes with violence on the contact of flame; but this mixture can hardly occur if the slightest attention be paid to the gasometer. An accident of this kind that happened a few months since, was owing to the escape of gas from an overcharged gasometer into the gasometer-house, where it was set on fire by a candle. The metal the best adapted for forming the pipes for conveying the gas, is iron.

One hundred and twelve pounds of cannel coal produce, at a *minimum,* from 350 to 360 cubic feet of carburetted hydrogen. Half a cubic foot of this gas is equal to, in illuminating power, from 170 to 180 grains of tallow, which is the average quan-

tity consumed per hour, by a tallow candle of six to the pound. Some attention is necessary to be paid to the degree of heat applied to the distillatory apparatus. When a low red heat is employed, the gas produced admits a feeble light; when an intense white heat, it burns with a clear blue flame with little illumination.

Besides the gas immediately produced, the coal also furnishes tar in the proportion of 12 gallons to a chaldron of coals, which may be resolved almost wholly into gas fit for illumination, by passing it through a red-hot tube. The other products of coal are coke, and an ammoniacal liquor, in the proportion of 18 gallons to a chaldron of coals.

GAS, *purifying*. A patent has recently been obtained by a Mr. Phillips, of Exeter, for the operation of purifying gas for the purposes of illumination. This gentleman's recipe prescribes any quantity of well-burnt lime to be taken, on which is to be poured water till the lime falls to powder. A further quantity of powder is then to be mixed with it, in order to bring it into that state that the particles of lime may only adhere slightly to each other, but not to such a degree as to prevent the free passage of air between them. This mixture must be placed six inches deep, more or less, on moveable perforated shelves in a vessel, the top of which is to be guarded by a water joint, and underneath a pipe to allow the passage of the gas that way, so that the gas may pass from the bottom of the vessel to the top, through the perforated shelves and lime mixture, or from the top to the bottom, as may be found most convenient, the purification being effected by the gas being caused to pass through the layers of lime mixture; but where the quantity of gas to be purified is very large, he arranges a set of these vessels, consisting of numbers in proportion to the size of the gas work, each vessel containing one, or more, shelves. Those vessels are to be placed in any way which convenience may require, and, being without bottoms, stand in a cistern of water or other fluid, about six inches deep, so that the gas cannot pass that way. The system adopted by Messrs. Taylor and Martineau, of London, for lighting houses and streets with purified oil gas, is very successful.

GAUGER, a king's officer, who is appointed to examine all tuns, pipes, hogsheads, and barrels of wine, beer, ale, oil, honey, &c. and give them a mark of allowance, before they are sold in any place within the extent of his office. There are divers statutes that mention this officer and his office: as by 27 Edw. 3. c. 8. all wines, &c. imported are to be gauged by the king's gaugers, or their deputies, otherwise they shall be forfeited, or their value; and on default of the gauger, that he is not ready to do his office when required, or that he defrauds in doing it to the damage of the buyer or seller, he shall pay the party grieved his treble damage, lose his office, be punished by imprisonment, and be ransomed only at the king's will; and in case less is found in the tun or pipe than ought to be, the value as much as shall lack shall be deducted in the payments.

Every gauger shall truly, within the limits of his office, gauge all tuns, butts, pipes, tierces, puncheons, tercies, hogsheads, barrels, and rundlets; and mark on the head of every vessel the contents, upon pain of forfeiting to the party to whose use the wine, &c. shall be sold, four times the value of that which the vessel marked shall lack of its content: the same forfeiture shall be recovered by an original writ, &c. and every person selling the wine, &c. in the vessel marked, shall allow of the price, the value of gauge, or default of filling, upon pain of forfeiture to the buyer, of double the value, to be recovered with costs as before. No brewer shall put to sale any beer or ale in vessels brought from beyond the sea, within the city of London, or suburbs of the same, or within two miles compass without the suburbs, before the same is gauged, and the true content of every such vessel set upon the same, by the gallon appointed for beer and ale, according to the standard by the master and wardens of the coopers of London. Gaugers may take samples not exceeding half a pint, by stat. 32 Geo. 2. c. 29.

GAWZE, or Gawse, (Ger. Du. Da. Sw. and Fr. *Gaze*. It. *Velo*. Sp. *Gasa*. Port. *Garça*. Rus. *Gasa*. Pol. *Gaza*,) a very slight, thin, open kind of stuff, made of silk, sometimes of thread; there are also figured gawzes, and some with gold or silver flowers on a silk ground, the latter comes to us principally from China.

In preparing silk for making gawze, it is turned round a wooden machine about six feet in height, in the middle of which the axis is placed perpendicularly, with six large wings. On these the silk is wound off in bobbins by the revolution of the axis: and when it is thus placed round the mill, it is taken off by means of another instrument, and wound on two beams. The silk is then passed through as many small beads as it has threads, and is thus rolled on another beam, in order to supply the loom.

Within these few years excellent silk and other gawzes have been manufactured at Paisley in Scotland.

GAZANA, or Gasava, a silver coin, and one of the rupees current in the Great Mogul's late territories, particularly at Amadabath, worth 1½ livre Tournois, or 15*d*. sterling.

GAZE, a small copper money current in Persia, worth about two French liards, or one farthing sterling.

GE, or Je, an imaginary long measure in some parts of the East, equal to about 34½ Dutch aunes, or ells.

GEDER, a measure of capacity, used by the Indians for their grain: it contains near four pounds avoirdupois weight of pepper.

GEM, (*Gems.* Ger. *Edelsteine.* Du. *Edele steenen.* Da. *Ædelstene.* Sw. *Adle stenar.* Fr. *Pierres précieuses.* It. *Pietre preziose.* Sp. *Piedras preciosas.* Port. *Pedras preciosas.* Rus. *Dorogia kamenja.* Pol. *Drogie kamienie.* Lat. *Lapides pretiosi, Gemmæ,*) a common name for all precious stones; as the diamond, ruby, sapphire, emerald, turquoise, opal, agate, crystal, &c.

GENEVA, or Gin, (Ger. *Gaüd.* Du. *Genever.* Fr. *Genevrette.* It. *Acqua di Ginepro.* Sp. *Agua de Enebro.* Port. *Agua de Zimbro.* Lat. *Juniperi aqua,*) an ordinary malt spirit, distilled a second time, with the addition of juniper berries. Holland is noted for distilling the finest geneva; vast quantities of which are annually imported into Great Britain. Our geneva, or, as it is usually denominated, *gin,* is an imitation of the Dutch spirit, to which it is greatly inferior in quality, although it is considered, when unadulterated with noxious mixtures, to be equally as wholesome as the latter. There is a celebrated manufactory of it at Maidstone, in Kent, where it has lately been made so good as in a considerable degree to have superseded the importation of Holland geneva. The best is said to be made by distilling a second time Scotch whiskey with the addition of juniper berries; but for the ordinary sort, oil of turpentine is substituted in the manufactory instead of the juniper. *See* DISTILLATION.

GENTIAN, (Ger. *Enzian.* Du. *Gentiaan.* Da. *Entian, Södrod.* Sw. *Bagsöta.* Fr. *Gentiane.* It. *Genziana.* Sp. *Jenciana.* Port. *Genciana.* Rus. *Enzian.* Pol. *Goryczka.* Lat. *Gentiana,*) is a native of the mountainous parts of Germany, and is found in abundance in Burgundy, the Pyrenees, and the Alps, whence the roots, the only part used in medicine, are brought to this country. They have a yellowish-brown colour, and a very bitter taste, and are very frequently used in medicine as stomachic bitters. In taste they are less exceptionable than most of the substances of this class. Infusions of gentian-root flavoured with orange-peel, are sufficiently grateful. Some years ago a poisonous root was discovered among the gentian brought to London, the use of which occasioned violent disorders, and in some cases death. This root is easily distinguished from the gentian, by its being internally of a white colour, and void of bitterness.

GHERKIN, or Girkin, (*Pickled girkins.* Ger. *Essiggürkchen.* Du. *Agurkjes, Agurretjes.* Da. *Æddikeagurker, Peberagurker.* Sw. *Syltgurker.* Fr. *Cornichons.* It. *Cetrivoli inacetati.* Sp. *Pepinos en escabeche.* Port. *Pepinos pequenös.* Rus. *Solenüe ogurzü,*) a small cucumber used for pickling.

GILD, or Guild, a company of merchants. Hence are all our corporations derived; and our Gild-halls, from the public depositaries of their merchandise in early times, in which they carried on their traffic with foreigners.

GILDING is the application of gold to the surfaces of bodies: it is of two principal kinds, according to the method of applying the gold. Wool, leather, paper, and similar substances, are gilt by fastening on leaves of gold by means of some cement. But metals are gilt by a chemical application of the gold to the surface. This last is called water-gilding.

The gilding of wood, and similar substances, is of three kinds: oil-gilding, burnished gilding, and japanners' gilding, which we shall severally describe, after noticing the materials and tools necessary for the operations.

Of gold-leaf.—There are three kinds of gold-leaf in common use. Pure gold-leaf, which is made by hammering gold till it is sufficiently thin. (*See* GOLD-BEATING.) Pale leaf-gold, which has a greenish colour, and is made, in the same way, of gold alloyed with silver. Dutch gold, which is brought from Holland, and is, in fact, only copper-leaf coloured by the fumes of zinc. It is much cheaper than true leaf-gold, and is very useful where large quantities of gilding are wanted, which can be defended from the weather; and where great nicety is not required; but it changes its colour entirely when exposed to moisture; and in all cases, its beauty is soon impaired, unless well secured by varnish. It is therefore only a cheap substitute for true gold-leaf.

Of the instruments necessary for gilding.—The first instrument is the cushion, for receiving the leaves of gold from the books in which they are bought. It is made by covering a board with a double thickness of flannel; and over that a piece of buff leather, and fastening it tight round the edges. The knife for cutting the leaves into the requisite sizes should be made like a pallet-knife, and should not have its edge too sharp. The tip is a tool made by fastening the long hairs of a squirrel's tail between two cards; and is used for taking up the gold-leaf after it is cut, and applying it to the article to be gilded. A fitch pencil is used for the same purpose as the last, in taking up very small bits of gold-leaf. A ball of cotton is necessary for pressing down the leaf, after it is laid on. A large camel's-hair brush is used for dusting the work, and clearing away the superfluous gold.

Oil-gilding.—First prime the work with boiled linseed-oil and white-lead; and when that is dry, cover it over with a thin coat of

gold size, made of stone-ochre ground in fat oil. When that is so dry as to feel clammy to the fingers, or to be what the gilders call tacky, it is fit for gilding. Having spread the leaves upon the cushion, cut them into slips of the proper width for covering the work, then take up the leaves from the cushion. Having applied them on the proper parts of the work, press them down by the ball of cotton. Repair, in like manner, any parts which you have omitted to cover.

When all the work is sufficiently covered, let it dry, and clean it off with the brush. This sort of gilding is the easiest, least expensive, and stands the weather best, and may be cleaned with a little water at any time; but wants the lustre of burnished gilding.

Burnished gilding. — This is the sort of gilding generally used for picture-frames, looking-glasses, &c. The wood intended to be gilt in this manner should first be well sized, and then covered with seven or eight coats of size and whiting, so as to form a body of considerable thickness. Having got a sufficiency of whiting upon the work, it must be carefully cleaned, taking care to free all the cavities and hollows from the whiting that may have choked them up, and by proper moulds and tools restoring the sharpness of the mouldings intended to be shewn. It is then to receive a coat of size, which is made by boiling Armenian bole with parchment size. This must also remain till it is sufficiently dry for gold. It must not be quite dry, therefore it would not be prudent to lay on more at a time, than can be gilt before it becomes too dry.

The work being thus prepared, place it a little declining from you; and having ready a cup of clean water, and some hair-pencils, moisten a part of the work, and then apply the gold to the moistened part. The gold will adhere closely to the work; proceed to wet the next part, and apply the gold as before, repeating this operation till the whole is completed; taking care not to let any drops of water come upon any part of the gold already laid on. Care should, therefore, be taken that no part be missed in going over it at first, as it is not so easily mended as the oil-gilding. The work being thus gilt, it is suffered to remain about 24 hours; when the parts that are designed to be burnished are polished with a dog's tooth, or, what is better, with an agate burnisher. The gilding must not be quite dry when burnished: there is a state proper for the purpose which experience alone teaches.

Japanners' gilding. — The gilding of japanned work consists in drawing with a hair-pencil, in gold size, the intended ornaments, and afterwards applying gold-leaf, or gold powder.

The gold size may be prepared thus: Take of linseed-oil and of gum animi, four ounces. Set the oil to boil in a proper vessel, and then add the gum animi gradually in powder, stirring each quantity about in the oil till it appears to be dissolved, and then putting in another, till the whole is mixed with the oil. Let the mixture continue to boil, till, on taking a small quantity out, it appears of a thicker consistence than tar, and then strain the whole through a coarse cloth, and keep it for use; but it must, when applied, be mixed with vermilion and oil of turpentine. Having laid on the gold size, and suffered it to dry, the gold-leaf is applied in the usual way; or if it is not wanted to shine so much, gold powder is applied, which is made by grinding gold-leaf upon a stone with honey, and afterwards washing the honey away with water. If the gilding is to be varnished over, Dutch gold may be used, or *aurum musivum* or *mosaicum* may be used instead of gold powder.

To write on paper with letters of gold. — Put some gum arabic into common writing-ink, and write with it in the usual way. When the writing is dry, breathe on it; the warmth and moisture soften the gum, and will cause it to fasten on the gold-leaf; which may be laid on in the usual way, and the superfluous part brushed off. Or instead of this, any japanner's size may be used.

To lay gold upon white earthenware, or glass. — Procure some japanners' gold size, and with it draw your design upon the vessel to be gilt, moistening the gold size, as you find necessary, with oil of turpentine. Set your work in a clean place to dry for about an hour, and then place it so near the fire, that you could but just bear the heat of it with your hand for a few seconds. Let it remain there till it feels quite tacky, or clammy; then, having procured a cushion, and some leaf-gold, cut it into slips of the proper size, and lay it on with the little cotton ball. When the gold is all on, put the ware into an oven to be baked for two or three hours. Glasses, &c. may also be gilt by drawing the figures with shell-gold mixed with gum arabic, and a little borax. Then apply sufficient heat to it; and, lastly, burnish it.

Gilding on glass or porcelain, by burning in. — Dissolve gold in aqua regia, and evaporate the acid by heat, you will obtain a gold powder, or precipitate the gold from the solution by pieces of copper. Lay this gold on with a strong solution of borax and gum water, and it will be ready for burning in.

Gilding metals. — One method of applying gold upon metal is by first cleaning the metal to be gilt; then gold-leaf is laid on it, which, by means of rubbing with a polished blood-stone, and a certain degree of heat, are made to adhere perfectly well. In this

manner silver-leaf is fixed, and burnished, upon brass, in the making of what is called French plate; and sometimes also gold-leaf is burnished, upon copper, and iron.

Gilding metals by amalgamation. — A better method is, by previously forming the gold into paste, or amalgam, with mercury. In order to obtain an amalgam of gold and mercury, the gold is first to be reduced into thin plates or grains, which are heated red-hot, and thrown into mercury, previously heated, till it begins to smoke. Upon stirring the mercury with an iron rod, the gold totally disappears. The proportion of mercury to gold is generally as six or eight to one. The method of gilding by amalgamation is chiefly used for gilding copper, or an alloy of copper, with a small portion of zinc, which more readily receives the amalgam, and is also preferable on account of its colour, which more resembles that of gold than the colour of copper. When the metal to be gilt is wrought or chased, it ought to be previously covered with quicksilver before the amalgam is supplied, that this may be easier spread; but when the surface of the metal is plain, the amalgam may be directly applied to it. The metal required to be gilt is first rubbed over with a little aqua-fortis, by which the surfaces are cleaned from any rust or tarnish that might prevent the union of the two metals. The amalgam being then equally spread over the surface by means of a brush, the mercury is evaporated by a heat just sufficient for that purpose; for if it be too great, part of the gold may also be expelled, and part of it will run together, and leave some on the surface of the metal bare. While the mercury is evaporating, the piece is to be, from time to time, taken from the fire, that it may be examined; that the amalgam may be spread more equally by means of a brush; that any defective parts of it may be again covered, and that the heat may not be too suddenly applied to it. When the mercury is evaporated, which is known by the surface becoming entirely of a dull-yellow colour, the metal must then undergo other operations, by which the fine gold-colour is given to it. First, the gilded piece of metal is rubbed with a scratch-brush, (which is a brush composed of brass-wire,) till its surface is made smooth; then it is covered over with a composition called gilding-wax, and is again exposed to the fire till the wax is burnt off. This wax is composed of bees'-wax, frequently mixed with some of the following substances: red ochre, verdigris, copper scales, alum, vitriol, borax; but according to Dr. Lewis, the saline substances are sufficient, without any wax. By this operation the colour of the gilding is heightened; and the effect seems to be produced by a perfect dissipation of some mercury remaining after the former operation. The gilt surface is then covered over with a saline composition, consisting of nitre, alum, or vitriolic salt, ground together, and mixed up into a paste with water or urine. The piece of metal thus covered is exposed to a certain degree of heat, and then quenched in water. By this method its colour is further improved, and brought nearer to that of gold. This effect seems to be produced by the acid of the nitre (which is disengaged by the sulphuric acid of the alum, during the exposure to the heat), acting upon any particles of copper which may happen to lie upon the gilded surface.

Lastly, some artists think that they give an additional lustre to their gilt work, by dipping it in a liquor prepared by boiling some yellow materials; as sulphur, orpiment, or turmeric. The only advantage of this operation is, that part of the yellow matter remains in some of the holes of the carved work, in which the gilding is apt to be more imperfect, and to which it gives a rich and solid appearance. It may be here noticed, that the use of the aqua-fortis, or nitric acid, mentioned in the beginning of the process, is not, as is generally supposed, confined merely to cleansing the surface of the metal to be gilt from rust or tarnish; but it also greatly facilitates the application of the amalgam to the surface of that metal, probably in the following manner: It first dissolves part of the mercury of the amalgam; and when the solution is applied to the copper, this latter metal, having a stronger disposition to unite with the nitrous acid than the mercury has, precipitates the mercury upon its surface, in the same manner as a polished piece of iron precipitates upon its surface copper from a solution of blue vitriol. When the metal to be gilt is thus covered with a thin coat of precipitated mercury, it readily receives the amalgam. On the subject of gilding by amalgamation, Dr. Lewis has the following remarks: "There are two principal inconveniences in this business; one, that the workmen are exposed to the fumes of the mercury, and generally, sooner or later, have their health greatly impaired by them; the other, the loss of the mercury; for though part of it is said to be detained in the cavities made in the chimneys for that purpose, yet the greatest part of it is lost. From some trials I have made, it appeared that both these inconveniences, particularly the first and most considerable one, might be in a good measure avoided, by means of a furnace of a due construction."

If the communication of a furnace with its chimney, instead of being over the fire, is made under the grate, the ash-pit door, or other apertures beneath the grate, closed, and the mouth of the furnace left open, the current of air, which otherwise would have entered beneath, enters now at the top, and passing down through the grate to the chimney, carries with it completely both the va-

pour of the fuel, and the fumes of such matters as are placed upon it. The back part of the furnace should be raised a little higher above the fire than the fore part, and an iron plate laid over it, that the air may enter only at the front, where the workman stands, who will be thus effectually secured from the fumes, and from being incommoded by the heat, and at the same time have full liberty of introducing, inspecting, and removing the work. If such a furnace be made of strong forged (not milled) iron plate, it will be sufficiently durable. The upper end of the chimney may reach above a foot and a half higher than the level of the fire; over this is to be placed a larger tube, leaving an interval of an inch, or more, all round, between it and the chimney, and reaching to the height of ten or twelve feet; the higher the better. The external air passing up between the chimney and the outer pipe, prevents the latter from being much heated, so that the mercurial fumes will condense against its sides into running quicksilver, which falling down to the bottom, is there caught in a hollow rim, formed by turning inwards a portion of the lower part, and conveyed by a pipe at one side into a proper receiver.

Gilding iron or steel.—In gilding iron or steel, by means of an amalgam, as the metal has no affinity for the mercury, an agent must be employed to dispose the surface to receive the gilding. For this purpose a solution of mercury in nitrous acid (aqua-fortis), or what the workmen call quicksilver water, is applied to the parts intended to be gilded; the acid, by a stronger affinity, seizes on a portion of the iron, and deposits in the place of it a thin coating of mercury, which will not refuse an union afterwards with the gold amalgam that may be applied; but by this process the surface of the metal is injured by the nitrous acid, and the union of the mercury is very slight, so that a bright and durable gilding cannot be obtained.

Another method.—Sometimes a solution of blue vitriol is applied, with a camel's-hair pencil, to the parts of the steel intended to be gilt. By a chemical action, exactly similar to what we have described as taking place when a solution of nitrate of mercury is employed, a thin coating of copper is precipitated on the metal. Copper having an affinity for mercury, a kind of union may by this means be effected between the amalgam and the iron or steel, as the case may be. In whichever of these methods the amalgam is brought into union with the steel, the surface is injured by the action of the acid employed, and still a heat sufficient to volatilize the mercury must be afterwards used.

Gilding of iron by heat.—When the surface is polished bright, it must be heated till it becomes blue. Gold-leaf is then applied to its surface, and burnished down. It is then heated again, and another layer of gold burnished on it. In this manner three or four coats are given, according to the strength of the gilding required.

An improved process for gilding iron or steel.—The first part of the process consists in pouring over a solution of gold in nitro-muriatic acid, (aqua regia,) about twice as much ether, which must be done with caution, and in a large vessel. These liquids must then be shaken together: as soon as the mixture is at rest, the ether will be seen to separate itself from the nitro-muriatic acid, and to float on the surface. The nitro-muriatic acid becomes more transparent, and the other darker than they were before; the reason of which is, that the ether has taken the gold from the acid. The whole mixture is then to be poured into a glass funnel, the lower aperture of which is small; but this aperture must not be opened till the fluids have completely separated themselves from each other. It is then to be opened; by which means the liquid which has taken the lowest place by its greater gravity, viz. the nitro-muriatic acid, will run off; after which the aperture is to be shut, and the funnel will then be found to contain nothing but ether mixed with gold, which is to be put into well-closed bottles, and preserved for use. In order to gild iron or steel, the metal must be first polished with the finest emery, or rather with the finest crocus martis, or colcothar of vitriol, and common brandy. The auriferous ether is then to be applied with a small brush; the ether soon evaporates, and the gold remains on the surface of the metal. The metal may then be put into the fire and afterwards polished. By means of this auriferous ether, all kinds of figures may be delineated on iron, by employing a pen or fine brush. It is in this manner that the Sohlinger sabre-blades are gilded.

Instead of ether, the essential oils may be used, such as oil of turpentine, or oil of lavender, which will also take gold from its solution.

Gilding of brass and copper.—Fine instruments of brass, in order that their surfaces may be kept longer clean, may be gilded in the following manner: Provide a saturated solution of gold, and having evaporated it to the consistence of oil, suffer it to shoot into crystals. These crystals must then be dissolved in pure water, and the articles to be gilded being immersed in it are then to be washed in pure water, and afterwards burnished. This process may be repeated several times, till the articles have been well gilt. A solution of gold crystals is preferred to a mere solution of gold, because in the latter there is always a portion of free acid, which will not fail to exercise more or less action on the surface of the brass or copper, and injure its polish.

Grecian gilding.—Dissolve some mercury in muriatic acid (spirit of salt), which will give a muriate of mercury. Mix equal parts of this and sal ammoniac, and dissolve them in aqua-fortis. Put some gold into this, and it will dissolve. When this is applied to silver, it becomes black; but by heating, it assumes the appearance of gilding.

To make shell-gold.—Grind up gold-leaf with honey in a mortar; then wash away the honey with water, and mix the gold powder with gum water. This may be applied to any article with a camel's-hair pencil, in the same way as any other colour.

GILL, a measure of capacity equal to a quarter of an English pint. It is in common use for measuring spirituous liquors, dispensed in drams.

GIMLET, or GIMBLET, (*Gimlets.* GER. *Bohrer, Nagelbohrer.* DU. *Bovr.* DA. *Boer.* SW. *Nafrar.* FR. *Tariéres.* IT. *Succhj, Verrine.* SP. *Barrenas.* PORT. *Trados, Verrumas.* RUS. *Burawii.* POL. *Swidry,*) an iron borer, with a screw at its point. Gimlets are chiefly manufactured at Birmingham and Sheffield.

GIMP, a kind of silk twist, lace, or edging, used in trimming garments, &c. chiefly manufactured at Manchester.

GIN, *See* GENEVA.

GINGER, (GER. *Ingwer.* DU. *Gember.* DA. *Ingefær.* SW. *Ingefära.* FR. *Gingembre.* IT. *Zenzero, Zenzovero, Zinzibo, Gengiovo.* SP. *Jenjibre, Agengibre.* PORT. *Gengivre.* RUS. *Inbir.* POL. *Imbier.* LAT. *Zingiber,*) is a knotty, flattish root, of a fibrous substance, of a pale or yellowish colour, covered with a thin, dusky pellicle, which is usually taken off while it is fresh, and before it is brought to Europe.

The plant which produces ginger does not appear far above ground. It puts forth long, green leaves, somewhat similar to those of the rose, and its flowers are red, slightly tinged with green. Good ginger ought to be new, dry, well filled, and difficult to be broken, of a reddish-grey surface, resinous within, and of a hot, pungent flavour.

The ginger which is imported comes principally from the East Indies, (especially from Malabar and Ceylon,) also from Jamaica, Barbadoes, &c. There are two sorts of ginger; white and black: of which the former is most valuable. Ginger yields, upon distillation, a fiery, hot, essential oil, less grateful than the spice itself. The Indians are fond of ginger; they eat both the young shoots of the leaves and the roots themselves, cut small in their sallads and broths; and they make a very fine sweetmeat of them, preserving them with sugar. The Dutch East-India Company are said to import the finest species of ginger from China.

GINSENG, or GINSANG, (GER. *Kraftwurzel, Ginseng.* DU. *Ginseng, Ginsem.* DA. SW. FR. and IT. *Ginseng.* SP. *Jinseng.* PORT. *Ginsão.* LAT. *Ginseng, Panax,*) was formerly supposed to grow in Chinese Tartary, affecting mountainous situations, shaded by close woods; but it has now been long known that this plant is also a native of North America, whence M. Sarrasin transmitted specimens of it to Paris in the year 1704; and the ginseng since discovered in Canada, Pennsylvania, and Virginia by Lafiteau, Kalm, Bartram, and others, has been found to correspond with the Tartarian species; and its roots are now regularly purchased by the Chinese. The dried root of ginseng, as imported hither, is about the thickness of the little finger, about three or four inches long, frequently forked, transversely wrinkled, of a horny texture, and of a yellowish-white colour both inside and outside. On the top are commonly one or more little knots, which are the remains of the stalks of the preceding years, and from the number of which the age of the root is judged of. "To the taste it discovers a mucilaginous sweetness, approaching to that of liquorice, accompanied with some degree of bitterness, and a slight aromatic warmth, with little or no smell. It is far sweeter, and of a more grateful smell, than the roots of fennel, to which it has by some been supposed similar; and differs likewise remarkably from those roots in the nature, and pharmaceutic properties, of its active principles, the sweet matter of ginseng being preserved entire as well as the spirituous extract; whereas that of fennel-roots is destroyed or dissipated in the inspissation of the watery tincture. The slight aromatic impregnation of the ginseng is likewise in a good measure retained in the watery extract, and perfectly in the spirituous."

The Chinese ascribe extraordinary virtues to the root of ginseng; and have long considered it as a sovereign remedy in almost all diseases to which they are liable, having no confidence in any medicine, unless in combination with it. The greater part of the ginseng consumed in this country is imported from America, though the India Company bring some from China.

GIRDING-GIRT, in the sea language. A ship is "girt," or has "a girding-girt," when her cable is so light or strained, upon the turning of the tide, that she cannot get over it, but lies across the tide.

GIRDLERS. Their business formerly consisted in making belts, girdles, and other military accoutrements that are now blended with other trades, which are entered of the civic association, called the Girdlers' Company.

GIRO, or AGITO. *See* ABUCCO.

GLASS, (GER. DU. DA. and SW. *Glas* FR. *Vitre, Verre.* IT. *Vetro.* SP. *Vidrio.* PORT. *Vidro.* RUS. *Steklo.* POL. *Sklo.* LAT. *Vitrum,*) a transparent, brittle, factitious body, produced by the action of fire upon a

fixed salt and sand, or stone, that readily melts. The fixed alkalies have a strong affinity for several of the earths, particularly for silica and alumina, which they dissolve in considerable quantity, when assisted by heat. When a strong heat is applied to a mixture of fixed alkali and silica, it melts, and forms a transparent mass well known by the name of glass. The materials employed in the manufacture of glass may be reduced under three classes, namely, alkalies, earths, and metallic oxides.

The fixed alkalies may be employed indifferently; but soda is preferred in this country. The soda of commerce is usually mixed with common salt, and combined with carbonic acid. It is proper to purify it from both of these foreign bodies before using it.

The earths are silica, lime, and sometimes a little alumina. Silica constitutes the basis of glass. It is employed in the state of fine sand or flint: and sometimes, for making very fine glass, rock crystal is employed. When sand is used, it ought, if possible, to be perfectly white; for when it is coloured with metallic oxides, the transparency of the glass is injured.

Such sand can only be employed for very coarse glasses. It is necessary to free the sand from all the loose earthy particles with which it may be mixed, by washing it well with water. Lime renders glass less brittle, and enables it to withstand better the action of the atmosphere. It ought, in no case, to exceed the 20th-part of the silica employed, otherwise it corrodes the glass pots. This may be prevented by throwing a little clay into the melted glass; but in that case a green glass only is obtained. The metallic oxides employed are the red oxide of lead or litharge, and the white oxide of arsenic. The red oxide of lead, when added in sufficient quantity, enters into fusion with silica, and forms a glass without the addition of any other ingredient. Five parts of minium, and two of silica, form a glass of an orange-colour, and full of striæ. Its specific gravity is 5. The red oxide of lead renders glass less brittle and more fusible; but when added beyond a certain proportion, it injures the transparency and whiteness of glass. The white oxide of arsenic answers the same purposes with that of lead, but on account of its poisonous qualities it is seldom used. It is customary to add a little nitre to the white oxide of arsenic, to prevent the heat from reviving it, and rendering it volatile. When added beyond a certain proportion, it renders glass opaque and milky, like the dial-plate of a watch. When any combustible body is present, it is usual in some manufactures to add a little white oxide of arsenic. This supplying oxygen, the combustible is burnt, and flies off; while the revived arsenic is at the same time volatilized.

After mixing the alkali and sand together, it is usual to expose them for some time to a moderate heat. This serves several purposes. It drives off all combustible bodies which may happen to be mixed with the sand: it produces a commencement of combination which makes the glass afterwards less liable to corrode the clay pots in which it is melted; and the alkali, by this incipient combination, is not so apt to be volatilized, which might be the case if the materials were exposed at once to a violent heat. The mixture, after being thus heated, is called the frit. Through the domes in which the frit is heated, it is usual to see very thin bubbles of glass passing; a proof that some of the materials are volatilized during this first part of the process. The frit, while still hot, is introduced into large pots made of a mixture of pure clay and baked clay, and exposed to a heat sufficient to melt it completely. The fusion must be continued till the effervescence occasioned by the separation of the carbonic acid from the soda has subsided, and the opaque scum, known by the name of glass-gall, which collects on the surface of the glass, must be removed. This scum is occasioned by the common salt and other foreign bodies which are always mixed with the soda of commerce. When the fusion has been continued the proper time, the furnace is allowed to cool a little. In that state the glass is exceedingly ductile, and readily assumes any shape that the workman pleases. If the glass vessels, after being formed, were cooled rapidly, they would contract unequally, and become in consequence so brittle as to fall to pieces whenever they were handled. To prevent this inconvenience, they are put into a large red-hot furnace, which is allowed to cool very slowly to the temperature of the air. This process is called annealing.

There are different kinds of glass manufactured for different purposes: the principal of these are flint-glass, crown-glass, and bottle-glass. Flint-glass is formed of soda, pounded flints, and oxide of lead. It is the densest, most transparent, and most beautiful glass, and is often called crystal. Crown-glass contains no lead. It is composed of soda and fine sand; and is called window-glass. Bottle-glass is the coarsest of all. It is composed of kelp, or the refuse of soap-boilers, and common sand. Its green colour is owing to the admixture of iron. Of these species the most fusible is flint-glass, and the least fusible bottle-glass. Glass is often tinged of various colours by mixing with it, while in fusion, some one or other of the metallic oxides; and on this process, well conducted, depends the formation of pastes or factitious gems.

Blue glass is formed by means of oxide of cobalt.

Green, by the oxide of iron or of copper.

Violet, by oxide of manganese.

Red, by a mixture of the oxides of copper and iron.

Purple, by the purple oxide of gold.

White, by the oxide of arsenic and of zinc.

Yellow, by the oxide of silver, and by combustible bodies.

By several statutes, regulations are made for making, importing, and exporting glass, which is to be under the management of the officers of the customs and excise.

The following are the principal regulations relative to the glass trade:

Glass-makers must take out a licence at the excise office, and are not to begin to charge any pot without giving *twelve hours'* notice, in writing, of the time of beginning, the weight of metal, and species of glass.

Manufacturers of flint-glass are allowed three hours for beginning to charge their pots, after the time specified in their notices.

The following compensation is allowed for waste, in pots containing 100lb. weight, viz. for flint, enamel, stained, and phial glass, one-fourth of the metal, and one inch at the bottom; in pots of less than 100lb. weight, one-fifth of the metal; in pots for crown, paste, and window glass, one-fourth of the metal, and four inches at the bottom.

Cast plate is to be charged by weight if squared, and measured in the presence of the officer; and makers are to give six hours' notice in London, and twelve hours in the country, before drawing plates out of the annealing arch, on penalty of *50l.*

Manufacturers are to permit officers to take samples, and are entitled, on demand, to copies of the officers' return.

Entries to be made in writing, upon oath, and duties to be paid monthly in London, and every six weeks in the country.

Duty upon materials lost or spoiled to be allowed, due proof being made of such fact.

Officers at all times, by day or night, are to have access to work-houses, to gauge the materials, and mark the pots as they shall think fit.

Glass Bottle Manufacturers.—The whole of the metal intended to be manufactured into common glass-bottles, is to be worked within sixteen hours next after the same shall be begun; and when the bottles are deposited in the annealing arches, manufacturers are again, in the presence of the officer, to charge each pot with fresh materials, other than broken glass, not less than 50lb. weight; and declarations are to be delivered, in writing, of the number of such bottles, on penalty of *100l.*

Manufacturers of glass bottles are to affix proper hooks or staples, with scales and weights, to be approved of, in writing, by the surveyor or supervisor.

Notices are not to be given for drawing out bottles but between eight in the morning and six in the afternoon.

Bottles weighed to be kept separate.

Makers using private annealing arches, or fraudulently removing or concealing any common glass bottles, before they are weighed, incur a penalty of *500l.*

No phials to be made in buildings entered for making common glass-bottles, or in adjoining buildings, on penalty of *200l.*

The *55* Geo. 3. c. 13. prescribes the oath to be taken on the exportation of glass generally; so does the *56* Geo. 3. c. 108. respecting the size, thickness, and quality of plate-glass; to entitle the exporter to the drawbacks on British glass exported. *See App.* As to flint glass, see 1 G. 4. c. 16.—The excise law relating to various kinds of glass is continued by 1 & 2 Geo. 4. c. 13.

GLASSES, or Drinking Glasses, (Ger. *Glaser.* Du. *Drinkglazen, Glazen.* Da. *Glase.* Sw. *Dricksglas.* Fr. *Verres.* It. *Bicchieri.* Sp. *Vasos y copas.* Port. *Copos, Vidros.* Rus. *Stakani.* Pol. *Sklanki,*) cups or vessels of glass used for drinking in. Drinking glasses are either plain, or adorned by the glass-cutter, and some of the latter are so highly finished, especially those cut at London, as to sell at the high prices of from one to three guineas per glass. Some of this description have sold well on the continent of Europe.

GLASS-GALL. *See* SANDIVER.

GLASS-GRINDER. The glass-grinder has the plate sent to him rough, to grind and polish it. For this purpose he fixes the plate horizontally in a heavy wooden frame, and rubs it backwards and forwards upon a plane, on which sand and water are constantly running. The glass being thus on both sides ground perfectly true, is afterwards polished with emery and putty.

GLAUBER'S SALT, *Sal catharticus Glauberi,* is obtained by dissolving the spirit of sea-salt in a sufficient quantity of water, filtrating the solution, and evaporating it to a pellicle. It is then set in a cool place, and the salt will crystallize in large and fair transparent shoots. This is a well-known and excellent cathartic; its dose is from half an ounce to one ounce. Our chemists have a method of counterfeiting it, by adding the vitriolic acid to a solution of the common bitter salt, called Epsom salt; but this may be easily discovered; the true and genuine salt being always much fairer and more transparent than this sophisticated kind. The bitter purging salt from which this is prepared, is what is usually sold in our shops under the name of Epsom salt, and is also called *sal catharticum amarum.* The best Glauber's salt is made in France, and at some ports of other countries seated on the Mediterranean.

GLAZIER, an artificer who works in glass. The principal part of a glazier's business consists in fitting panes of glass to the sashes and window-frames of houses, pictures, &c.

GLAZING, the crusting over earthenware by a vitreous substance, the basis of which is commonly lead. The usual composition for glazing ware is formed of white sand 40 pounds, of red-lead 20 pounds, of pearl-ashes 20 pounds, and of common salt 12 pounds. Powder the sand by grinding it, and then add it to the other ingredients, and grind them together; after which calcine them for some time with a moderate heat, and when the mixture is cold, reduce it to powder, and when wanted for use, temper it with water. The proportion of these ingredients may be occasionally varied. The ware, after being turned on the wheel and dried in the open air, is covered over with the above composition by means of a brush; and when set in the furnace, the violent heat soon reduces it to a perfect glass, covering the whole internal and external surface of the vessel. Lead being poisonous, a transparent glazing may be prepared without it, by calcining 40 pounds of white sand, 25 pounds of pearl-ashes, and 15 pounds of common salt, and proceeding as before: and a more perfect transparent glazing may be made of sand 40 pounds, of wood-ashes perfectly burned 50 pounds, of pearl-ashes 10 pounds, and of common salt 12 pounds. Kunckle gives the following receipts as used at Delft and other Dutch manufactories, viz.

Black is made of eight parts of red-lead, iron-filings three, copper-ashes three, and zaffer two measures. This when melted will make a brown-black, and if wanted blacker, add more zaffer to it.

Blue is thus prepared: Take lead-ashes or red-lead one pound, clear sand or powdered flints two pounds, common salt two pounds, white calcined tartar one pound, Venice or other glass half a pound, zaffer half a pound; mix them and melt them for several times, quenching them always in cold water. If you would have it fine and good, it will be proper to put the mixture into a glass furnace for a day or two. Another blue glazing may be formed of one pound of tartar, a quarter of a pound of red-lead, half an ounce of zaffer, and a quarter of a pound of powdered flints, which are to be fused and managed as in the last receipt. Or, take two pounds of calcined lead and tin, add five pounds of common salt, five pounds of powdered flints, and of zaffer, tartar, and Venetian glass, each one pound. Calcine and fuse the mixture as before. Or again, take of red-lead one part, of sand three parts, and of zaffer one part. For a violet-blue glazing, take four ounces of tartar, two ounces of red-lead, five ounces of powdered flints, and half a drachm of manganese.

Brown is made of red-lead and flints, of each 14 parts, and of manganese one part fused. A brown glazing, to be laid on a white ground, may be made of manganese two parts, of red-lead and white glass, each one part, twice fused.

Flesh-colour is made of 12 parts of lead-ashes, and one of white glass.

Gold-colour.—Take of litharge three parts, of sand or calcined flint one part; pound and mix these very well together, then run them into a yellow glass with a strong fire. Pound this glass, and grind it into a subtile powder, which moisten with a well-saturated solution of silver; make it into a paste, which put into a crucible and cover it. Give it at first a gentle degree of fire; then increase it, and continue it till you have a glass which will be green. Pound this glass again, and grind it to a fine powder; moisten this powder with some beer, so that by means of a hair-pencil you may apply it upon the vessels, or any piece of earthenware. The vessels that are painted or covered over with this glazing must be first well heated, then put under a muffle; and as soon as the glass runs, you must smoke them by holding them over burning vegetables, and take out the vessels. Kunckle gives several preparations for a gold-coloured yellow glazing. This may be produced by fusing a mixture of three parts of red-lead, two parts of antimony, and one part of saffron of Mars; by again melting the powdered mass, and repeating the operation four times, or by fusing four or five times a composition of red-lead and antimony, of each one ounce, and of scales of iron half an ounce; or by calcining and fusing together eight parts of red-lead, six parts of flint, one part of yellow ochre, one part of antimony, and one part of white glass. A transparent gold-coloured glazing may be obtained by twice fusing red-lead and white flints, of each 12 parts, and of filings of iron one part.

Green may be prepared by eight parts of litharge or red-lead, eight parts of Venice glass, four parts of brass-dust or filings of copper; or of ten parts of litharge, twelve of flint or pebble, and one of æs ustum or copper-ashes. A fine green glazing may be produced by fusing one part of the Bohemian granite, one of filings of copper, one of red-lead, and one of Venetian glass; or by fusing one part of white glass, the same quantity of red-lead, and also of filings of copper; powdering the mass, and adding one part of Bohemian granite to two parts of this powder. A fine green may be obtained by mixing and grinding together any of the yellow glazings with equal quantities of the blue glazings; and all the shades and tints of green may be obtained by varying the proportion of the one to the other, and by the choice of the kind of yellow and blue.

Sea-green is made by five pounds of lead-ashes, one pound of tin-ashes, three pounds of flint, three quarters of a pound of salt,

half a pound of tartar, and half a pound of copper-dust.

Iron-colour is prepared with fifteen parts of lead-ashes or red-lead, fourteen of white sand or flints, and five of calcined copper. This mixture is to be calcined and fused.

Liver-colour is prepared by twelve parts of litharge, eight of salt, six of pebble or flint, and one of manganese.

Purple brown consists of lead-ashes fifteen parts, clean sand or powdered flints eighteen parts, manganese one part, and white glass fifteen measures, to which some add one measure of zaffer.

Red is made of antimony three pounds, litharge or red-lead three, and rust of iron one; grind them to a fine powder. Or take two pounds of antimony, three of red-lead, and one of calcined saffron of Mars, and proceed as before.

White.—The white glazing of common ware is made of forty pounds of clear sand, seventy-five pounds of litharge or lead-ashes, twenty-six of pot-ashes, and ten pounds of salt; these are three times melted into a cake, quenching it each time in clear cold water. Or it may be made of fifty pounds of clean sand, seventy of lead-ashes, thirty of wood-ashes, and twelve of salt. For a fine white, take two pounds of lead and one of tin; calcine them to ashes; of this take two parts; calcined flint, white sand, or broken white glass, one part; and salt one part: mix them well together, and melt them into a cake for use. The trouble of calcining the tin and lead may be prevented by procuring them in a proper state. A very fine white glazing may be obtained by calcining two parts of lead and one of tin, and taking one part of this mass, and of flints, and common salt, of each one part, and fusing the mixture. A white glazing may also be prepared by mixing 100 pounds of massicot, 60 of red-lead, 20 of calcined tin or putty, and 10 of common salt, calcining and powdering the mixture several times.

Yellow is prepared of red-lead three pounds, calcined antimony, and tin, of each three pounds; or, according to some, of equal quantities of the three ingredients. These must be melted into a cake, then ground fine, and this operation repeated several times; or it may be made of fifteen parts of lead-ore, three parts of litharge of silver, and fifteen parts of sand. A fine yellow glazing may be procured by mixing five parts of red-lead, two parts of powdered brick, one part of sand, one part of white glazings, and two parts of antimony, calcining the mixture and then fusing it. Or take four parts of white glass, one part of antimony, three parts of red-lead, and one part of iron-scales, and fuse the mixture; or fuse sixteen parts of flints, one part of iron-filings, and twenty-four parts of litharge. A light yellow glazing may be produced with ten parts of red-lead, three parts of antimony, and three of glass, and two parts of calcined tin. (*See gold-colour above.*) A citron yellow is made of six parts of red-lead, seven parts of fine red brick-dust, and two parts of antimony. This mixture must be calcined day, and night, for the space of four days, in the ash-hole of a glass-house furnace, and at last urged to fusion. *See* STONE-WARE, POTTERY, and PORCELAIN.

GLOVES, (Ger. *Handschuhe.* Du. *Handschoenen.* Da. *Handsker.* Sw. *Handskar.* Fr. *Gants.* It. *Guanti.* Sp. *Guantes.* Port. *Luvas.* Rus. *Rukawizii, Pertschatki, Golizii.* Pol. *Rekawiee,*) with respect to commerce, are distinguished into wash or tan leather, silk, thread, cotton, worsted, &c. Leathern gloves are made of chamois, kid, lamb, doe, elk, buff, &c. The leather of gloves is not tanned, properly speaking, but cured with alum, which renders it soft and pliable, and therefore more proper for gloves, &c. The Limerick gloves, likewise called chicken gloves, are made of leather, and are remarkably fine. These gloves are manufactured in a city in Ireland from which they derive their name, and whence they have, from time to time, been sent to most parts of Europe, the East Indies, and America. The Limerick gloves are mostly worn by ladies. There is a good imitation made at Woodstock, Worcester, and some other parts of England.

Large quantities of cotton gloves are manufactured at Nottingham and Leicester; and the greater part of the woollen gloves is made in Wales, Scotland, and the north of England.

Leather gloves and mits of foreign manufacture, imported, are forfeited, and the importers are liable to the penalty of 200*l.* for each offence, and selling or offering to sale, concealing or having such in custody, except worn as apparel, incurs a penalty of 200*l.* and forfeiture.

Leather gloves and mits of foreign manufacture, having been seized, and any question arising as to the places of manufacture, the proofs are to lie upon the claimers; and the buyers thereof, not being the importers, discovering the sellers, shall acquit themselves thereby of the penalties.

The three material statutes to be adverted to, respecting these penalties, are 8 Ann. c. 7.; 2 Geo. 1. c. 30.; and 6 Geo. 3. c. 19.; all of which, being made *in pari materiâ*, and not one of them specifically superseded, or repealed, by the subsequent ones, are still in force, and enable the crown to recover all the different penalties imposed by them, any, or all, of them. *R.* v. *Laggers & Uxor,* 1 *Price's Rep.*

Frames for knitting gloves may not be exported; 7 & 8 Will. 3. c. 20. s. 8.

GLUE. (Ger. *Leim.* Du. *Lym.* Da. *Lim, Liim.* Sw. *Lem.* Fr. *Colle.* It. *Colla.* Sp.

Cola. Port. *Gola, Colla, Grude.* Rus. *Klei.* Pol. *Kley.* Lat. *Colla.*) This well-known substance has been long manufactured in most countries, and employed to cement pieces of wood together. It is extracted by boiling water from animal substances, and differs in its qualities according to the substances employed. Bones, muscles, tendons, ligaments, membranes, and skins, all yield it; but the quality is best when skins alone are employed; and those of old animals yield a much stronger glue than those of young. English glue is considered as the best, owing to the care with which it is made. The parings of hides, pelts from furriers, the hoofs and ears of horses, oxen, calves, sheep, &c. are the best substances from which it is extracted in Britain, and quantities of these articles are imported for the purpose. They are first digested in lime-water to clean them, then steeped in clean water, laid in a heap, till the water runs off, and then boiled in brass cauldrons with pure water. The impurities are skimmed off as they rise; and when the whole is dissolved, a little alum or finely powdered lime is thrown in. The skimming having been continued for some time, the whole is strained through baskets, and allowed to settle. The clear liquid is gently poured back into the kettle, boiled a second time, and skimmed till it is reduced to the proper consistency. It is then poured into large boxes, where it concretes. On cooling into a jelly, it is cut by a spade into square cakes, which are again cut by means of a wire into thin slices; these are put into a kind of coarse net-work and dried in the open air.

A very strong glue may be obtained by a spirituous solution of isinglass, which is said to be so extremely adhesive, that pieces of wood glued with it separate elsewhere sooner than the place where they have been joined. *See title* CEMENT.

The best glue is extremely hard and brittle; it has a dark-brown colour, and equal degree of transparency without black spots. When put into cold water it swells very much, and becomes gelatinous, but does not dissolve. When glue is soluble in cold water, it is a proof that it wants strength. Glue is an article of great consumption among joiners, cabinet-makers, hatters, &c.

GLUTTON-SKIN. (Ger. *Vielfrass, Rosomak.* Du. *Veelvraatvellen.* Da. *Jærf, Jerf, Filfras.* Sw. *Järf, Jerf, Filfras.* Fr. *Glouton, Glouttu.* Rus. *Rosamacha, Rosamak.* Pol. *Rosomaka.*) The glutton is a voracious animal, inhabiting the mountainous parts of the north of Asia. It is not quite so large as a wolf, but is so fierce that it has been known to put three dogs to flight. The Russians highly esteem the skin of this beast, on account of the peculiar fineness of its fur.

GNOMON, the style, pin, or cock of a dial, which by its shadow shows the hour of the day.

GOAT-SKINS. (Du. *Geitenvellen.* Da. *Gedebukskind, Gedeskind.* Sw. *Getskinn.* Fr. *Peaux de chévre.* It. *Pelli di Capre.* Sp. *Pieles de cabras.* Port. *Pelles de cabras.* Pol. *Koziaskora.* Lat. *Caprarum pelles.*) The skin of the goat is peculiarly well adapted for the glove manufactory; and as it takes a dye better than any other skin, it was formerly much used for hangings in the houses of people of fortune; being susceptible of the richest colours. The skin of the chamois goat is also in high esteem, as yielding fine leather, whereof gloves of peculiar softness are made.

The goat is an animal common in most parts of Great Britain, but especially in Wales, and other mountainous districts of the kingdom. The hair of the goat is manufactured into various articles, such as coarse hair-cloths, &c. The Angora goat is but little known in this country, but yields a valuable article, the Angora wool; a kind of wool, or rather hair, which the goats that pasture in the vicinity of Angora, a town of Natolia, produce. There are two species of Angora goats, namely, the *kara-gueschy*, and the *tistik-gueschy.* The *kara-gueschy*, or black goat, is similar in appearance to the European goat, and is common in Syria, Natolia, and many other parts of the East. Its fleece is black, or more properly speaking, dark brown. The wool is long and straight, fine towards the extremity which is attached towards the skin, but blacker and stiffer about the contrary end. The *kara-gueschy* is shorn annually, but its wool is not exported, being used for home consumption, in the manufacture of coarse clothing and sacking. Beneath the long wool just described, grows a fine short fleece, each fibre of which is about an inch or an inch and a half in length, and this, which is of a yellowish-grey colour, constitutes the most estimable produce of the animal. It is obtained by daubing over the skin with water saturated with lime; before the shearing takes place, and in the course of a few minutes, the coarse and fine wool both fall off the skin, and are easily separated one from the other. The fine wool is exported mostly for France, where it is employed in the manufacture of the best hats. The Syrian wool is not esteemed, but the wool of Angora, Erzerum, and the northern parts of Persia, enjoys good repute. It is conjectured that the noted Cashmerian shawls are actually made from fine wool of the animal in question.

"The *tistik-gueschy*, or woolled goat, differs widely in appearance from the European goat, and indeed presents such variety even in the same province, that many have been led to divide tistik-gueschys of the same race into different species. The tistik-

gueschy, which Buffon denominates '*the Angora goat*,' is much lower and less strong than the kara-gueschy. Its fleece is of a dazzling white, the fibres which compose it are long, slender, silky, and naturally curly. The fineness of the fleece is extreme, and the fibres as slender and pliable as the wool of the Spanish merinos, whilst those of the kara-gueschy are nearly as wiry as horse-hair. These long and curly fibres constitute the entire fleece of the tistik-gueschy, being totally unmixed with any shorter or finer kind of wool, and just as slender at one extremity as the other. The tistik-gueschy is only to be met with in the environs of Angora; whose soil is so peculiarly adapted for preserving the original character of the animal, that it is scarcely removed to any other part of the East before its wool becomes coarse and of little value. The territory of Angora is mountainous, and its heights, which during two months of the year are covered with snow, abound in springs of pure and wholesome water, whence flow innumerable rivulets that fertilize the soil and cover it with fat pastures. So soon as the severe weather is over, the tistik-gueschy is turned out to pasture, and passes the whole of the fine weather on the mountains, not even being housed at nights, till the approach of winter obliges the herdsmen to drive the animal home each evening, to prevent its perishing from the severity of the cold. The she-goats feed in flocks of from 200 to 300, and are mingled with the bucks. The latter are bigger and stronger than the females, and their fleece like those of the former are white and curled, but rather coarser. The flesh of the tistik-gueschy is better than that of the common goat; but it is seldom killed before it has attained the age of five years, when its wool begins to grow sapless and coarse. The tistik-gueschys are shorn annually. After being washed on the animal's back in running water, the fleece is cut off with long shears of steel. The fleece of a she-goat weighs generally about from 45 to 54 lb. Of the wool of the tistik-gueschy muffs for ladies' wear have long been manufactured: shawls are likewise made from this wool, which are, if any thing, superior to the Cashmerian shawls. The beauty, and fineness, of the tistik-gueschy's wool have induced some individuals to introduce the breed into France; but there has not yet been sufficient time elapsed for ascertaining the success of the experiment. The price of the female tistik-gueschy, at Angora, varies from 10 to 12 dollars, and that of the male from 12 to 15. Those who should be inclined to purchase a flock of Angoras, for experimental purposes, ought to hire shepherds on the spot, by means of which it has been imagined that the breed might be preserved even in England. At this very period, it is well known that the Spanish proprietors will not be persuaded but that the race of merinos degenerates in every part of the world, except the particular places in which its celebrity originated. Actual experience has, however, taught the agriculturists of England, and France, that the contrary is the case. The same observation may, in course of time, be applicable to the race of Angora goats.

GOBELINS, a famous manufactory established in the suburbs of St. Marcel, at Paris, for making tapestry and other furniture.

The house in which this manufacture is at present carried on, was built by the brothers named Gobelins, who were celebrated dyers in the 15th century, and who first introduced into Paris that beautiful scarlet-colour which has since borne their name, as has the little river Bièvre, upon whose banks they first settled, and which among the Parisians has no other appellation than *Rivière des Gobelins*. Colbert purchased the ground from these brothers, for the purpose of establishing there a manufactory of tapestries, similar to those of Flanders, and having erected the requisite buildings, he procured a number of workmen from Flanders. The manufacture of tapestries commenced in 1663, but did not flourish till 1666, when it was endowed with many privileges, one of which was that the freedom of the goldsmiths, cabinet-makers, watchmakers, joiners, and other companies, should be attached to the Gobelins manufactory, in which it was intended to bring up sixty youths to these different trades. At length the celebrated painter Le Brun was appointed chief director of the Gobelins manufactures, to which he communicated that beauty and energy which his admirable talents were so well calculated to introduce. One of the first steps taken was to procure a considerable number of paintings by the first masters; but it was not then foreseen that the method used in making the tapestries caused the destruction of their valuable models: the paintings were, at that time, cut into parts, to which the warp was so applied that the threads of the one matched the tints of the other. The raised tapestry, rendering copies closely approaching the originals, was far more faithful than the smooth. The smooth tapestry had the same destructive effects on its models, and its copies were all reverses. The original being placed under the warp, could only be discerned by the artist between the threads, and from the horizontal position of the work, that frequent comparison of the copy with the original could not so readily be made as in working the raised tapestry. The Gobelins manufacture at one time experienced a decline; divers abuses crept into it, and called for the interference of the ministry, who remedied them, and endeavoured to revive the establishment

(which had cost the nation vast sums of money) to its former flourishing state: for this purpose many committees were held at the house of M. Fagon, financier, in 1737; where the plan was projected which has since been followed, of transferring the tints of the painting to transparent paper, which was applied to the warp in the same manner as the model itself had been. At first, this method was only adopted to the raised tapestry, but in 1749 the new plan was applied to the manufactures of the smooth tapestry likewise. The following is the mode of procedure now employed. The sketch of the painting is taken off on oiled paper, which being then placed under the warp, serves as a guide to the artist, who, having the original painting in view, matches it by a correct choice of tints. The sketch on the oiled paper being *reversed* from the original, exactly answers the purpose of the artist, whose work becomes a counter-proof of that on the paper. There has always been an academy within the manufactory, in which the youths designed for artists are instructed in the various branches of the art, at the expense of the nation, and are also taught the other trades attached to the Gobelins. The wool, and silk, used in the tapestries are dyed in a part of the manufactory appropriated to that purpose, as it would be otherwise very difficult to procure the infinite variety of tints and shadows which are required. The materials are, the ready spun wools brought from Tuscoing; and the silks of Lyons. The wool for the warp is generally composed of six or seven threads; and worth about five francs (about 4*s.* 4*d.*) per lb. The wool in six threads forms the warp of the *smooth*, and that in seven of the *raised* tapestry; nevertheless, there is little or no difference in the quality, for the continued friction of the tapestry, and that of the instruments by which it is raised, reduce the substance of the warp so much, that it is oftentimes obliged to be strengthened by a silken thread. The manufacture of Flemish tapestries at Brussels, so ancient and celebrated, is, at present, as capable of perfection as ever, but its productions are much inferior to those of the Gobelins, and experience a decrease of their former reputation. The materials used in the Flemish fabric are equal to those of the Gobelins, both in quality and quantity, and the workmen of both are equally diligent; but the talents of the artists, and the influence of authoritative protection, are in favour of the Parisian establishment. A manufactory on the plan of the Gobelins has been established at Petersburgh; and is supported at a great expense by the government, which receives the profits arising from the sale of its produce: this manufactory has produced some very fine portraits. In Spain, and in several parts of Italy and Germany, similar manufactures have been established, but with indifferent success; that at Turin is the most flourishing. In 1773 there was worked at Turin a species of tapestry representing the principal events of the life of the Carthaginian general, Hannibal, beginning with that of his swearing enmity to the Romans, and ending with the catastrophe of his death by poison. The best of these is that representing him when surrounded by the Romans in a valley, employing the stratagem of tying lighted faggots to the horns of oxen, in order to scare the Roman soldiers, who guarded the defiles. In this piece the figures have considerable expression, and the warmth of the original painting is exceedingly well preserved. The Gobelins manufacture in France suffered considerably by the Revolution; and particularly that branch which derived a profit from the dyeing of scarlet cloths, being then little worn in France. There are other colours dyed in the Gobelins, which, though inferior to the scarlet, are nevertheless very fine.

An attempt was made, under the patronage of Frederick Prince of Wales, father of his present majesty, to introduce this manufacture into England: but the expenses of it were found to be so considerable, that it was abandoned. Neither, indeed, was it understood that the demand for it, among the British nobility and men of wealth, was likely to be so general as to render it an object of national effort. The process is extremely slow and tedious; the purchase is very heavy, and almost restricted to princes; and, when a palace is once furnished with it, the future employment of the loom is diminished in proportion. Under all these preventive circumstances, an institution to rival the Gobelins was relinquished.

GOLD. (Ger. *Gold.* Du. *Goud.* Da. & Sw. *Guld.* Fr. *Or.* It. & Sp. *Oro.* Port. *Oiro, Ouro.* Rus. *Soloto.* Pol. *Zloto.* Lat. *Aurum.*) Gold is a metal of a yellow colour, in specific gravity next to platina, possessing great lustre, malleability, and ductility. It has no perceptible taste or smell. Its specific gravity 19.3. It may be beaten out into leaves so thin that one grain of gold will cover 56¾ inches. These leaves are only 1.28200th of an inch thick, but the gold-leaf with which silver-wire is covered has only 1-12th of that thickness. An ounce of gold, upon silver-wire, is capable of being extended more than 1300 miles in length. Its tenacity is considerable, though in this respect it yields to iron, copper, platinum, and silver. From the experiments of Sickingen, it appears that a gold-wire 0.078 inches in diameter is capable of supporting a weight of 150.07 lbs. avoirdupois, without breaking. When melted, it assumes a bright blueish-green colour. It expands in the act of fusion, and consequently contracts while becoming solid more than most metals; a circumstance which renders it less proper for casting in moulds. It requires a very violent heat to

volatilize it; it is, therefore, to use a chemical term, exceedingly *fixed*.

Europe is mostly supplied with gold from Chili and Peru, in South America; though a small quantity is likewise imported from China, and the coast of Africa. This metal is also found in the sands of several large rivers, which do not spring from the mountains, but contain veins of gold. Mines of gold-ore are known to exist in many parts of Europe, and have been attributed by conjecture to many others, of which Ireland presents an example.

Exclusive of gold being employed as a circulating medium, it is used in various manufactures, as chains, watches, plates, &c. &c. It may be taken up from its solution in aqua-regia by ether, in the same way as platina, and thus used for gilding steel, silver, &c.

It is precipitated from the same solution by tin, in the form of a purple powder, called the *Purple Powder of Cassius*, which is used to communicate that colour to glass and porcelain, and for painting in enamel.

Gold amalgamates with mercury, forming a liquid substance, and is applied in this manner for gilding, called *water-gilding;* the mercury is driven off by heat, leaving the gold distributed over the substance to which the solution had been applied.

Gilding by *friction* is performed by first immersing linen rags in a solution of gold in aqua-regia, and then burning them; minutely divided particles of gold thereby incorporate with the charcoal of the rags, which are to be applied to the end of a cork, and rubbed on the substance to be gilded.

Leaf-gold ground very fine, and mixed with honey, is used in miniature painting: it is usually sold under the name of, gold in the shell.

The relative value of gold to that of silver was anciently as *twelve to one*. This proportion, however, varies according to the scarcity or abundance of the former metal. The value of fine gold in our coinage is to that of silver, as $15\frac{1}{2}$ to 1. A similar proportion may be considered as the average standard throughout Europe.

There are various methods for determining the fineness of gold, or the proportion of alloy which it contains. What are termed touch-needles are generally employed for this purpose, by means of which the respective quality of gold may be ascertained with tolerable accuracy.

These needles are small bars made of compound metals, in different proportions, which are accurately marked on each, and by rubbing the metal under examination, and one or more of the needles close to each other on a *touch-stone*, the different strokes are compared, in order to judge by the colour of that which bears the strongest resemblance to that of the doubtful metal: the most usual stones for this test are black basaltes, though either flint or potter's-ware may be employed with equal advantage

An expert goldsmith, besides the colour of the metal, will also attend to other concomitant circumstances, as, whether it be rough, dry, smooth, or greasy.

As, however, several metallic substances yield marks very similar to gold, a further test becomes necessary, which may be effected by applying a drop of aqua-fortis to the suspected metallic marks on the stone, and if they do not disappear from this application, it may be concluded that the gold is genuine.

GOLD-BEATERS' SKIN, the intestinum rectum of an ox, which gold-beaters lay between the leaves of their metal while they beat it, whereby the membrane is reduced thin, and made fit to apply to cuts or small fresh wounds.

GOLD-BEATING. Gold-beaters first melt a quantity of pure gold, and form it into an ingot: this they reduce by forging into a plate about the thickness of a sheet of paper; which done, they cut the plate into little pieces about an inch square, and lay them in the first or smallest mould to begin to stretch them; after being hammered here a while with the smallest hammer, they cut each of them into four, and put them into the second mould to be extended further. Upon taking them hence, they cut them again into four, and put them into the third mould, out of which they are taken, divided into four as before, and laid in the last or finishing mould, where they are beaten to the degree of thinness required.

The leaves thus finished, they take them out of the mould, and dispose them in paper books, prepared with a little red bole for the gold to stick to: each book ordinarily contains 25 gold leaves. There are two sizes of these books: 25 leaves of the smallest only weigh 5 or 6 grains, and the same number of the largest, 9 or 10 grains. Gold is beaten more or less, according to the kind or quality of the work it is intended for; that for the gold wire-drawers to gild their ingots with is left much thicker than that for gilding the frames of pictures, &c. *See* GILDING

GOLD, *Burnished*, that which is smoothed or polished with a burnisher.

GOLD, *Mosaic*, that which is applied in pannels, or proper ground, distributed into squares, lozenges, and other compartments, part whereof is shadowed to heighten or raise the rest.

GOLD, *Pure*, that purged by fire of all its impurities, and all alloy. It is frequently called gold of 24 carats, but there is no such thing as gold so very pure, and there is always wanting at least a quarter of a carat. Gold of 22 carats has one part of silver, and another

of copper; that of 23 carats has half a part; *i. e.* half a twenty-fourth of each.

GOLD, *Shell*, that used by the illuminers, and with which we write gold letters. It is made of the parings of leaf-gold, and even of the leaves themselves. *See* GILDING.

GOLD-THREAD, or *Spun-gold*, is a flatted gold, wrapped or laid over a thread of silk, by twisting with a wheel and iron bobbins.

The method of forming gold-wire and gold-thread, both round and flat.—First, an ingot of silver, of 24 pounds, is formed into a cylinder, of about an inch in diameter; then it is drawn through eight or ten holes, of a large wire-drawing iron, both to finish the roundness, and to reduce it to about three-fourths of its former diameter. This done, they file it very carefully all over to take off any filth remaining from the forge; they then cut it in the middle: and thus make two equal ingots, each about 26 inches long, which they draw through several new holes, to take off any inequalities the file may have left, and to render it as smooth and equal as possible. The ingot thus far prepared, they heat it in a charcoal fire; then taking some gold-leaves, each about four inches square, and weighing twelve grains, they join four, eight, twelve, or sixteen of these, as the wire is intended to be more or less gilt; and when they are so joined as only to form a single leaf, they rub the ingots reeking-hot with a burnisher. These leaves being thus prepared, they apply over the whole surface of the ingot, to the number of six, over each other, burnishing or rubbing them well down with the blood-stone, to close and smooth them. When gilt, the ingots are laid anew in a coal-fire; and when raised to a certain degree of heat, they go over them a second time with the blood-stone, both to solder the gold more perfectly, and to finish the polishing. The gilding finished, it remains to draw the ingot into wire. In order to this, they pass it through 20 holes of a moderate drawing-iron, by which it is brought to the thickness of the tag of a lace; from this time the ingot loses its name, and commences gold-wire. Twenty holes more of a lesser iron leave it small enough for the least iron; the finest holes of which last, scarcely exceeding the circumference of a hair of the head, finish the work. To dispose the wire to be spun on silk, they pass it between two rollers of a little mill; these rollers are of nicely polished steel, and about three inches in diameter. They are set very close to each other, and turned by means of a handle fastened to one of them, which gives motion to the other. The gold-wire in passing between the two is rendered quite flat, but without losing any thing of its gilding, and is rendered so exceedingly thin and flexible, that it is easily spun on silk thread, by means of a hand-wheel, and so wound on a spool or bobbin.

GOLD-WIRE, a cylindrical ingot of silver, superficially gilt, or covered with gold at the fire, and afterwards drawn successively through a great number of little round holes, of a wire-drawing iron, each less than the other, till it is sometimes no bigger than a hair of the head. Before the wire is reduced to this excessive fineness, it is drawn through above 140 different holes, and each time they draw it, it is rubbed afresh over with new wax, both to facilitate its passage, and to prevent the silver appearing through it.

GOLD-WIRE, *Flatted*, is the former wire flatted between two rollers of polished steel, to fit it to be spun on a stick, or to be used flat, as it is without spinning, in certain stuffs, laces, embroideries, &c.

GOLD-LEAF, (Ger. *Blattgold*. Du. *Bladgould*. Da. *Bladguld*, *Bogguld*. Sw. *Bladguld*, *Bokguld*. Fr. *Or en feuilles*, *Or battu*. It. *Oro in foglia*. Sp. *Oro batido*, *Paanes de oro*. Port. *Ouro batido em folhas*. Rus. *Listowoe soloto*. Pol. *Blat*, *Zloto platkowe*. Lat. *Aurum foliatum*,) the thin leaf used in gilding. *See* GOLD-BEATING and GILDING.

GOLD, DUTCH. *See* ORSIDUE.

GOLD and SILVER WIRE-DRAWER. *See* GOLD-WIRE.

GOLDEN ROD, or WOUND WORT, an indigenous perennial plant, the leaves and flowers of which, according to Bechstein, yield a beautiful yellow colour, even superior to that obtained from woad.

GOLDSMITH, or SILVERSMITH, as called by some, an artist who makes vessels, utensils, and ornaments in gold and silver. The goldsmith's work is either performed in the mould, or beaten out with the hammers, or other engines. All works that have raised figures are cast in a mould, and afterwards polished and finished: plates or dishes of silver or gold are beaten out from thin flat plates; and tankards, and other vessels of that kind, are formed of plates soldered together, and then mouldings are beaten, not cast. The business of the goldsmith formerly required much more labour than it does at present; for they were obliged to hammer the metal from the ingot to the thinness required; but the flatting-mills now in use reduce metals to any thinness, at a very small expense. The goldsmith is to make his own moulds, and for that reason ought to be a good designer, and have a taste in sculpture; he also ought to know enough of metallurgy to be able to assay mixed metals, and to mix the alloy. *See* ASSAYING.

The goldsmiths employ several hands under them for the various articles of their trade; such are the jeweller, the snuff-box and toy-maker, the silver turner, the gilder, the burnisher, the chaser, the refiner, the gold-beater, &c.

Goldsmiths are superior tradesmen: their wares must be assayed by the wardens of the company of this name in London, and marked; and gold is to be of a certain touch. No goldsmith may take above one shilling the ounce of gold, besides what he has for the fashioning, more than the buyer may be allowed for it at the king's exchange; and here any false metal shall be seized and forfeited to the king. The cities of York, Bristol, Exeter, &c. are places appointed for the assaying wrought plate of goldsmiths; also a duty is granted on silver plate of sixpence an ounce, &c.

Plate made by goldsmiths shall be of a particular fineness, on pain of forfeiting 10*l.* and if any parcel of plate sent to the assayers is discovered to be of a coarser alloy than the respective standards, it may be broken and defaced; the fees for assaying are particularly limited.

GOLTSCHUT, a sort of money, or rather a small ingot of gold, that comes from China, and is considered there rather as a commodity, than as current specie; the Dutch give it this name, signifying in their language a golden boat, on account of its shape, though other nations call it gold cake. As neither in all China, nor Tonquin, any gold or silver money is struck, the natives cut these two metals into bits of divers weights, calling the silver ones *taels*, and the gold ones *goltschuts*. The latter serve in large payments, when the taels and copper money are insufficient. There are two sorts, the one of 32½ oz. and the other half that weight. When the Chinese transport their goltschuts into different parts of India, where they trade, the merchants they deal with commonly cut them in halves, as the Chinese are so fraudulent as often to line these gold cakes with either copper, or silver, to one-third of their real value. The Japanese have also *goltschuts* of silver only, which being of various weights, are of different value.

GONDOLA, a flat boat, very long and narrow, chiefly used at Venice to row on the canals. The middle-sized gondolas are upwards of 30 feet long, and four broad; they always terminate at each end in a very sharp point, which is raised perpendicularly to the full height of a man. The address of the Venetian gondoliers, in passing along their narrow canals, is very remarkable: there are usually two to each gondola, and they row by pushing before them. The fore man rests his oar on the left side of the gondola: the hind man is placed on the stern, that he may see the head over the tilt or covering of the gondola, and rest his oar, which is very long, on the right side of the gondola.

Gondola is also the name of a passage-boat of six or eight oars, used on other parts of the Italian coast.

GOOSE-NECK, in a ship, a piece of iron fixed on the end of the tiller, to which the laniard of the whip-staff, or the wheel-rope comes, for steering the ship.

GOOSE-WING, in the sea language. When a ship sails before, or with, a quarter wind on a fresh gale, to make the more haste, they launch out a boom, and sail on the lee-side: and a sail so fitted is called a *goose-ming*.

GOODS implies every species of merchandise, wares, or freights.

GOREING, in the sea language, signifies sloping. A sail is cut goreing when it is cut sloping by degrees, and is broader at the clew than at the earing, as all top-sails and top-gallant sails are.

GOUGE, (*Gouges*. Ger. *Hohlmeissel, Hohlbetels, Güdsen*. Du. *Gudsen*. Da. *Huulmeisel, Huuljern*. Sw. *Halkjern*. Fr. *Gouges*. It. *Gorbie*. Sp. *Gubias*. Port. *Goivas*,) an instrument or tool used by divers artificers; being a sort of round hollow chisel, for cutting holes, channels, grooves, &c. either in wood or stone.

GOURDS. *See* COLOCYNTHIS.

GRACE, *Act of*, an act of parliament for a general and free pardon, and for setting at liberty insolvent debtors.

GRACE, *days of*, a certain number of days allowed for the payment of a bill after the written term is expired. In Great Britain there are three days of grace allowed upon every bill, whether foreign, or domestic; or drawn after sight, or date, and upon every promissory note; but if the last of the three days happen to fall on a Sunday, the bill becomes payable on the preceding day. It is doubtful whether days of grace are to be allowed on bills payable *at sight*. The weight of authority seems in favour of such an allowance. *Selw. N. P. 4th ed.* 339. *Chitty on Bills, 5th ed.* 345. The following days are allowed in the chief commercial cities of Europe:—

Amsterdam	6 d.	Lyons -	0 d.
Antwerp -	6	Madrid -	14
Bremen -	8	Milan -	0
Cadiz -	6	Naples -	3
Cologne -	6	Paris -	10
Copenhagen	8	Petersburgh	0
Dantzick -	10	Rio Janeiro	6
Dublin -	3	Rome -	0
Geneva -	5	Rotterdam	6
Genoa -	30	Sicily -	0
Gibraltar	14	Stockholm	6
Hamburgh	12	Switzerland	0
Leghorn -	0	Turin -	5
Leipsic -	0	Venice -	6
Lisbon -	6	Vienna -	3
London -	3		

GRAIN, signifies the fruit or seed growing in a spike or ear, in which sense it comprehends every species of corn, as wheat, rye, barley, oats, &c.

GRAIN, a small weight, the 20th part of a scruple in apothecaries' weight, and the 24th part of a pennyweight troy. A grain weight of gold bullion is worth about two-pence, and that of silver but half a farthing.

GRAIN, also, denotes the component particles of stones and metals, the veins of wood, &c. Hence cross-grained, or against the grain, is contrary to the fibres of the wood, &c.

GRAINING-BOARD, among curriers, an instrument called also a pummel, used to give a grain to the leather.

GRAINS, are the refuse of malt which has been brewed or distilled. Immense quantities of this article are consumed at London and in its vicinity, for the feeding of pigs. Cow-keepers in the environs of the metropolis feed their cows with grains, which renders their produce of milk extremely abundant, though of inferior quality.

GRAINS OF PARADISE, (Ger. *Paradies-körner*. Du. *Guinees green*. Da. and Sw. *Paradiskorn*. Fr. *Graines de Paradis, Maniguette, Malaguette*. It. *Meleghetta*. Sp. *Malagueta, Grana del Paraiso*. Port. *Malaguetta de Guine, Grãce do Paraizo*. Rus. *Raiskie ziarnka*. Lat. *Grana Paradisi, Cardamomum majus*,) are the greater cardamoms. They are more pungent, but less agreeably aromatic, than the lesser cardamoms, and are rarely, if ever, used, except by farriers. Grains of Paradise are brought to us from the East Indies, and from the coast of Africa, where they are grown in abundance.

GRAMPUS, a fish of the cetaceous or whale kind. It is met with in the northern seas, and is said to yield abundance of oil.

GRANITE, (Ger. and Fr. *Granit*. Du. and Da. *Granitsteen*. Sw. *Granit, Grästen*. It. *Granito*. Sp. *Granites*,) a very hard rough kind of stone, that will not take a thorough polish, so denominated, as being sprinkled over with a great many little stains that resemble grains of sand. There are three sorts of it, 1. That of Egypt, with greenish spots on a dirty white ground, chiefly used by the Egyptians in building obelisks and catacombs, some of which are above 40 feet high. 2. The granite of Italy, which is softer in the quarry than that of Egypt. 3. The granite of Dauphiny, which is only a very hard sort of flint. There is likewise a green sort of granite, which is a species of serpentine, variegated with white and green specks. The common granite of Great Britain is generally employed as pavement for streets, steps for the entrances of public buildings, &c. This latter sort is a pale whitish granite, variegated with black and yellow; it is found in strata in Cornwall, in Scotland, and other parts of the kingdom. The finest specimens of the different kinds of British granite are to be seen in the newly-erected Waterloo Bridge in the metropolis.

GRAPES, (Ger. *Trauben*. Du. *Ducisen*. Da. *Druer*. Sw. *Drufvor*. Fr. *Raisins*. It. *Grappoli, Grappi*. Sp. *Ubas, Racimos*. Port. *Uvas*. Rus. *Winograd*. Pol. *Grona*. Lat. *Uvæ*,) a well-known fruit produced from the vine, whose colour, when ripe, is either red or green. France, Spain, Portugal, and Italy, as well as some parts of Germany and Hungary, produce grapes capable of yielding wines of various qualities and flavour, which may justly be considered the richest gift that Providence has bestowed upon these countries. We import vast quantities of green grapes from Malaga and some other parts of Spain; whence they are brought to us packed in jars, and secured from damage by means of saw-dust, which is plentifully strewed in the jars between the layers of fruit. The grapes grown in Great Britain are much smaller, and by no means so luscious as those of foreign countries. Grapes are imported from Spain, &c. not only in their natural state, but dried and preserved, in which latter state they are denominated raisins. *See* WINE. RAISINS.

GRAPNELS, a sort of anchors with four flooks, serving for boats to ride by. There is also a kind called fire and chain-grapnels, made with four barbed claws instead of flooks, and used to catch hold of the enemies' rigging, or any other part, in order to board them.

GRATINGS, in a ship, a kind of latticework formed of ledges and battens, the square holes of which being three or four inches wide, are for the current footing of men over hatchways, to give air below, and vent for the smoke in an engagement.

GREAT-CIRCLE SAILING, the manner of conducting a ship in, or rather pretty near, the arch of a great circle, that passes through the zenith of the two places, viz. whence she came, and to which she is bound.

GREENLAND FISHERY. *See title* FISHERY.

GREEN-VITRIOL, is formed of sulphuric acid and iron, and is the green copperas of the shops. *See* COPPERAS and VITRIOL.

GREWT, among miners, signifies earth of a different colour from the rest, found on the banks of rivers as they are searching for mines.

GRIMELIN, a small silver coin, made and current at Tripoli in Barbary, value about four sols Tournois, or about 2*d*. sterling.

GRIPE, in the sea language, a piece of timber stayed against the lower piece of the stern, from the foremast end of the keel, joining with the knee of the head: its use is to defend the lower part of the stern from any injury; but it is often made the larger, to make the ship keep a good wind.

GRIND-STONE, or Gritt-Stone, (Ger. *Schleifstein*. Du. *Slypsteen*. Da. *Slibsteen*. Sw. *Brynsten, Slipsten*. Fr. *Meule, Queax*. It. *Mola, Cote*. Sp. *Muela, Piedra de amolar*. Port. *Pedra d'amolar, Rebolo*. Rus. *Bruskii kameniie*. Pol. *Osla*. Lat.

Cos.,) a stone consisting of sand agglutinated together. Its properties differ according to the fineness or coarseness of its grain, and the firmness of its texture. Some kinds are pounded to convert them again into sand; others are used for building, others for grinding edge-tools, and others for filtering water.

GRIST, denotes corn ready for grinding.

GROAT, an English money of account, equal to four-pence. Other nations have their groots, grotes, or gros, but of various values, and not corresponding with that of the English groat. *See* MONIES, App. In the time of the Saxons our largest silver money was a penny, which continued so till 1351, when Edward III. coined *groats;* and thus matters stood, till Henry VIII. in 1504, first coined shillings.

GROCER. This tradesman mostly deals in tea, sugar, coffee, chocolate, spices, and dried fruits, as raisins, currants, prunes, figs, &c. He buys the goods from the importer, and his profits arise from his buying and selling prices. By 37 Ed. 3. c. 5. grocers (which was a corruption of Engrossers) were merchants that engrossed all vendible merchandise; but now it is a particular and well-known trade, incorporated into a company.

The following are the chief regulations for persons in this trade, and the penalties for the adulteration of teas, &c.

Dealers in coffee, tea, and cocoa-nuts, are to take out a licence annually, on penalty of 20*l.* to be renewed ten days before the expiration of such licence. *See* LICENCES.

The words *Dealer in Tea, &c.* to be placed over the doors of such dealers, under penalty of 200*l.* and not having made entry at the excise-office, to forfeit 50*l.* 19 Geo. 3. c. 69.

Dealers of tea purchasing of any person other than a dealer, having the words *Dealer in Tea, &c.* painted over his door, except from the original warehouse, or at the sales of the East India Company, the customs, excise, or sales of salvage, shall incur a penalty of 100*l.*

Publicans, or dealers in brandy, having *above six pounds* of tea, coffee, or cocoa-nuts, in their custody, are deemed sellers thereof, and subject themselves to the survey of the excise, and to all the penalties of dealing without a licence.

All dealers, before they receive any of the above articles into their custody, must make entry, in writing, at the next office of excise, of their warehouses, shops, &c. for keeping such articles, under penalty of 200*l.*

No tea, coffee, cocoa-nuts, &c. to be exposed to sale, in any unentered shop, under penalty of forfeiture thereof, and treble value for the same; and for tea so exposed to sale, the penalty is 10*l.* exclusive of the forfeiture of the article.

Every dealer in tea, coffee, or cocoa-nuts, must enter every night in a book all such quantities as are sold or consumed in the day in quantities under six pounds, and in another book, all quantities sold in the day, in quantities above six pounds, under penalty of 100*l.*

No more than one entry-book to be allowed at one time of each sort, and distinct accounts of the consumption of black and green must be entered, under a similar penalty.

The entry-books must be open to the inspection of officers; and, when filled up, must be returned upon oath, under penalty of 100*l.*

Any tea-dealer, upon oath, or upon suspicion, may be summoned by two commissioners in London, or one magistrate in the country, to make oath to his entry-book, under penalty of 20*l.*

Tea-dealers selling above six pounds are entitled, upon application, to a permit, or certificate, to protect the same from seizure on removal, such permit specifying distinctly the quantity and quality of black and green tea.

Such permits must also specify the time during which they are to remain in force, as well whilst removing from the stock of the person, as whilst they are delivering into the stock of the person to whom such articles are sent.

All teas, &c. not received into the stock of the person to whom they are removing, during the time limited in the permit, are to be considered as removed without permit; but upon application and proof of unavoidable delay, the party may be relieved, and the goods be restored.

Dealers taking permits, and not sending away the goods within the time limited, to forfeit treble value, together with such goods, if upon taking stock there shall not appear a sufficient decrease to answer to such permits.

The duties to be paid before the teas, &c. shall be taken out of the warehouses.

All dealers in tea are to distinguish such teas by the names *black* or *green*. Black comprehends bohea, congou, souchong, and peko; green, every other sort.

All dealers are to mark their canisters or packages with words, *Black* or *Green Tea*, according to the sort of the tea contained in each.

Dealers are to deliver to the officers samples of that identical tea intended to be removed by permit, not exceeding two ounces.

Dealers manufacturing leaves in imitation of tea, or mixing or colouring such leaves, or having in their custody, or offering for sale any dyed or manufactured leaves, or tea mixed therewith, are liable to a penalty of 10*l.* for every cwt.

Persons altering, adulterating, or fabricating tea with *terra japonica*, or other drug, or mixing tea with other leaves or ingredients, incur a penalty of 100*l.* and forfeiture.

Dyeing or manufacturing of leaves in imitation of tea or tea-leaves, or mixing such tea with terra japonica, copperas, &c., or selling, or exposing to sale, or having in their custody, any such leaves, shall forfeit 5*l.* for every pound thereof, or, in default of such payment, be committed for not more than twelve, nor less than six months.

Dealers in tea, having in their custody *above six pounds* of ash, elder, or other leaves, green or manufactured, not proving such were gathered with consent of the owners of such trees, and what uses they are intended for, other than fabricating imitations of tea, incur a penalty of 5*l.* for every pound.

Leaves dyed or fabricated in imitation of tea, suspected to be concealed, may, by day, (or by night, with a constable,) be searched for, and seized by a warrant of one magistrate.

Tea-dealers having an increase in their stock beyond what was found by the officer in his last survey, such increase shall be deemed to be brought in without permit, and be forfeited, and such dealer shall incur the penalty of 20*l.*

Dealers fraudulently concealing tea, coffee, or cocoa-nuts, shall forfeit the same, and treble the value.

All goods liable to forfeiture are seizable on board a ship by any officer of the customs or excise.

No dealers to bring in coffee, tea, or cocoa-nuts, without giving notice, and producing an authentic permit or certificate to the proper officer, under forfeiture of the goods, and treble their value.

No tea, &c. to be delivered out of the warehouses for home consumption, but upon producing a warrant of the inland duty being paid, nor to be delivered out of warehouses for home consumption without a permit granted by the warehouse-keeper, and signed by the officers of excise.

If any tea, coffee, &c. be delivered out by warehouse-keepers illegally, they shall forfeit their employ and 100*l.* penalty.

Counterfeiting, forging, or fraudulently altering or erasing any permit or certificate, or knowingly receiving, publishing, or using any counterfeited, forged, false, untrue, altered, or erased certificate or permit, incur a forfeiture of 500*l.*

Dealers must permit officers at all times (by day) to enter and take an account, under forfeiture of 100*l.* and obstructing or molesting officers in seizing tea, coffee, or cocoa-nuts, or rescuing, or staving and destroying the goods, or attempting either, after the same are seized, incurs a penalty of 50*l.*; but if searched for, and seized under a warrant, the penalty is 100*l.*

When the coffee or cocoa-nuts are seized, the proof of payment of the duty shall lie on the claimant.

All teas imported (except by the East India Company) must be entered with the excise, and landed within 30 days after the same is reported, under penalty of forfeiture thereof.

Leaves green or manufactured, found in the custody of any person, suspected to be for the purpose of fabricating any imitation of tea, are to be seized and burned, unless the owners prove, within 24 hours, that they were gathered with the consent of the proprietor of the teas, and for other uses than are there mentioned.

Leaves dyed or manufactured in imitation of tea, and found in the house, garden, or land, of any person, are deemed to be in his custody, if there lodged with his consent and privity.

All tea above six pounds found removing at any hour, except between seven o'clock in the morning, and five in the evening, from the 29th day of September to the 25th day of March, or between five in the morning, or seven in the evening, from the 25th day of March to the 29th of September, (except in a known stage-coach or waggon, usually travelling out of those hours,) with or without permit, shall be forfeited, together with the cattle or carriage employed therein.

Any dealer receiving tea with permit may return the same, or any part thereof, within 24 hours after, upon giving 12 hours' notice to the officer, stating the cause of such return, and signing his own name, and adding the name of the person to whom the same is returned on the package, with the words *Returned Tea.*

Tea (any quantity except such as is returned under the legal regulations) removed from without to within the bills of mortality, with or without permit, shall be forfeited, with the vessels, boats, horses, and carriages, employed in removing the same.

Tea seized by any officer of the customs, if afterwards removed without an excise permit, may be re-seized.

All teas seized by officers of excise in any part of England, must be sent to London with permit, and there publicly sold.

By 48 Geo. 3. c. 84. and 50 Geo. 3. c. 41. hawkers offering tea for sale, even though they have a permit, are subjected to heavy pecuniary penalties, to a forfeiture of their respective licences; if seamen, to be impressed into the service, and to future incapacities.

Dealers in cocoa-nuts are to keep an account of all sold and delivered in parcels above 28 lb. or upwards, and of the name and place of abode of the persons to whom the same is sold and delivered, and shall permit officers to take copies thereof, on penalty of 20*l.*

Private persons might roast coffee at their own houses, but not for sale. But by 49

Geo. 3. c. 80. dealers in coffee may roast their own coffee, making due entry at the next excise office. Roasting without such entry, a penalty of 50*l.*

Coffee is not to be roasted with, nor the weight increased by butter, water, or grease, &c.; nor shall any dealer knowingly buy any coffee so mixed, on penalty of 100*l.*

Coffee seized in any part of England must be brought to and publicly sold in London.

Samples may be taken of coffee and cocoa-nuts, not exceeding four ounces weight, and not more than three samples to be taken out of one cask; and upon taking a second, the first to be returned, or in lieu thereof, a quantity of good coffee, equal in weight to such sample.

Coffee and cocoa-nuts may be delivered from the warehouses for home consumption, on production of a certificate of the payment of the duties, but not in less quantities than an entire cask, bag, or other package, in which the same was imported or repacked, when first weighed, nor in any less quantity than 112 lbs. at least, under penalty of 50*l.*

Warehouse rent to be paid to the proper officer of excise, before delivery of the coffee or cocoa-nuts, after the rate of 1*s.* per week the ton weight.

Coffee or cocoa-nuts deposited in warehouses may be sold for payment of duties if not cleared, and duties paid in three years; any surplus to be paid to the proprietor.

Commissioners of the customs may permit coffee or cocoa-nuts to be received from the port of importation, to be conveyed to any other port in England, for exportation.

Any commodity manufactured in imitation of coffee, found in the possession of any dealer in coffee, shall be forfeited, and the dealer in whose custody the same is found incurs a penalty of 100*l.* 43 Geo. 3. c. 129. But by 3 Geo. 4. c. 53. persons not being dealers in coffee, may sell roasted corn, peas, &c. under certain regulations.

Any person is at liberty to make chocolate from cocoa-nuts which have paid the duty; but it must be in certain quantities, and under certain regulations. *See* 10 Geo. 1. c. 10.

Dealers in chocolate shall forfeit 20*l.* if they sell any chocolate in less quantities than ¼ lb.; and shall make entry with the excise-officer of all chocolate manufactured by them respectively, under a penalty of 50*l.* *See* 10 Geo. 1. c. 10. and 32 Geo. 2. c. 10.

GROCERY, (Ger. *Spezereyen, Materialwaaren.* Du. *Specerijen.* Da. *Specerie, Krydderie.* Sw. *Speceri, Kryddor.* Fr. *Epiceries, Epices.* It. *Spezi, Spezierie.* Sp. *Especias, Especerias.* Port. *Especies, Especiaria.* Rus. *Pränüe Korenja.* Pol. *Korzenie,*) consists of those kinds of goods usually sold by grocers. *See* GROCER.

GROGRAM, (Ger. *Grobgrün.* Du. *Grofgrein, Grein.* Da. and Sw. *Grofgrön.* Fr. *Gros-grain.* It. *Grossograna, Grograno.* Sp. *Gorgoran.* Port. *Grossagrana, Gorgoran,*) a kind of stuff, made of silk and mohair, something coarser and thicker than taffety.

GROSS, signifies the quantity of twelve dozen of any thing.

GROSS-WEIGHT, the whole weight of merchandise, with the dust and dross; as also the bag, cask, chest, &c. wherein goods are contained. An allowance is usually made out of the gross-weight for tare and tret, &c. *See* TARE.

GROUND-TACKLE, a ship's anchors, cables, and in general whatever is found necessary to make her ride safe at anchor.

GROWAN, among the miners of Cornwall, a coarse gritty stone, of a greyish colour, which they are often obliged to dig through before they can reach the ore.

GRY, a measure containing 1-10th of a line. A line is 1-10th of a digit, and a digit 1-10th of a foot, and a philosophical foot $\frac{1}{3}$ of a pendulum whose diadromes, or vibrations, in the latitude of 45 degrees, are each equal to one second of time, or 1-60th of a minute.

GUAIACUM, (Ger. *Pockhaln.* Du. *Pockhout.* Da. *Pokkent, Fansostræ.* Sw. *Pockenholts, Fransosenholts.* Fr. *Gayac, Bois saint.* It. *Guajaco.* Sp. *Guagaco.* Port. *Guajaco.* Rus. *Bakant.* Pol. *Gwaiak.* Lat. *Lignum vitæ,*) is a medicinal wood, extremely hard and solid, of a dense compact texture, and remarkably heavy; it consists of two parts, a central matter or heart, as it is called in trees, and an exterior one or blea: the centre part is extremely hard and ponderous, and is of a greenish-black colour, or else it is variegated. The external part is yellowish, or the colour of box-wood: this is covered, when we see the fragments of the branches entire, with a thin, but very firm and strong bark, of a woody texture, but composed of a multitude of thin plates or laminæ, laid over one another; it is somewhat resinous, and is externally of a mixed greyish and greenish-black colour; within it is of a pale colour. The wood is of a fragrant smell; of an aromatic and pungent, but somewhat bitterish taste; the bark is of a more acrid taste, and more disagreeable to the palate. Guaiacum is an excellent medicine in obstructions, and many chronic cases. It gives great relief in rheumatisms, gout, &c. The bark is more powerful than the wood as a medicine.

Besides the wood and the bark of guaiacum, we have a resin of it known under the improper name of *gum guaiacum* in the shops. This is a solid but very friable substance, much resembling common resin, except in colour, which is of a dusky greenish

hue, and sometimes, though less frequently, of a reddish. It is very acrid and pungent to the taste, and when burnt, smells not unpleasantly, but much like the guaiacum wood. This is given in similar cases with the wood. We obtain guaiacum principally from the island of Jamaica, but it grows in all the West India islands, and in South America. Its very name is of Mexican origin.

GUDGEONS, in a ship, are the eyes drove into the sternpost, into which the pintles of the rudder go, to hang it.

GUESTE, a long measure used in some parts of the Indies, equal to about 1-5th of the Dutch aune or ell.

GUEZE, a long measure of Persia, for measuring stuffs, linen, &c. Of this measure there are two sorts in that kingdom, viz. the royal gueze, called also *gueze monkelsers,* and the *gueze racourcie*, called simply gueze; this last being only $\frac{4}{5}$ of the other. The gueze monkelser contains two feet, ten inches and eleven lines of Paris, or 4-5ths of the French aune, so that five guezes make four aunes. In India is also used a long measure called *gueze,* which is near six lines shorter than that of Persia, or about one-seventieth of an aune less, though as the difference is so small it is seldom regarded.

GUINEA, an English gold coin. At first it was only at twenty shillings value: after that it rose to twenty-one shillings. It is so called from *Guinea* in Africa, because the gold of which the first guineas were struck was brought thence. A pound of gold is divided into forty-four parts and a half, each of which is equivalent to a guinea. By 8 Will. 3. c. 1. guineas and half-guineas may be imported.

GUINEA-PEPPER, *see* CAYENNE-PEPPER.

GUITAR, or Guitarra, a musical instrument of the string-kind, with five double rows of strings, of which those that are bass, are in the middle, unless it be for the burden, an octave lower than the fourth.

GUM, (Ger. *Gummi.* Du. *Gom, Gomme.* Da. and Sw. *Gummi.* Fr. *Gomme.* It. *Gomma.* Sp. *Goma.* Port. *Gomma.* Rus. *Gummi.* Pol. *Guma.* Lat. *Gummi,*) is a concrete vegetable juice, of no particular smell or taste, viscous and tenacious when moistened, and wholly soluble in water; insoluble in alcohol or oils; burning in the fire to a black coal, without melting or inflaming, and not volatile in the heat of boiling water. Such are the qualities of pure gummy matter. Many of the articles commonly called *gums,* are combinations of that substance with resinous matter, and are properly termed *gum-resins.* Besides the qualities of gum, the latter substances consequently possess more or less of those of pure resin (see RESIN). For the sake of convenience, we shall treat of them in alphabetical order.

Ammoniacum, (Ger. Du. Da. Sw. *Ammoniak.* Fr. *Gomme ammoniaque.* It. *Gomma armoniace.* Sp. *Goma armoniaca.* Port. *Goma armoniaca.* Rus. *Ammoniak.* Pol. *Amoniak.* Lat. *Ammoniacum gummi,*) is a gum-resin, brought to England in masses, which are made up of little lumps, internally of a white milky appearance, externally of a yellowish colour. We have no certain account of the plant from which it is obtained, but it is supposed to be a species of ferula; another species of which produces assa-fœtida. The plant is said to grow in Nubia, Abyssinia, and the interior parts of Egypt. This gum is brought to the western parts of Europe from Egypt, and from the Red Sea, by some of the ships belonging to individuals trading to those parts.

It is only employed as a medicine; its properties are stimulant and expectorant.

Anime. This is nearly a pure resin, inflammable, and readily soluble in alcohol. There are two kinds, the oriental and occidental: the oriental is a dry resin, brought in large casks, and of a very uncertain colour, some being greenish, some reddish, and some of the colour of myrrh. The occidental is a yellowish-white, resembling frankincense in colour. Both kinds are used in perfumes, and in medicine externally.

Arabic, called also *Acanthium; gum lamac; gum Thebaicum,* and *serapionis;* and properly *gum acacia.* It exudes from the Egyptian acacia, or thorn-tree, whose fruit affords the inspissated juice of that name. It is brought to this country principally from the Levant. The best is in small irregular pieces, of a clear, transparent, pale yellowish colour, brittle, and shining in its fracture, and almost tasteless: dissolved in water, it forms a transparent tenacious mucilage; it is employed by dyers, calico-printers, &c. for suspending the heavier colours in water, and to improve their brightness, and in the preparation of silk, lawn, cambric, &c. In medicine, it is sometimes used as a demulcent. Plum and cherry tree gum nearly resemble it in their properties.

Assa-fœtida, (Ger. *Teufelsdreck.* Du. *Duivelsdrek.* Da. *Dyvelsdræk.* Sw. *Dyfvelstrack.* Fr. It. & Port. *Assa-fetida.* Sp. *Asa-fetida.* Pol. *Smrodzeniec.* Lat. *Asafœtida,*) the concrete juice of the root of the *hingiséh,* or the *assa-fœtida* plant. *Kæmpf. Amœnit. Exot.* It is brought in large masses from Persia and the East Indies. It is a compact, gummy, resinous substance, soft and pliable like wax while new, composed of various little shining lumps or grains, which are partly of a whitish colour, partly reddish, and partly of a violet hue. It smells like garlic, but much stronger, and has a bitter, acrid, biting taste. Those masses are best, which are clear, of a palish red, and variegated with a

great number of elegant white tears. When it first exudes from the wounded root, it is liquid and white, like milk; but upon being exposed to the air, it becomes of a brownish colour, and gradually acquires different degrees of consistency.

It is used in medicine as a powerful stimulant, particularly of the nervous system; it also possesses carminative and expectorant properties.

Bdellium, called also *madelion bolchon, balchus*, and by the Arabians, *mokel*, is a gum-resin, somewhat resembling myrrh in appearance, but rather darker, brought from the Levant, and from the East Indies. The resinous part is soluble in alcohol, and the gummy in water. Vinegar, or verjuice, dissolves it wholly. It is sometimes, though rarely, used as a medicine, for its stimulant and expectorant qualities.

Benzoin, or *Benjamin*, (Ger. *Benzoe*. Du. *Benzoin, Benjuin*. Dan. and Sw. *Benzoe*. Fr. *Benjoin*. It. *Belgiuino, Belzoino*. Sp. *Benjui*. Port. *Beijoim*. Rus. *Ladon rossnoi*. Pol. and Lat. *Benzoim*,) a solid, almost pure resin, brought to us in masses of various sizes from the East Indies, particularly from the kingdom of Siam, and the islands of Java and Sumatra. It is very brittle, and breaks vitreously. When rubbed it emits a fragrant odour, and when heated sufficiently, lets the benzoic acid escape. It is soluble in alcohol, but insoluble in water.

It is sometimes used internally as a stimulant and expectorant medicine, but more frequently as an external application in combination with storax, aloes, and balsam of Tolu, in the well-known composition termed *friars' balsam, jesuits' drops*, &c. It is also used as a perfume and cosmetic.

Copal. This gum-resin is obtained from a tree called *rhus copallinum*, a native of North America. The copal most preferred is brought from Spanish America. It is transparent, and of a bright brown colour. It melts when heated, but is not easily soluble in alcohol, or in oil of turpentine, and with difficulty in fixed oils. If copal be digested with oil of turpentine in a close vessel, from which the vapours are not allowed to escape, they exert a great pressure, which prevents the boiling of the turpentine, and thus the mixture may be made to acquire an higher temperature. A considerable portion of copal is thus dissolved, and with the addition of a little poppy oil, it forms an excellent varnish. Copal may be dissolved in alcohol, by first dissolving half an ounce of camphor in 16 ounces of alcohol; this solution is poured on four ounces of copal in a matrass, which is stopped with a cork, and perforated with a pin. Heat is to be applied, and when the copal is nearly dissolved, the process is stopped, and the matrass allowed to cool before the cork is withdrawn. This solution forms nearly a colourless varnish.

It may also be dissolved in the vapour of alcohol. If a piece of copal be suspended at the top of a close vessel, in which alcohol is made to boil, the copal will drop into it like oil.

Elastic, or *Caoutchouc*. (Ger. *Federharz*. Da. *Veérkragtig hars*. Du. *Fiergummi, Elastisk gummi*. Sw. *Elastisk Kăda*. Fr. *Caoutchou, Résine élastique*. It. *Gomma o Resina elastica*. Sp. *Resina elastica, Ule, Ulce*. Port. *Boracha, Resina do Para, Resina elastica das borachinhas*. Lat. *Gummi elasticum*.) This substance, usually termed *Indian rubber*, is prepared from the juice of a tree growing in Cayenne, and other parts of South America; called by the Mexicans *olin*, or *olli*, and the Spaniards *ulé*. It is the *iatropha elastica* of Linnæus. The *hevea* is the proper genus, though it may be obtained from the *urceola* described in vol. 5. of the Asiatic Researches; also from *artocarpus*; the Indian, and probably our own, fig-tree.

The trunk of the tree is wounded by a sharp instrument, and the juice which flows from it applied in successive coatings on a mould of clay, and dried by the fire or the sun; when it is of a sufficient thickness, the mould is removed: it is thus generally formed into the shape of bottles.

Besides its use for removing the marks of black-lead from paper, &c. it is employed in the construction of various surgical instruments. For this purpose it is re-dissolved, and applied over proper moulds.

Caoutchouc is soluble in the volatile oils, but remains somewhat glutinous after evaporation. A mixture of volatile oil and alcohol will also dissolve it; and it thus forms a good varnish. It is soluble in highly-rectified ether; and in rectified petroleum, and when the solution is evaporated, the caoutchouc remains unaltered. The latter is the means employed for the formation of instruments.

Elemi is also improperly termed a gum; it being a pure resin. It is brought to us from the Spanish West Indies, in long, roundish cakes. It is somewhat transparent, of a whitish-yellow colour inclining to green, of a strong, not unpleasant smell, said to exude from a tree of the olive kind, upon being wounded. Distilled with water, in the common manner, it yields a large portion of pale-coloured, thin, fragrant essential oil, there remaining behind in the still a resinous substance, friable when cold. This balsam is rarely made use of but in external applications, although from its fragrancy, and the quantity of oil which it contains, it appears preferable to others at present much esteemed.

Euphorbium, (Ger. *Euphorbiengummi*. Du. Da. and Lat. *Euphorbium*. Sw. *Prustkăda*. Fr. *Euphorbe*. It. and Sp. *Euforbio*. Port. *Euforbio, Alforbo*,) a gum resin, brought to us from Africa, in loose, smooth, and glossy gold-coloured drops or granules.

It is only employed in medicine, as an external application.

Galbanum, a gum issuing from the stem of an umbelliferous plant, growing in Persia and many parts of Africa. It is sometimes met with in the shops in loose granules, called drops and tears, and sometimes in large masses, formed of a number of these blended together; but in these masses some accidental foulness is often mixed with the gum. The single drops usually approach to a roundish, oblong, pear-like form. Galbanum is soft like wax, and, when fresh drawn, white; but it afterwards becomes yellowish or reddish: it is of a strong smell, and of an acid, bitterish taste. In its medicinal qualities, it somewhat resembles assafœtida, and ammoniacum; but it is more heating, and irritating. It may, however, be a useful substitute for the former, where the nauseous smell of that drug is objected to.

Gamboge. (Ger. Da. and Rus. *Gummigutt*. Du. *Gutte gom, Gutta gamba, Gitte gom*. Sw. *Gummigutta*. Fr. *Gomme gutte*. It. *Gomma gutta*. Sp. *Gomma guta, Guta gamba*. Port. *Gomma rom, Gomma guta, Gutta gamba*. Pol. *Gummi-gotta*. Lat. *Gummi guttæ, Gutta gamba, Cambogia*.) This gum-resin is brought to us in the form of orbicular masses, or of cylindrical rolls of various sizes, and is of a dense, compact, and firm texture, and of a beautiful yellow. It is chiefly brought from Cambaja, in the East Indies, called also Cambodja and Cambogia; and thence it has obtained its names of cambadium, cambogium, and gambogium. The best sort is of a deep yellow or orange colour, breaks shining, and is free from dross; it has no smell, and very little taste, unless kept in the mouth for some time, when it impresses a slight sense of acrimony. It is used in medicine as a strong purgative, but its principal use is as a pigment in water colours, though it does not stand.

Guaiacum. *See* GUAIACUM.

Hederæ. (Ger. *Epheuharz*. Du. *Veilhars*. Da. *Vedbendeharpix*. Sw. *Murgrönkŭda*. Fr. *Résine hèderèe ou de lierre*. It. *Gomma d'edera*. Sp. *Goma yedra*. Port. *Goma d'era*. Lat. *Gummi hederæ*.) Lemery says that this gum exudes from incisions made in the *hedera arborea*, or tree-ivy, whence it is collected by the peasants in Italy, Provence, and Languedoc; an account which is confirmed by Pomet. When genuine, this gum is of a bright transparent reddish-brown colour, deeper than hyacinth, and approaching to the garnet: when reduced to powder, it is of a saffron yellow, and its taste and smell are agreeably aromatic. This gum is of a caustic nature, and is, therefore, frequently employed as a depilatory.

Juniper. This, which is almost a pure resin, is obtained from the juniper tree in warm climates, particularly in Africa; it is semi-pellucid, and of a pale yellowish colour, and in small masses, resembling mastich, but larger. From its use, it has been called *vernix*, and the powder of it is employed to prevent ink running on paper, under the name of *pounce*. It has a light agreeable smell, and not much taste. It dissolves in rectified spirits, if violently shaken in them; and in oils, both expressed and distilled; but is insoluble in water.

Kino. This, formerly considered as a gum, is now known to be an extract. It was first brought from Gambia, but what is now imported chiefly comes from Jamaica, and is an extract of the sea-side grape, *coccolobo uvifera*: the finest, however, is drawn from different species of *eucalyptus*, particularly the *resinifera*, or brown gum-tree of Botany Bay. It is very friable, easily breaking between the fingers; without smell, of an opaque, dark, reddish colour, appearing almost black in the mass, and when powdered, of a deep lateritious red. On being chewed, it first crumbles, then coheres slightly, and seems soon to dissolve, with a very astringent, slightly-sweetish taste. It may be distinguished from the red lumps of the common gum Senegal, in being much more brittle; and from dragon's blood, by its dissolving in water; and from both, by its stypticity when tasted. It is a very useful astringent medicine; and is a good styptic when applied externally, combined with alum. It may also be employed as a useful article in dyeing. Wool and cotton boiled in a solution of kino, and then dipped in a bath of sulphat of iron, appeared of a bottle-green, which was changed by washing and drying to a blackish-brown, that proved very durable.

Lac, or *Gum-Lac*, (Ger. *Lack, Gummilack*. Du. *Lak, Gomlak*. Da. *Lack, Gummilak*. Sw. *Lack, Gummilak*. Fr. *Lacque, Gomme lacque*. It. *Lacca Gommalacca*. Sp. *Goma laca*. Port. *Laca*. Rus. *Laka, Gummilak*. Pol. *Laka, Gumalaka*. Lat. *Gummi laccæ*,) is the product of the *coccus lacca*, an insect, which deposits its eggs on the branches of a tree called Bihar, in Assam, a country bordering on Thibet, and elsewhere in India. It appears designed for defending the eggs from injury, and affording food for the maggot in a more advanced state. It is formed into cells finished with as much art and regularity as a honeycomb, but differently arranged; these the inhabitants collect twice a year, in the months of February and August. To purify it, it is broken into small pieces, and put into a canvas bag of about four feet long, and not above six inches in circumference. Two of these bags are in constant use, and each of them held by two men. The bag is placed over the fire, and frequently turned, till the lac is liquid enough to pass through its

pores; when it is taken off the fire, and twisted in different directions by the men who hold it, at the same time dragging it along the convex part of a plantain-tree, prepared for this purpose; and while this is doing, the other bag is heating to be treated in the same way. The mucilaginous and smooth surface of the plantain-tree prevents its adhering; and the degree of pressure regulates the thickness of the coating of lac, at the same time that the fineness of the bag determines its clearness and transparency.

Lac possesses the properties of a resin, and is the basis of many varnishes, and of the finest kinds of sealing-wax. It is used in painting, and imparts a fine red colour to silk and cotton, when these have been previously immersed in a weak decoction of the bark, known amongst dyers by the name of *lead*.

In India lac is fashioned into rings, beads, and other trinkets: wool tinged with it is employed as a fucus by the ladies; and the resinous part, melted and mixed with about thrice its weight of finely-powdered sand, forms polishing stones. The lapidaries mix powder of corundum with it in a similar manner.

Lac, white, or *Laccic Acid*. About the year 1786, Dr. Anderson of Madras was made acquainted with a substance formed as a kind of nidus or nest by the female of an insect of the genus coccus, of which the natives of India are very fond. This substance, which has a considerable resemblance to bees' wax, he named white lac. It is of a grey colour, opaque, rough, and in roundish pieces, weighing from three to fifteen grains; and on pressing it between the fingers, particularly when fresh gathered, a reddish fluid is squeezed out. When purified by fusion and straining through cloth, it adheres so firmly to wood, paper, tin, and other substances, as to answer the purpose of a strong cement. It does not afford a good varnish.

Ladanum. This is a gum-resin which exudes from a shrub, the *cistus ladaniferus*, which grows plentifully in Arabia, Candia, and other parts of the Archipelago. The best sort is in dark-coloured masses, of the consistence of hard wax, which grows softer when handled. An inferior sort is in long rolls, curled up, harder than the former, and of a paler colour. It has an agreeable smell, and a light pungent, bitter taste. It is used in medicine as a warm, stimulant external application, in the form of a plaster.

Mastich, or *Mastic*, (Ger. Da. and Sw. *Mastix*. Du. *Mastik*. Fr. *Mastic*. It. *Mastice*. Sp. *Almastica, Almaciga*. Port. *Almacega*. Rus. *Mastika*. Pol. *Mastyks*. Lat. *Resina lentisina*,) a gum-resin in the form of tears, of a very pale yellow colour, and farinaceous appearance, having little smell, and a bitter astringent taste. It flows naturally from the tree, but its produce is accelerated by incisions. The lesser turpentine-tree, and the lentiscus, afford the mastic of commerce. *See* LENTISK.

It is used in fumigations, in the composition of varnishes, and is supposed to strengthen the gums. The tree which produces the mastic grows in several parts of Turkey, and in the isle of Chio, and is brought to us in tears or small lumps from Smyrna and Aleppo.

There is a sort of black mastich brought from Egypt, which serves to sophisticate camphor

Myrrh, (Ger. *Myrrhen*. Du. *Mirrhe*. Da. *Myrre*. Sw. *Myrha*. Fr. *Myrrhe*. It. and Sp. *Mirra*. Port. and Lat. *Myrrha*,) a gum-resin, brought from the East Indies, and likewise from Alexandria, Smyrna, and Aleppo. It is hard, dry, glossy, of various colours, yellowish, reddish, brown, yellowish-brown, reddish-brown, blackish, intermixed with whitish specks or tears, transparent like agate, or opaque like pitch, of a peculiar strong smell, and a bitter somewhat biting taste. The best is that which is of a reddish-brown colour, not verging too much to yellowish or blackish; uniform on the outside, internally specked or streaked with white, clear and bright, somewhat unctuous to the touch, but not tenacious, so as to stick to the fingers.

This gummy-resin is liable to great abuses; the larger masses in particular are frequently no other than some artificial composition, skilfully incrustated on the outside with a solution of myrrh. Some report that bdellium is nearly allied to myrrh, and not easily to be distinguished from it; the differences, however, are sufficiently obvious, bdellium being darker coloured and less transparent than good myrrh, internally soft and tenacious, (which myrrh never is,) yielding a quite different smell, and wanting its bitterness.

Of the tree which produces myrrh we have no certain account; according to Bruce, it belongs to the genus *mimosa*, and grows in Abyssinia and Arabia.

To have the first and most perfect kind of myrrh, a young vigorous tree is selected, free from moss or any other plant adhering to the bark, and a deep incision is made with a hatchet, above the first large branches. What runs from this wound the first year is myrrh of the first growth, and never plentiful. This operation is performed, some time after the rains have ceased. At each return of the season, the sap continues to run, in the course to which it has been accustomed; but by the second year, the tree begins to rot at the place of incision, so that the myrrh is of a secondary quality. That obtained from incisions near the roots and in the trunks of old trees, is also of an inferior quality.

Grand Cairo is the great staple for the myrrh-trade; but by far more considerable

quantities are brought from Arabia Felix, than from Ethiopia and Abyssinia; and the quality of the latter, distinguished also by the name of Troglodite myrrh, was always more valued. The virtues of this aromatic bitter are to warm and strengthen the bowels. It frequently occasions a mild diaphoresis, and promotes the fluid secretions in general. Hence it proves serviceable in languid cases, diseases arising from a simple inactivity, cachectic disorders, and where the lungs and thorax are oppressed by viscid phlegm. Myrrh is likewise the basis of an officinal tincture, which, used in a small quantity with water, operates upon the gums as an astringent and antiscorbutic.

On inclosing some powdered myrrh in the white of a hard boiled egg, and setting it in a moist cellar, the liquor into which the egg is by degrees resolved, extracts nearly all the smell and taste of the myrrh. This liquor, commonly *Oleum myrrhæ per deliquium*, is precipitated or coagulated by alcohol; and the unctuous coagulum, separated from the spirit, dissolves again in pure water. This process has been applied likewise to mastich and other pure resins; but from these the white of egg extracts nothing. This oil of myrrh has been highly praised as a cosmetic.

New-Holland. A red, and a yellowish-coloured, concrete gum-resin, have been brought from New-Holland; the first is powerfully astringent, and not unlike kino; the yellow is not very dissimilar in its general properties; but the plant from which the red is procured is the *eucalyptus resinifera* of Willdenow; the other is from a low herbaceous shrub, not described. They have been occasionally employed in medicine, and appear to possess the same qualities as gum-kino.

Olibanum, a dry resinous substance obtained from the *juniperus lycia*, and chiefly collected in Arabia. It is the frankincense of the ancients. It is in transparent brittle masses about the size of a chesnut. Its colour yellow. It has little taste, and when burnt diffuses an agreeable odour. Alcohol dissolves it; and with water it forms a milky liquid. When distilled, it yields a small quantity of volatile oil. Olibanum is to be chosen whitish-yellow, pure, dry, and as much approaching to clearness as possible.

Opoponax, (Ger. Du. Da. and Sw. *Opoponax.* Fr. *Opopanax.* It. *Opoponasso.* Sp. and Port. *Opoponaca.* Lat. *Opoponax,*) a gum-resin obtained from the *pastinaco opoponax*, a plant which is a native of the countries round the Levant. The milky juice, when dried in the sun, constitutes the opoponax. It is in lumps of a reddish-yellow colour, and white within, of a bitter and acrid taste.

Opoponax is usually brought to us in granules or drops, and sometimes in large masses, formed by a number of the drops connected by a quantity of substance of the same kind; but these are usually loaded with extraneous matter; and are greatly inferior to the loose kind.

The drops, or granules, of the fine opoponax are on the outside of a brownish-red colour, and of a dusky yellowish or whitish colour within: they are of a somewhat unctuous appearance, smooth on the surface, and are to be chosen in clear pieces, and of a strong smell and acrid taste. This article is not only imported from the Levant, but from the East Indies, where the tree which produces it grows spontaneously.

Its virtues are those of an attenuating medicine. It dispels flatulencies, and is good in asthmas, in inveterate coughs, and some disorders of the head and nerves.

Sagapenum, (Ger. *Sagapengummi.* Du. Da. and Sw. *Sagapen.* Fr. *Gomme sagapin*, or *seraphique.* It. Sp. and Port. *Sagapeno.* Lat. *Sagapenum,*) is the gummy, resinous juice of an oriental, or rather African plant, supposed to be a species of ferula. It is brought from Alexandria, either in distinct tears, or in large masses: externally it is yellow, internally paler, and semi-transparent; sometimes it is of a greenish hue, soft, and sticking to the fingers when handled: this is inferior in quality to the former. Pieces of bdellium, sometimes sold for it, may be distinguished by their weaker smell: that of sagapenum somewhat resembles garlic, or a mixture of assa-fœtida and galbanum. The taste is moderately hot and pungent. Its medicinal properties are similar to those of assa-fœtida and galbanum combined.

Sandarach, (Ger. *Sandarak.* Du. and Da. *Sandrak.* Sw. *Eukăda.* Fr. *Gomme sandarac.* It. Sp. and Port. *Sandaraca.* Lat. *Sandaracha,*) a gum-resin in yellowish-white tears, possessing a considerable degree of transparency. According to Mr. Schousboe, a Danish traveller, the tree which produces it is a species of *thina*, that does not exceed twenty or thirty feet in height, and ten or twelve inches in the diameter of the trunk. This tree grows in Africa, whence this gum-resin is brought to us. Its powder is well known by the name of pounce, to be applied to paper when the size has been scraped off by erasion. Considerable quantities of sandarach are consumed by varnish-makers, who dissolve it in oil of turpentine or linseed, or in spirits of wine, and thus prepare a kind of varnish known under the name of vernix, which is used by cabinet-makers and painters.

Sarcocolla, (Ger. *Fleischleim.* Du. *Vleesch lym.* Da. *Kiödlüm.* Sw. *Köttlim.* Fr. *Sarcocolle.* It. *Sarcocolla.* Sp. and Port. *Sarcocola.* Lat. *Sarcocolla,*) is a gum-resin from the *penoea mucronata*, or *sarcocolla*, of Linnæus, and is brought from Persia and Arabia, in small spongy grains of a whitish-yellow, and sometimes of a red co-

lour, about the size of a pea; the whitest and most bitter are preferred. It softens in the mouth, and the bitter taste is followed by a slight sweetness. Its principal use is as an application to fresh wounds, when dissolved in proof spirit of wine.

Scammony, (Ger. *Skammonien*. Du. *Skammoneum*. Da. *Skammonium*. Sw. *Skammonium*. Fr. *Scammonée*. It. *Scammonea*. Sp. and Port. *Escamonea*. Lat. *Scammoneum*,) is the produce of a species of convolvulus, or creeper plant; which grows wild in the vales between Nazareth and Mount Carmel. The scammony is prepared from the root and the stalk of the plant, and when genuine ought to be like a fine clear gum, of a darkish grey, brittle, and in chewing, ought to yield a white milky froth. The best scammony is brought from Marasch, a town about four days' journey from Aleppo, near the confines of Armenia. It is thence carried to Aleppo, in small skins, and by the merchants sent to London and Marseilles. An inferior sort is brought from Smyrna, which is heavier, and more pungent to the taste than that from Aleppo; it is also mixed with much extraneous matter. It is of considerable use in medicine, as an active purgative.

Senegal, or *Senega*, (Ger. *Senegalgummi*. Fr. *Gomme du Senegal*. It. *Gomma del Senegal*. Sp. and Port. *Goma Senegal*. Lat. *Senegal*,) does not differ greatly from gum-arabic: the pieces are larger, and it seems to communicate a higher degree of adhesive quality to water. It is brought to us principally from Africa and the Levant; and is applied to the same uses as gum-arabic.

Tragacanth, or *Dragant*, (Ger. *Gummi Dragant*. Du. Da. Sw. Rus. and Pol. *Dragant*. Fr. *Gomme adragant*. It. *Gomma adragante*. Sp. and Port. *Alguitira*,) is obtained from a small plant of the same name growing in Syria and other eastern parts. It is chiefly brought to us from Turkey, in small white contorted pieces resembling worms. It is usually dearer than other gums, and forms a thicker jelly with water. This article is of great use in medicine as a demulcent. Skinners and curriers likewise use considerable quantities of it in the preparation of their leather, and prefer a brown or blackish sort; though for all other purposes the white gum is best.

GUN, (*Guns*. Ger. *Gewehre*, *Schiessgewehre*. Du. *Geweeren*, *Schietgeweeren*. Da. *Gevær*. Sw. *Gevär*. Fr. *Armes à feu*. It. *Arme da fuoco*. Sp. *Armas de fueogo*. Rus. *Rushe*, *Orushïe*. Pol. *Bròn*, *Oreze*. Port. *Armas de fogo*,) a fire-arm, or weapon of offence, which forcibly discharges a ball or other matter through a cylindrical tube, by means of inflamed gunpowder. The word gun now includes most of the species of fire-arms (mortars and pistols excepted), which are divided into great, and small, guns; the former including all that are usually called cannon, ordnance, or artillery, and the latter including muskets, firelocks, carabines, musketoons, blunderbusses, fowling-pieces, &c. Artillery are principally cast at Woolwich, and small arms are manufactured at Sheffield and Birmingham. *See* CANNON, MUSKET, and FIRE-ARMS.

GUNPOWDER, (Ger. *Pulver*, *Schiesspulver*. Du. *Buskruid*. Da. *Krudt*, *Pulver*. Sw. *Krut*. Fr. *Poudre*. It. *Polvere*. Sp. and Por. *Polvora*. Rus. *Poroch*. Pol. *Proch*. Lat. *Pulvis pyrius*,) a composition of nitre, sulphur, and charcoal, mixed together, and usually granulated.

To make gunpowder, properly, regard is to be had to the purity or goodness of the ingredients, as well as the proportions of them; for the strength of the powder depends much on that circumstance, and also on the due working or mixing of them together.

To purify the nitre, by taking away the first or common salt, and earthy part. Dissolve it in a quantity of hot water over the fire; then filter it through a flannel bag, into an open vessel, and set it aside to cool, and crystallize. These may in like manner be dissolved, and crystallized again; and so on, till they become quite pure and white. Then put them into a dry kettle over a moderate fire, which gradually increase till they begin to smoke, evaporate, lose their humidity, and grow very white: the mass must be kept continually stirring with a ladle, lest it should return to its former figure, by which its greasiness would be taken away; after that, so much water is to be poured into the kettle as will cover the nitre; and when it is dissolved, and reduced to the consistency of a thick liquor, it must be continually stirred with a ladle, till all the moisture is again evaporated, and it is reduced to a dry and white meal.

The like regard is to be had to the sulphur; choosing that which is in large lumps, clear, and perfectly yellow; not very hard, nor compact, but porous; nor yet too much shining; and if, when set on fire, it freely burns all away, it is a sign of its goodness; so likewise, if it is pressed between the two iron plates that are hot enough to make it run, and in the running appears yellow, and that which remains a reddish colour, it is then fit for the purpose: but in case it is foul, it may be purified in the following manner; melt the sulphur in a large iron ladle or pot, over a very gentle coal-fire, well kindled, but not flaming; then scum off all that rises on the top, and swims upon the sulphur, take it presently after from the fire, and strain it through a double linen cloth, letting it pass leisurely; by which means it is purified, the gross matter remaining behind in the cloth.

For the charcoal, the third ingredient, such should be chosen as is large, clear, and free from knots, well burnt, and cleaving.

The charcoal of light woods is mostly preferred, as of willow, and that of the branches of a moderate thickness, as of an inch or two in diameter. Dogwood is now much esteemed for this purpose; and a method of charring the wood in a large iron cylinder has lately been recommended, and proved as yielding a better ingredient than formerly. The charcoal not only concurs with the sulphur in supplying the inflammable matter, which causes the detonation of the nitre, but also greatly adds to its explosive power by the quantity of carbonic acid gas expelled during its combustion. These three ingredients, in their purest state, being procured, long experience has shown that to have the best effect they are to be mixed together in the proportion of seventy-five parts by weight of nitre, sixteen of charcoal, and nine of sulphur.

It is not the due proportion of the materials only, which is necessary to the making of good gunpowder; another circumstance, not less essential, being the mixing them well together: if this be not effectually done, some parts of the composition will have too much nitre in them, and others too little, and in either case there will be a defect of strength in the powder.

After the materials have been reduced to fine dust, they are mixed together, and moistened with water, vinegar, or wine, or spirit of wine, &c. and then beaten with wooden pestles for 24 hours, either by hand, or mills, and afterwards pressed into a hard, firm, and solid cake. When dry it is grained or corned, which is done by breaking the cake into small pieces, and so running it through a sieve, by which means the grains may have any size given them, according to the nature of the sieve employed; and thus also the dust is separated from the grains, mixed with other unmanufactured powder, and again worked up into cakes.

Glazing or smoothing of gunpowder, is performed as follows: a hollow cylinder or cask is mounted on an axis, turned by a wheel; this cask is half filled with powder, and turned for six hours; and thus from mutual friction of the grains it is smoothed, or glazed. The fine mealy part, thus separated or worn off from the rest, is again granulated.

To recover damaged gunpowder: put part of the powder on a sail-cloth, to which add an equal weight of what is really good, then with a shovel mingle it well together, dry it in the sun, and barrel it up, keeping it in a dry and proper place. If it is very bad, restore it by moistening it with vinegar, water, urine, or brandy; then beat it fine, sift it, and to every pound of powder, add an ounce to two ounces (according as it is decayed) of melted nitre; and afterwards these ingredients are to be moistened and well mixed, so that no particular substance may be discerned, which may be known by cutting the mass, and then granulate it as usual.

Laws concerning gunpowder.—No person shall make gunpowder but in the regular manufactories established at the time of making the stat. 12 Geo. 3. c. 61. or licensed by the sessions, pursuant to certain provisions, under forfeiture of the gunpowder, and 2*s.* per lb. nor are pestle-mills to be used under a similar penalty.

Only 40lbs. of powder to be made at one time under one pair of stones, except powder made at Battle, and elsewhere in Sussex.

No more than 40 cwt. to be dried at one time in one stone; and the quantity only required for immediate use to be kept in or near the place of making, except in brick or stone magazines, 50 yards at least from the mill.

Not more than 25 barrels to be carried by any land-carriage, nor more than 200 barrels by water, unless going by sea or coastwise, each barrel not to contain more than 100lbs.

No dealer to keep more than 200lbs. of powder, nor any person not a dealer, more than 50lbs. in the cities of London or Westminster, or within three miles thereof, or within any other city, borough, or market-town, or one mile thereof, or within two miles of the king's palaces or magazines, or half a mile of any parish-church, on pain of forfeiture, and 2*s.* per lb.; except in licensed mills, or to the amount of 300lbs. for the use of collieries, within 200 yards of them.

By 51 Geo. 3. c. 73. all masters of vessels, before entering the river Medway, shall deposit all gunpowder on board above 5lbs., in such warehouses as shall be appointed by the lords commissioners of the Admiralty, under a penalty not exceeding 20*l.* nor less than 5*l.* with all the gunpowder on board.

The 54 Geo. 3. c. 159. further regulates the places of deposit for gunpowder; inflicts penalties on persons having the command of private ships, who shall keep the guns thereof shotted or loaded within the ports and harbours of the United Kingdom; and authorises all officers belonging to his majesty's ships, docks, arsenals, &c. to search for and seize gunpowder, &c. with a penalty of 10*l.* for obstructing the same, &c.

GUN-SMITH. The business of a gunsmith consists in the making fire-arms of the smaller sort, as muskets, fowling-pieces, pistols, &c. The principal part of these instruments is the barrel, which ought to have the following properties, viz. lightness, that it may incommode the person who carries it as little as possible, and sufficient strength, and other properties requisite to prevent its bursting by a discharge. It ought to be constructed in such a manner as not to recoil with violence, and to be of sufficient length to carry the shot to as great a distance as the force of the powder

employed is capable of doing. The stock or wooden frame of the gun ought to be formed of durable, and, if possible, incorruptible wood. The wood of walnut tree, especially the large roots, is most commonly used for this purpose.

GUN-WALE, or Gunnel, is the uppermost wale of a ship, or that piece of timber which reaches on either side from the quarter-deck to the forecastle, being the uppermost bend which finishes the upper works of the hull, in that part in which are put the stanchions which support the waste-trees.

GUPPAS, weights used in some towns in the streights of Malacca, particularly at Gueda. Four guppas make one guantas; sixteen guantas one hale, or nali; and fifteen halis the bahar of 450lbs. weight.

GUY, in a ship, is any rope used for keeping off things from bearing or falling against the ship's sides, when they are hoisting in. That rope which at one end is made fast to the foremast, and seized to a single block at the pendant of the garnet, is called the guy or the garnet.

GUZ. *See* COUIT.

GYPSUM, or Plaster-Stone; native sulphate of lime. Various species of this stone are discovered in Saxony, Spain, Italy, and other parts of Europe, and substances of a gypseous nature also abound in several parts of this country.

That found in Derbyshire and Nottinghamshire is so fine as to admit of being polished and manufactured into vases, in a manner similar to alabaster: the chief use of gypsum, however, is as a material for small ornaments and figures, as well as moulds for casting wax-work, &c.; but it has within these few years been most advantageously employed as manure, and is every day more and more used in that manner; and is become on that account an article of considerable domestic commerce. It is also much used in the midland and northern counties for laying what are called "plaister-floors," an excellent preventive against conflagration. For this purpose the gypsum is first calcined in kilns constructed for the purpose, then threshed on a floor with flails till reduced to a powder, then mixed to a proper consistency with soft water, and spread upon reeds, or laths, with trowels adapted specially to the purpose. A floor thus made becomes, after a few days, one solid mass like stone. By the admixture of ochre, rose pink, and other coloured earths, various tinges may be given to floors of this material.

Before we conclude this article, it may be well to mention an opinion which prevails in America, where it is much used as a manure; viz. that it is a mere *caput mortuum*, producing no good effect whatever, applied to land within reach of the sea-breeze. The fact of such an opinion being held is beyond controversy, but an elementary work is not the place for discussing the reasonableness of it.

H, The eighth letter of our alphabet, used as a numeral, denotes 200; and with a dash over it, $\bar{H}$, 200,000.

HABEAS CORPUS. Wherever a person is restrained of his liberty by being confined in a common gaol, or by a private person, whether it be for a criminal or civil cause, he may regularly, by *habeas corpus*, have his body and cause removed to some superior jurisdiction, which hath authority to examine the legality of such commitment, and on the return thereof, either bail, discharge, or remand the prisoner. *Vaughan*, 136. Bushel's case. A writ of *habeas corpus* at common law, moved for in term time, is not grantable of course; but if the court see that there is no pretence for discharging the prisoner, they may refuse the writ to bring him up. Hobhouse's case, 3 *Barnewall & Alderson*, 421. It seems not yet decided, whether a single judge, applied to under the 31 Car. 2. c. 2. § 10., in vacation, has a discretion to refuse the writ. *Same case.*

HABERDASHER, a seller of hats, or of small wares, as pins, needles, thread, tapes, ribbons, &c. The master and wardens of the company of haberdashers in London, mayors, &c. of towns, calling to their assistance one of the company of cappers, and another of the hat-makers, may search the wares of all hatters that work hats with foreign wool, and have not been apprentices to the trade, or who dye them with any thing but copperas and galls, or woad and madder; in which case they are liable to penalties, by stat. 8 Eliz. c. 7. and 5 Geo. 2. c. 22.

HABERDASHERY, consists of all kinds of ware sold by haberdashers.

HABERDINE, a dried salt cod.

HABERGEON, a small coat of mail, or only sleeves and gorget of mail, formed of little iron rings or meshes linked into each other.

HADDOCK, a fish of the cod species, a native of the northern seas, where, like the cod, it is met with in prodigious shoals. Vast quantities are taken about Heligoland, and on the northern coasts of Great Britain. The season commences about the 10th or 12th of December, and continues till the latter end of January, or the beginning of February.

HÆMATITES, or Blood-Stone. *See* BLOOD-STONE.

HAIR. (*Human Hair.* Ger. *Haare, Menschen-haar.* Du. *Hair.* Da. *Haar.* Sw. *Här.* Fr. *Cheveux.* It. *Capelli umani.* Sp. and Port. *Cabellos.* Rus. *Wolossii.* Pol. *Wlosy.* Lat. *Capilli.*)

Hair of Beasts. (Ger. *Haare, Huhaare.* Du. *Hair.* Da. *Haar.* Sw. *Här.* Fr. *Poil.* It. and Sp. *Pelo.* Port. *Pello.* Rus. *Scherot.* Lat. *Pelles,*) a sort of tegument for the greatest part of animals. It is a considerable article in commerce. The hair-merchants import human hair, goats' hair, horse-hair, &c. and also purchase hair of those who travel over all parts of the kingdom to procure it; after they have prepared it, they sell it either curled or uncurled to the manufacturers. That of the growth of the northern countries is much preferred to that of the more southern ones. Hair should be well fed, neither too coarse nor too fine; the coarseness rendering it less susceptible of an artificial curl, and disposing it rather to frizzle; and the fineness making its curl of too short a duration. Vast quantities of the hair of goats, &c. is consumed in the manufacture of hats and various other articles.

HAIR'S BREADTH, a measure of length, being the 48th part of an inch.

HAIR-POWDER, (Ger. *Puder.* Du. *Poeder, Poeyer.* Da. *Pudder.* Sw. *Puder.* Fr. *Poudre à poudrer.* It. *Polvere di cipri.* Sp. *Polvos de peluca. Polvos de Chipre.* Port. *Polvinkas. Pos de trigo. Pos de goma de mandioca.* Rus. *Pudra.* Pol. *Pudre,*) a well-known powder used as an ornament for the hair, and generally made from starch pulverized, and sometimes perfumed. An annual tax of *1l. 3s. 6d.* is laid upon all persons who wear hair-powder. Prussia and Germany are both noted for their extensive hair-powder manufactories.

By 10 Ann. c. 26. s. 31. 12 Ann. stat. 2. c. 9. s. 2. and 4 Geo. 2. c. 14. s. 8. persons mixing hiair-powder with *starch* or alabaster, &c. are subjected to a severe penalty.

No hair-powder makers to have alabaster in their custody. 4 Geo. 2. c. 14. s. 6.

HALE. *See* HALL.

HALFPENNY, an English copper coin, the value of which is denoted by its name.

HALI. *See* GUPPAS.

HALLAGE, a fee due for cloths brought for sale to Blackwell-hall, London. Also a toll due to the lord of a fair or market, for such goods as are sold in the common hall of the place.

HAMMER, (Ger. *Hammar.* Du. *Hamer.* Da. *Hammer.* Sw. *Hamrar.* Fr. *Marteau.* It. *Martello.* Sp. *Martillo.* Rus. *Molotok.* Pol. *Mlot.* Lat. *Malleus,*) a tool used by mechanics, consisting of an iron head fixed crosswise upon a handle of wood. There are several sorts of hammers used by blacksmiths, viz. the hand-hammer, which is of such weight that it may be wielded or governed with one hand at the anvil. The up-hand sledge, used with both hands, and seldom lifted above the head. The about-sledge, which is the largest hammer of all, and held by both hands at the farthest end of the handle, and being swung at arm's length over the head, is made to fall upon the work with as heavy a blow as possible. There is also another hammer used by smiths, called a rivetting-hammer, which is the smallest of all, and seldom used in the forge, unless upon small work.

HAMS, (Ger. *Schinken.* Du. *Hammen.* Da. *Skinker.* Sw. *Skinkor.* Fr. *Jambons.* It. *Prosciutti.* Sp. *Jamones.* Port. *Presuntas.* Rus. *Okorokii.* Pol. *Szynki,*) the thighs of the hog salted and dried. Yorkshire, Hampshire, Wiltshire, and Cumberland, are the counties of England most famous for producing fine hams. The hams of Portugal and Westphalia are exquisitely flavoured; they are frequently imported into Great Britain. We export hams to the West Indies. The Westphalia hams, and those which are made to imitate them, are dried by hanging in the smoke of a wood-fire, for at least a month.

HAND'S BREADTH, a measure of three inches.

HANDFUL, *or simply* Hand, a measure of four inches by the standard, according to stat. 33 Hen. 8. The hand among horse-dealers, &c. is four-fingers' breadth, being the fist clenched, whereby the height of a horse is measured.

HANSE TOWNS, a number of maritime towns, which originally associated together in a league, for the protection of their commerce. *See title* EUROPE.

HARBOUR, a portion of the sea adjacent to land, where ships safely ride at anchor, free from the dangers of the winds and waves.

HARBOURS and HAVENS. The harbours, and mouths of rivers in this kingdom, are protected by numerous statutes, both general and local. Of the former description are 19 Geo. 2. c. 22. 9 Geo. 3. c. 30. and lastly 54 Geo. 3. c. 159. By these, especially the last mentioned, the moorings of his majesty's ships are provided for in preference to those of any private or merchant vessel, the breaming of private vessels is regulated, the sweeping for stores is prohibited with certain exceptions, unloading ballast improperly is subjected to heavy penalties, the taking shingle from the shores without licence is forbidden, and sunken vessels are ordered to be raised, with many other provisions respecting the landing of gunpowder, the un-shotting of guns, &c. &c.

HARDENING, the giving a greater degree of hardness to bodies than they had before. Steel and iron are hardened and tempered divers ways, as by the hammer, quenching the metal, when hot, in cold water, case-hardening, &c. To harden and temper English, Flemish, and Swedish steel, they beat it pretty high, then suddenly quench it in water, to make it very hard: Spanish and Venice steel need only a blood-

red heat, and then be quenched. Sometimes they rub ground indigo and sallad oil upon it with a woollen rag, while it is heating, and let it cool of itself. If the steel be too brittle for an edge, spring, &c. bring it down thus: Take a piece of grindstone or whetstone, and rub the work hard upon it, to take off the black scurf, and brighten it; thus let it heat in the fire, and it will gradually change colour, coming first to a light goldish colour, then to a darker goldish, and at last to a blue colour: choose which of these the work requires, and quench it suddenly in water.

Hammer-hardening is generally used in hardening iron and steel plates for saws, springs, rules, and such like articles.

Case-hardening is a lesser degree of steel-making, and is performed by baking razors, files, knife-blades, &c. in a kind of oven, and laying over them strata of powdered charcoal, hoofs, horns, &c. so as to exclude the air from them; and thus by baking to give a coat of steel to those instruments some depth below their surface. Some persons cover the iron or steel all over with a composition of an equal quantity of powdered horn, bay-salt, stale urine, or white-wine vinegar, well mixed together, and then wrap it up in loam or plate-iron, and bring the whole in the fire to a blood-red heat, and no higher, and lastly, take it out and quench it.

HARDS of flax or hemp, are the coarser parts separated in dressing from the tear or fine stuff.

HARDWARE, (Ger. *Kurze waaren.* Du. *Yzerkramery.* Da. *Isenkramvarer.* Sw. *Järnkram.* Fr. *Clinquaillerie, Quincaillerie.* It. *Chincaglio.* Sp. *Quinquilleria.* Port. *Quincalharia.* Rus. *Mjelotschnue towarii,*) includes in few words every kind of goods manufactured from metals, and thus comprises iron, brazen, steel, and copper articles of all descriptions. Birmingham and Sheffield are the principal seats of the British hardware-manufactures; and from these towns immense quantities of knives, razors, scissars, gilt and plated ware, fire-arms, &c. &c. are exported to most parts of the continent of Europe, and iron utensils of various kinds to our colonies in the West Indies, to Africa, and the continent of America.

HARDWARE-MAN. The tradesman thus named, is a dealer in all the last-mentioned manufactures.

HARES' WOOL, or the fur of the quadruped called the hare, is much used by hatters, who employ it in the formation of the bodies of hats. The colour of the wool of the British dominions is generally dark-brown; and, if good, silvery at the bottom, near the pelt; but from the northern parts of Europe, Asia, and America, we not unfrequently obtain black and white hares' wool.

HARNESS, (Ger. *Pferdegeschirr.* Du. *Paardetuig.* Da. *Hestetöj.* Sw. *Hästtyg, Seltyg.* Fr. *Harnois de Cheval.* It. *Arnese, Bardatura o Fornimento d'un Cavallo.* Sp. *Arneses, Jaeces.* Port. *Arnes s. Jaez de hum Cavallo.* Rus. *Konskoi, uber.* Pol. *Rzad, Szur, Konski,*) leather furniture for horses, usually mounted or embellished with studs of brass or copper gilt or plated.

HARP, (*Harps.* Ger. *Harfen.* Du. *Harpen.* Da. *Harper.* Sw. *Harper.* Fr. *Harpes.* It. *Arpe.* Sp. *Harpas.* Port. *Arpas, Harpas.* Lat. *Citharæ,*) a stringed instrument, consisting of a triangular frame, the chords of which are distended in parallel directions from the upper part to one of its sides. Its scale extends through the common compass, and the strings are tuned by semitonic intervals. It stands erect, and when used, is placed at the feet of the performer, who produces its tones by the action of the thumb and fingers of both hands on the strings. That the harp is among the most ancient of musical instruments, the frequent mention of it in scripture, and the splendid account transmitted to us of the Theban harp, both as to the beauty of its decorations and extent of scale, are sufficient evidences. The Irish and Welsh practised the harp long before the gamut of Guido was invented, and it is, indeed, their national instrument. In England also it was early introduced into general use; and the most ancient poems were sung to it on Sundays, and all public festivals. They differ, however, much in their construction from one another. In early times the single harp (or harp with only one row of strings) which was small and portable, and confined to the number of its strings, was obliged to be tuned every time the key changed. In time the double harp (or harp with two rows of strings) was invented; the flats and sharps were made on the new row of strings, while the other was tuned as usual in the diatonic scale. The next, and greatest, improvement was the triple harp, (a harp with three rows of strings,) which was invented about the 14th century. The present triple harp extends to the compass of five octaves, or more: the total number of strings is about a hundred. The performer is obliged to tune the harp every time he changes the key, which being troublesome gives a great advantage to the pedal harp: but in many passages the Welsh harp is much superior. The Welsh harper plays the treble with the left hand, and the bass with the right. It is the reverse with those who play the pedal harp.

An instrument named the harp-lute has lately been invented, which partakes of both these instruments. It is smaller in size than the pedal harp, and is placed somewhat like a guitar upon the knees, but more perpendicular. A considerable traffic in these latter mentioned instruments is carried on to both the East, and West, Indies, and to many parts of Europe. One Light is the inventor.

HARPING-IRON, or HARPOON, (*Harpoons.* GER. *Harpunen.* DU. *Harpoenen.* DA. *Harpune.* SW. *Harpun.* FR. *Harpons.* IT. *Ramponi.* SP. *Arpones.* PORT. *Harpeos.* RUS. *Ostrogi,*) a large spear or javelin, made of forged iron, and five or six feet long; it is fastened to a line, and is used in the whale fishery. *See* FISHERY.

HARPINGS, in a ship, properly denote her breadth at the bow. Some also give the same name to the ends of the bends that are fastened into the stern.

HARPOON-GUN, a sort of fire-arm for discharging harpoons at whales, and thereby striking them with greater certainty, killing them more expeditiously than when harpoons are thrown by the hand.

HARPSICHORD, (*Harpsichords.* GER. *Klaviere.* DU. *Clavieren.* DA. *Claveer.* SW. *Claver.* FR. *Clavecins.* IT. *Gravicembali.* SP. *Clavicordios, Claves.* PORT. *Cravos.* RUS. *Klawirii,*) a stringed instrument, consisting of a case containing the belly or sounding board, over which the wires are distended, supported by bridges. In the front the keys are disposed, the long ones of which are the naturals, and the short ones the sharps and flats. These keys being pressed by the fingers, their inclosed extremities raise little upright oblong slips of wood called jacks, furnished with crow-quill plectrums, which strike the wires. The great advantage of the harpsichord beyond most other stringed instruments, consists in its capacity of sounding many notes at once, and forming those combinations, and performing those evolutions of harmony, which a single instrument cannot command. This instrument is an improvement upon the clarichord, which was borrowed from the harp, and has, for more than a century, been in the highest esteem; but since the invention of the piano forte, its practice has considerably declined. Harpsichords and piano-fortes are manufactured in the highest perfection at London, where they are sold at various prices from 18 to 100 guineas each, according to the goodness of their tones, the beauty of their structure, &c.

HARQUEBUSS, a piece of fire-arms, of the length of a musket, usually cocked with a wheel. It carries a ball that weighs one ounce seven-eights. This weapon is now nearly out of use.

HARROW, an agricultural implement, consisting of a frame of timbers crossing each other, and set with iron teeth. It is employed to break and scatter the ground previously turned up by the plough.

HARTSHORN, (GER. *Hirschhorn.* DU. *Hartshoorn.* DA. *Hiortetagge.* SW. *Hjorthorn.* FR. *Corne de cerf.* IT. *Corni di cervo.* SP. *Cuerno de ciervo.* PORT. *Ponta de veado.* RUS. *Olenoi rog.* POL. *Rogieleni.* LAT. *Cornu cervi,*) is the entire horns of the male deer, as separated from the head, without farther preparation. The chemical analysis of hartshorn is sufficiently known; it yields a water highly impregnated with a volatile salt, which is called spirit of harts'-horn, with a fœtid oil, and volatile salt by the common distillation in a retort on an open fire. The remainder in the bottom of the retort, after the distillation is finished, is black; but on calcining it in an open fire, it becomes white and friable, and is sold in the shops under the name of *burnt hartshorn.* Besides these preparations, we use the shavings of the horns, which on long boiling in water become a jelly. This jelly is nutritive and strengthening; it is sometimes given in diarrhœas, but a decoction of the burnt hartshorn in water is more frequently used for this purpose, and is what is called *hartshorn* drink.

HASAER MENARIE, a silver coin, current in Persia, worth ten mamondis, or 6*s.* 8*d.* sterling.

HASP, a clasp folded over a staple and fastened on with a padlock. Hasps are usually made of iron, and are, for the most part, manufactured at and in the vicinities of Birmingham and Wolverhampton.

HAT, (*Hats.* GER. *Hüte.* DU. *Hoeden.* DA. *Hatte.* SW. *Hattar.* FR. *Chapeaux.* IT. *Cappelli.* SP. *Sombreros.* PORT. *Chapess.* RUS. *Schlopü.* POL. *Kapeluszy.*) a well-known covering for the head, with a brim, which distinguishes it from a cap, or a bonnet. Beaver hats are said to have been introduced in the reign of Queen Elizabeth, and common in that of Car. I. The importation of them was prohibited by proclamation, as well as the admixture of hair and wool, in the manufacture of them in this country.

The manufacture of hats is of late years become a great object of national commerce; and the improvements made therein are considerable.

The materials for making them are, rabbits' fur cut off from the skin, together with wool and beaver; to which have been lately introduced mole fur, and kid hair. These are mixed in various proportions, and of different qualities, according to the value of the hats intended to be made: but the beaver is now wholly used for facing the finer hats, and not for the body or main stuff. Experience has shown, that the hair or fur cannot be evenly and well felted together, unless all the fibres be first separated, or put into the same state with regard to each other. This is the object of the first process of hat-making, and is called *bowing.* The material is laid upon a platform of wood, or of wire, about four feet square, called a *hurdle,* which is fixed against the wall of the workshop and is enlightened by a small window, and separated by two side partitions from other hurdles, which occupy the rest of the space along the wall. The hurdle, if of wood, is made of deal boards, not quite three inches wide, disposed

parallel to the wall, and at the distance of one-fortieth of an inch from each other, for the purpose of suffering the dust, and other impurities of the stuff, to pass through; a purpose still more effectually answered by a hurdle of wire. The workman is provided with a bow, a bow-pin, a basket, and several cloths. The bow is a pole of yellow deal or ash, about seven feet long, to which are fixed two bridges, somewhat like that which receives the hair in the bow of the violin. Over these is stretched a cat-gut, about one-twelfth of an inch in thickness. The bow-pin is a stick with a knob, and is used for plucking the bow-string. The basket is a square piece of ozier-work, consisting of open straight bars with no crossing or interweaving; its length across the bars two feet, and its breadth eighteen inches. The sides into which the bars are fixed are slightly bent into a circular curve, so that the basket may be set upright on one of these edges near the right-hand end of the hurdle, where it usually stands. The cloths are linen. Besides these implements, the workman is also provided with brown paper.

The *bowing* commences by shovelling the material towards the right-hand partition with the basket, upon which the workman, holding the bow horizontally in his left hand, and the bow-pin in his right, lightly places the bow-string, and gives it a pluck with the pin. The string, in its return, strikes upon the fur, and causes it to spring up in the air, and fly partly across the hurdle in a light open form. By repeated strokes, the whole is thus subjected to the bow; and this beating is repeated till all the original clots or masses of the filaments are perfectly opened and dilated, and, having thus fallen together in all possible directions, form a thin mass or substance for the felt. The quantity thus treated at once is called a *batt*, and never exceeds half the quantity required to make one hat.

When the batt is sufficiently bowed, it is ready for *hardening*; which term denotes the first commencement of felting. The prepared material, being evenly disposed on the hurdle, is first pressed down by the convex side of the basket, then covered with a cloth, and pressed backwards and forwards successively in its various parts, by the hands of the workmen. This pressure brings the hairs closer to each other, and multiplies their points of contact; whilst their agitation gives to each hair a progressive motion towards the root; by means of this motion the hairs are twisted together, and the *lamellæ* of each hair, by fixing themselves to those of other hairs, which happen to be directed the contrary way, keep the whole in that compact state which the pressure makes it acquire. Upon this same disposition of the hairs to felting, the hair-balls, or ægagropila, formed in the stomachs of hairy animals which lick themselves, are alone to be accounted for. In proportion as the mass becomes compact, the pressure of the hands is increased; not only to make it more close, but also to keep up the progressive motion and twisting of the hairs, which then takes place with greater solidity; but throughout the whole of this operation, the hairs fix themselves only to each other, and not to the linen cloth with which they are covered. It may here be proper to explain why that hair which is intended for making hats is always *cut off* with a sharp instrument, (although that cannot be done without losing a part of its length,) and not *plucked* out by the roots, as might be done after softening the skin; the reason is, the bulb of the hair, which in the latter case would come out with it, would render that end which was fixed in the skin thick and obtuse; and it would consequently be less disposed to introduce itself among the contiguous hairs, and to contribute by its progressive motion to the contexture of the mass. But this conformation of the surface of hairs and wool, is not the only cause which produces their disposition to felting. It is not sufficient that every hair possesses the before-mentioned tendency to move progressively towards the root, and that the inclined *lamellæ*, by hooking themselves to each other, preserve the mass in that state to which compression has brought it; but it is also necessary that the hairs *should not be straight*, like needles; if they were so, pressing and rubbing them together would merely cause them to continue their progressive motion, without changing their direction; and the effect of those operations would only be to make them move from the centre of the mass without producing the requisite compactness. Every hair must therefore be twisted or curled in such a manner, that the extremity which is towards the root may be disposed to change its direction perpetually, to twist itself about other hairs, and to incline towards itself again, in case it should be determined thereto by any change in the position of the rest of its length. It is because wool has naturally this crooked form that it is so proper for felting, and that it may be made use of for that purpose without undergoing any previous preparation. But the hairs of the beaver, the rabbit, the hare, &c. being naturally straight, cannot so well be employed in felting, till they have undergone a preliminary operation; which consists in rubbing or combing them, before they are taken off the skin, with a brush dipped in a solution of mercury in aqua-fortis (nitric acid). This liquor, acting only on one side of the substance of the hairs, changes their direction from a right line, and gives them that disposition to felting which wool naturally possesses. When the hairs are not intended to enter into the body of the [illegible],

but are only to be employed in making a sort of external coating, such as is given to the outer surface of hats with a long flow or nap, the operation just mentioned need not be performed; but the felt on which they are to be fixed being finished, the hair is uniformly spread upon the surface to which the coating is to be applied; and, being covered with a cloth, it is pressed with the hands, and agitated for a certain time. By these means the hairs introduce themselves, by the root, a certain depth into the felt, and are there fixed by their *lamellæ* in such a manner as not to be easily extracted. A particular direction is afterwards given to them by means of a brush, and they are made to keep this direction by having a hot iron passed over them. If the agitation were continued for a longer time, these hairs, not having their straightness destroyed by the operation above described, would pass entirely through the felt, going out at the opposite surface; as each hair follows exactly the direction it acquired at the beginning. It is owing to the very same circumstances which make wool and hair capable of felting, that woollen cloth is thickened by fulling.

When the felt has acquired the necessary firmness and consistence, intended to be given to it by the above-mentioned agitation and pressure, the cloth is taken off, and a sheet of paper, with its corners doubled in, so as to give it a triangular outline, is laid upon the batt, which last is folded over the paper as it lies, and its edges, meeting one over the other, form a conical cap. The joining is soon made good by pressure with the hands on the cloth. Another batt, ready hardened, is in the next place laid on the hurdle, and the cap here mentioned placed upon it, with the joining downwards. This last batt, being also folded up, will consequently have its place of junction diametrically opposite to that of the inner felt, which it must therefore greatly tend to strengthen. The principal part of the intended hat is thus put together, and now requires to be worked with the hands a considerable time upon the hurdle, the cloth being also occasionally sprinkled with clear water. During the whole of this operation, which is called *basoning*, the felt continually increases in firmness, and contracts in its dimensions. It may easily be understood, that the chief use of the paper is to prevent the sides from felting together. A superior method is said to be, that after the bowing, and previous to the basoning, a hardening skin of leather, alumed, or half tanned, should be used instead of the cloth, and pressed upon the batt, to bring it by an easier gradation to a compact appearance. This operation of basoning derives its name from the process or mode of working being the same as that practised upon a wool-hat after bowing; the last being done upon a piece of cast metal, three feet across, of a circular shape, called a *bason*; the joining of each batt is made good here by the motion of the hand, that is, by rubbing, the edges of each batt folded over the other to excite the progressive action of the filaments in felting, and to join the two together.

The basoning is followed by a still more effectual continuation of the felting, called *working*. This is done at an apparatus called *a battery*, consisting of a kettle (containing water slightly acidulated with sulphuric acid, to which, for beaver hats, a quantity of wine-lees or the grounds of beer is added, or else plain water for rinsing out), and eight planks of wood joined together in the form of a frustum of a cone, and meeting in the kettle at the middle. The outer or upper edge of each plank is about two feet broad, and rises a little more than two feet and a half above the ground; and the slope towards the kettle is considerably rapid, so that the whole battery is little more than six feet in diameter. The quantity of sulphuric acid added to the liquor, is not sufficient to give a sour taste, but only renders it rough to the tongue. In this liquor, heated rather higher than unpractised hands could bear, the felt is dipped from time to time, and worked on the planks; before which it is plunged gently into the boiling kettle till fully saturated with the liquor, called *soaking*; and is then laid on the plank to cool. The imperfections of the felt now present themselves to the eye of the workman, who picks out knots and other hard substances with a bodkin, and adds more fur upon all such parts as require strengthening. This added fur is patted down with a wet brush, and soon incorporates with the rest. Many hatters, to hurry this work, use a quantity of vitriol, (sulphuric acid,) and then, to make the nap rise and flow, they kill the vitriol, and open the body again by throwing in a handful of oat-meal; by this means they expedite their hats, but at the same time they leave them quite grainy from the want of labour. This, in handling the dry grey hat when made, may be in part discovered. The beaver for the nap is laid on towards the conclusion of this kind of working. The hat now possesses the form of a cone, and the whole of the several actions it has undergone have converted it into a soft flexible felt, capable of being extended, though with some difficulty, in any or every direction; therefore the next thing to be done, is to give it the form required by the wearer. For this purpose the workman turns up the edge or brim to the depth of about an inch and a half, and then returns the point back again through the centre or axis of the cap, so far as not to take out this fold, but to produce another inner fold of the same depth. The point being returned back again in the same manner, produces a third fold, and thus the workman proceeds until the

whole has acquired the appearance of a flat circular piece, consisting of a number of concentric undulations, rings, or folds, with the point in the centre. This is laid upon the plank, where the workman, keeping the piece wet with the liquor, pulls out the point with his fingers, and presses it down with his hand, at the same time turning it round on its centre in contact with the plank, till he has, by this means, rubbed out a flat portion equal to the intended crown of the hat. In the next place, he takes a block, to the crown of which he applies the flat central portion of the felt, and, by forcing a string down the sides of the block, causes the next part to assume the figure of the crown, which he continues to wet and work until it has properly disposed itself round the block. The brim now appears like a flounced or puckered appendage round the edge of the crown; but the block being set upright on the plank, the requisite figure is soon given by working, rubbing, and extending this part. Water only is used in this operation of fashioning or blocking; at the conclusion of which it is pressed out by the blunt edge of a copper implement used for that purpose, called a *stamper*.

Previous to the dyeing, the nap of the hat is raised, or loosened out, with a wire-brush, or carding instrument. The fibres are too rotten, after the dyeing, to bear this operation. The dyeing materials are logwood, a little oak-bark, and a mixture of the sulphats of iron, and of copper, known in the market by the common names of green copperas and blue vitriol. The hats are boiled with the log-wood, and afterwards immersed in the saline solution. The dyed hats are, in the next place, taken to the stiffening-shop. The workman has two vessels, or boilers, one containing the grounds of strong beer, and the other containing melted glue, a little thinner than what is used by carpenters. The beer-grounds are applied in the inside of the crown to prevent the glue from coming through to the face, and also to give the requisite firmness at a less expence than could be produced by glue alone. Were the glue to pass through the hat in different places, it would be more difficult to produce an even gloss upon the face in the subsequent finishing. The glue-stiffening is therefore applied after the beer-grounds are dried, and then only upon the lower face of the brim, and the inside of the crown. For this purpose, the hat is put into another hat, called a stiffening-hat, the crown of which is notched, or slit open in various directions. These are then placed in a hole in a deal-board, which supports the brim, and the glue is applied with a brush. In France, however, they use wine-lees in lieu of beer-grounds, and gum-water instead of glue.

The dry hat, after this operation, is always rigid, and its figure irregular. The last dressing is given by the application of moisture and heat, and the use of the brush, and a hot iron, as before mentioned, somewhat in the shape of that used by tailors, but shorter and broader on the face. The hat being softened by exposure to steam, is drawn upon a block, to which it is securely applied by the former method of forcing a string down from the crown to the commencement of the brim. The judgment of the workmen is employed in moistening, brushing, and ironing the hat, in order to give and preserve the proper figure. When the brim of the hat is not intended to be of an equal width throughout, as is oftentimes the case for military hats, it is cut by means of a wooden or metallic pattern. The contrivance for cutting them round, is very ingenious and simple. A number of notches are made in one edge of a flat piece of wood for the purpose of inserting the point of a knife, and from one side or edge of this piece of wood, there proceeds a straight handle, which lies parallel to the notched side, forming an angle somewhat like that of a carpenter's square. When the legs of this angle are applied to the outside of the crown, and the board lies flat on the brim of the hat, the notched edge will lie nearly in the direction of the radius, or line pointing to the centre of the hat. A knife being therefore inserted in one of the notches, it is easy to draw it round by leaning the tool against the crown, and it will cut the brim very regular and true. This cut is made before the hat is quite finished, and is not carried entirely through; so that one of the last operations consists in tearing off the redundant part, which by that means leaves an edging of beaver round the external face of the brim. When the hat is completely finished, the crown is tied up in gauze paper, which is neatly ironed down. It is then ready for the subsequent operations of lining, &c. for sale.

The principal improvements which have been made of late years in the manufacture of hats have been,

1st. Giving them any colour that is desired, which is described in the specification of a patent obtained in 1782, to be done after the following manner:—The nap of the hat to be raised by means of a card, on the side intended to be dyed, and then boiled in alum and argol. A thin paste should be made of flour or clay, which is spread over every part that is not to be dyed, and then closed; or the hat may be previously pasted, and instead of being boiled, it should only be simmered in the same liquor. As soon as the paste is spread, plates of copper or other metal, shaped like a common funnel, are fixed over the paste, to prevent the dye from penetrating through. In this state the hat is immersed in the dye, till the colour is sufficiently fixed, when it is taken out, opened, and cleansed from the paste; but if any colouring particles have penetrated through the

felt, they may be removed by rubbing them with a small quantity of spirit of salt, aqua-fortis, &c.

2dly, By a process which is denominated *carroting*, i. e. mixing mole fur and rabbits' wool, and by the introduction of substitutes for the more expensive parts of the composition of hats.

3dly, By what is called *re-beavering* hats, which is by adding a nap to old hats which are become smooth by wear. Much imposition is practised by some who pretend to re-beaver hats; but if done effectually, the hat is reduced to its original state, and nearly the same process is repeated as has been already described in manufacturing new hats of the coarser kinds, on which an adventitious nap is to be imposed.

A patent was obtained in 1794, by one Dunnage, for a water-proof hat, made in imitation of beaver. The articles employed are a mixture of silk with fur, made into an excessively thin covering, which is stretched over a frame of chip properly formed into the shape of a hat. They are somewhat heavier than the common hats, but preserve their colour *better*, and the nap *longer*; they are what they profess to be, water-proof, but the chip being formed into shape by means of size or glue, they are affected by damp, and easily put out of shape, if care be not taken of them. They will not bear to be brushed, but are preserved bright and clean by gentle rubbing with a damp sponge.

By 24 Geo. 3. c. 21. hare skins, hare wool, coney wool, and undressed coney skins are prohibited to be exported under a penalty of 500*l.* as a protection to the manufacturers of hats; and any person dyeing the same shall forfeit 20*l.*

And for the further encouragement of the said manufacture, Turkish goats' hair shall be imported duty free.

HATS of *chip*, *straw*, or *cane*, are made by platting, and sewing the plats together; beginning with the centre of the crown, and working round till the whole is finished.

Hats for the same purpose are also woven, and made of horse-hair, silk, &c. The capital for this trade requires only a single guinea to purchase the machines and materials for employing 100 persons for several months. The straw is cut at the joints; and the outer covering being removed, it is sorted of equal sizes, and made up into bundles of eight or ten inches in length, and a foot in circumference. They are then to be dipped in water, and shaken a little so as not to retain too much moisture; the bundles are afterwards to be placed on their edges, in a box which is sufficiently close to prevent the evaporation of smoke. In the middle of the box is an earthen dish containing brimstone broken in small pieces; this is set on fire, and the box covered over and kept in the open air several hours. It is the business of one person to split and select the straws for fifty others who are braiders. The splitting is done by a small machine made principally of wood. The straws, when split, are termed splints, of which each worker has a certain quantity: on one end is wrapped a linen cloth, and they are held under the arm, and drawn out as wanted. Platters should be taught to use their second fingers and thumbs, instead of the forefingers, which are often required to assist in turning the splints, and very much facilitates the platting, and they should be cautioned against wetting the splints too much. Each platter should have a small linen work-bag, and a piece of paste-board to roll the plat round. After five yards have been worked up, it should be wound about a piece of board half a yard wide, fastened at the top with yarn, and kept there several days to form it in a proper shape. Four of these parcels, or a score, is the measurement by which the plat is sold.

The finest species of straw, and chip, hats are those imported from Leghorn, though it is well known that the greater number of these articles sold at London, and in other parts of the kingdom, as Italian hats, are made in Great Britain; after all, however, the Italians infinitely excel us, as well in the materials, as the manufacture.

HATCHEL, HACKLE, HECKLE, or HITCHEL, (*Hatchels.* Ger. *Hecheln.* Du. *Hekels.* Da. *Hægler.* Sw. *Häklor.* Fr. *Serans.* It. *Pettini.* Sp. *Rastrillos, Restellos.* Rus. *Tschesalki.* Pol. *Ochlicy,*) a tool with which flax and hemp are combed into fine hairs. It consists of long iron pins or teeth, regularly set in a piece of board. There are several sorts of hatchels, each finer than the other, with which flax and hemp are prepared for spinning.

HATCHES, in a ship, a kind of trap-doors between the main-mast and fore-mast, through which all goods of bulk are let down into the hold.

Hatches also denote flood-gates set in a river, &c. to stop the current of the water: particularly certain dams, or mounds made of rubbish, clay, or earth, to prevent the water that issues from the stream-works and tin-washes in Cornwall, from running into the fresh rivers.

HATCHING, or HACHING, in designing, &c. the making of lines with a pen, pencil, graver, or the like; and the intersecting or going across those lines with others drawn a contrary way, is called counter-hatching. The depth and shadows of draughts are usually formed by hatching.

HATCHWAY, the way or passage over the hatches of a ship.

HATTOCK, a stock of corn containing twelve sheaves: others make it only three sheaves laid together.

HAUL, or HALE, an expression peculiar to seamen, implying to pull a single

rope, without the assistance of blocks or other such mechanical powers.

"To haul the wind," is to direct the ship's course nearer to that point of the compass from which the wind arises.

HAUTBOY, a musical instrument of the wind kind, shaped much like the flute, only that it spreads and widens towards the bottom, and is sounded through a reed. The treble is two feet long; the tenor goes a fifth lower, when blown open: it has only eight holes; but the bass, which is five feet long, has eleven.

HAWKERS and PEDLARS, are such dealers or itinerary petty chapmen as travel to different fairs or towns with goods or wares, and are placed under the controul of commissioners, by whom they are licensed for that purpose, pursuant to stat. 8 and 9 Will. 3. c. 25. and 50 Geo. 3. c. 41.

All hawkers, pedlars, petty chapmen, and every other person, trading from town to town, or to other men's houses, and travelling either on foot or with horses, carrying to sell, or exposing to sale, any goods, wares, or merchandizes, shall pay a duty of 4*l.* per annum; and persons travelling with any horse, ass, mule, or other beast, bearing or drawing burden, shall pay an additional 4*l.* for every such beast, over and above the afore-mentioned duty.

Persons applying for licences, to produce a certificate of their good character, signed by the clergyman of the parish, and two reputable inhabitants.

Hawkers are to mark upon all their packages, carts, waggons, or other vehicles of conveyance, and every room or shop in which they shall trade, and upon every handbill or advertisement they distribute, the words, *Licensed Hawker*, with the number, name, and distinction, written or painted upon the respective licences, in large Roman capitals, under penalty of 10*l.* for every offence. Persons unlicensed so marking their packs, to forfeit 10*s.*

Hawkers, pedlars, &c. selling smuggled goods, or goods fraudulently procured with their privity and knowledge, shall forfeit their licences, and be incapable of obtaining a new one, exclusive of the penalties which may attach upon them from such illicit traffic.

No hawker, &c. can open any room or shop, or expose to sale any goods, wares, or merchandizes, in any town or place where he is not an householder, or the same not being the usual place of his abode, or carrying on business to sell any goods or merchandize whatsoever, by outcry, hammer, candle, lot, parcel, or any other mode of sale at auction, under penalty of 50*l.* for every such offence.

Persons forging, counterfeiting, or travelling with forged and counterfeited licences, are liable to a penalty of 300*l.*; and persons lending or letting their licences to hire, or trading with borrowed licences, shall forfeit 40*l.*; such licence shall be void, and the person lending it shall be incapable of having it renewed.

Any person whatsoever may seize and detain any hawker who shall be travelling without a licence, or refuse to produce such licence, until he can give notice to some peace-officer, who shall carry the person so detained, unless he shall in the mean time produce his licence, before some magistrate; and such magistrate, if the party produce no licence, is to levy 40*l.* by warrant of distress upon the owner of the goods, rendering to such owner the overplus.

Any person or persons authorised by two commissioners, shewing such authority, or upon demand of any justice of the peace, mayor, constable, or other officer, where the hawker shall trade, or by any officer of the customs or excise, may demand any hawker found travelling, to produce a licence according to this act; and upon refusal, or not having his licence ready to produce, shall forfeit 10*l.*; and for non-payment thereof, the magistrate may levy the same by distress and sale of goods, and may in the mean time commit the offender to gaol, until the distress is levied or the penalty paid.

Constables, &c. refusing to act in execution of this act, to forfeit 10*l.*

Hawkers, although licensed, vending their wares in any place where an order of quarter-sessions shall have been made to prohibit them, shall forfeit 10*l.*

Nothing in these acts shall prohibit any persons from selling any printed papers, licensed by authority, or any fish, fruits, or victuals, nor to hinder persons who are the real workers or makers of any goods, wares, or manufactures of Great Britain, their children, apprentices, agents, or servants, from carrying abroad, exposing to sale, and selling by retail or otherwise, any of such goods, wares, or manufactures, in any market or fair, and in every city, borough, town corporate, and market town, nor any tinkers, coopers, glaziers, plumbers, harness-menders, or other persons, usually trading in mending kettles, tubs, household goods, or harness, from going about, and carrying with them proper materials for mending the same.

No wholesale dealer in British goods, selling from house to house, to be deemed a hawker. 52 Geo. 3. c. 108.

Hawkers or pedlars offering for sale any tea, or spirituous liquors, although having permits for the same, such articles shall be seized and forfeited. *See title* GROCER.

A licensed auctioneer conveying goods by public stage waggons, from place to place, and selling them by commission, is a pedlar or trading person within 50 Geo. 3. c. 41. and must take out a hawker's licence. *Rex* v. *Turner*, 4 *B. & A.* (*K. B.*) 510.

So where the goods consisted of very large quantities of books sent after him by public

conveyances, and sold by retail and by auction. *Dean, q. t.* v. *King. Ibid.* 517.

A licensed hawker opening a room in a place, he not being a householder there, and that not being the usual place of his abode, and selling there by retail, does not thereby commit an offence within the statute, 50 G. 3. c. 41. s. 7. To constitute such an offence, the selling must be by outcry, &c., or some mode of sale at auction. *Allen v. Sparkall,* 1 *B. & A.* 100.

The penalties above 20*l.* are recoverable in the courts at Westminster, half to the king and half to the informer; under 20*l.* before a magistrate, with appeal to the quarter-sessions. Witnesses neglecting to appear, or refusing to be examined upon oath, forfeit 10*l.*

HAWSER, a large rope, or a kind of small cable, for various uses on board a ship.

HAWSES, in a ship, are two large holes under the bow, through which the cables run. Thus the hawse-pieces are the large pieces of timber in which these holes are made.

Hawse-bags, are bags of canvas made tapering, and stuffed full of oakum; which are generally allowed small ships, to prevent the sea from washing in at the hawse-holes: and hawse-plugs are plugs to stop the hawses, to prevent the water from washing into the manger. A bold hawse is when the holes are high above the water. *Fresh the hawse,* that is lay new pieces upon the cable in the hawses, to preserve it from fretting. "Burning in the hawse," is when the cables endure a violent stress. "Clearing the hawses," is disentangling two cables that come through different hawses. "To ride hawse-full," is when in stress of weather the ship falls with her head deep in the sea, so that the water runs in at the hawses.

HAY, (Ger. *Hew.* Du. *Hovi.* Da. *Höe.* Sw. *Hö.* Fr. *Foin.* It. *Fieno.* Sp. *Heno.* Port. *Feno.* Rus. *Sjeno.* Pol. *Siano.* Lat. *Fœnum,*) any kind of grass, cut and dried, for the food of cattle. Regulations concerning the hay-market, and the selling of hay and straw, within the bills of mortality and thirty miles of the cities of London and Westminster, are enacted by 36 Geo. 3. c. 88. According to it, no hay or straw shall be sold within the expressed limit, but in trusses, the weight of which is regulated, as well as the number of trusses in each load. Penalties are inflicted for light weight, bad quality, for forestalling, regrating, for fraudulent delivery, for giving false receipts, and for salesmen and factors dealing on their own accounts, &c. &c.

HAZEL-NUTS, (Ger. *Haselnüsse.* Du. *Hazelnooten.* Da. *Hasselnodder.* Sw. *Haselnötter.* Fr. *Noisettes, Avelines.* It. *Nocciuole, Avellane.* Sp. *Avellanas.* Port. *Avellãas.* Rus. *Orechi.* Pol. *Laskowy orzech.* Lat. *Avellanæ,*) the fruits of the hazel or common nut-tree. The kernels of the fruit have a mild, farinaceous, oily taste, agreeable to most palates. Squirrels and mice are fond of them, as well as some birds, such as jays, nut-crackers, &c. A kind of chocolate has been prepared from them, and there are instances of their having been formed into bread. The oil expressed from them is little inferior to the oil of almonds; and is used by painters and chemists for receiving and retaining odours. The trees that produce these nuts are all of the large shrub kind, hardy and deciduous; and have several varieties valuable for their nuts, as also for their variety in large wildernesses and shrubbery walks. They will prosper in almost any situation, and turn to good account when growing in coppices, to cut as underwood, and as poles in various uses; as hoops, spars, hurdles, handles to husbandry-implements, walking-sticks, fishing-rods, &c. for which purpose they may be cut every fifth, seventh, or eighth year, according to the purposes for which they are designed. The best method of propagating them is by layers, though they may also be raised from the nuts.

HEAD-LAND, a promontory, or a cape.

HEAD-LINES, in a ship, those ropes of all sails which are next to the yards, and by which the sails are made fast to the yard.

HEAD-MATTER, the brains and blubber of the head of the South Sea spermaceti whale. This head-matter is packed in casks, and spermaceti prepared from it.

HEAD-SEA, is when a great wave or billow of the sea comes right a-head of the ship, as she is in her course.

HEAD-SAILS, in a ship, those which belong to the fore-mast and bow-sprit; for it is by these that the head of the ship is governed, and made to fall off and keep out of the wind; and these in quarter-winds are the chief drawing sails.

HEAD *of a ship,* or other vessel, is the prow or that part which goes foremost.

HEDERÆ, *see* GUM-HEDERÆ.

HEEL, in the sea language. If a ship leans on one side, whether she is aground or afloat, then it is said she heels a-starboard, or a-port; or that she heels offwards, or to the shore, i. e. inclines more to one side than to another.

HELIOTROPE, a word derived immediately from the Greek language, and signifying a "turning to the sun." It has been, from this derivation, applied to sun-dials, and other instruments connected with the science of astronomy; to certain plants, in that of botany; and, lastly, to certain articles, in that of mineralogy. In the last-mentioned science, it is given to a precious stone of a green colour, streaked with red veins. Pliny says it is thus called, because, when cast into a vessel of water, the sun's rays falling on it seem to be of a blood colour, and that, when out of the water, it gives a faint reflec-

tion of the figure of the sun, and is proper to observe eclipses of the sun as a helioscope. The heliotrope is also called oriental jasper, on account of its ruddy spots. It is found in the East Indies, as also in Ethiopia, Germany, &c. According to Dr. Thompson, the colour of this stone is different shades of green, often stained or striped with olive, yellow, and red. Found in mass, and in angular pieces, brittle, and infusible before the blow-pipe. Its specific gravity 2.6.

HELLEBORE, (Ger. *Nieswurz.* Du. *Niesswortel.* Da. *Nyserod.* Sw. *Prustrot.* Fr. *Ellèbore.* It. *Elleboro.* Sp. *Vedegambre.* Port. *Heleboro.* Rus. *Tschemeriza.* Pol. *Ciemierzyca.* Lat. *Helleborus,*) the name of several rosaceous-flowered plants. Those employed medicinally are,

1. *Fetid, Black Hellebore,* called also *Setterwort,* and *Bear's Foot.* The root of this plant is small, surrounded by numerous dark-coloured fibres, involved very intricately. The stem rises to about a foot and a half in height. The plant grows wild in many parts of England, and flowers about February; its smell, when recent, is extremely fetid; the taste bitter, and remarkably acrid. It is chiefly used as a vermifuge; the dried leaves in powder are given from five grains to ten. A single green leaf infused in water is sufficient for three doses for a child seven years old. This is a popular remedy, and is a very efficacious one; but must not be used without medical advice, as the effects of an over-dose are fatal.

2. *Black Hellebore,* commonly called *Christmas Flower, Christmas Rose,* and *Melampodium.* It is a low plant, without any stalk; the leaf is divided quite to the pedicle, into six, seven, or more, smooth round segments, resembling bay-leaves, indented from about the middle to the extremity. The flower is large, naked, pentapetalous, of a pale rose colour, with numerous stamina in the middle, followed by five or six pods full of shining black seeds; the petals remaining, and turning greenish. The root consists of numerous fibres, hanging generally from a knotty head, externally of a blackish colour, internally white. It is perennial, grows wild in the mountainous parts of Germany and Switzerland, and flowers in our gardens in January.

The taste of the root is bitter and pungent, and when chewed for a few minutes it benumbs the tongue.

It is a very active cathartic in large doses, and proves useful in many disorders which affect persons of a torpid habit of body, acting, in smaller doses, as a general stimulus.

White Hellebore.—This plant has large, oval, ribbed leaves, placed alternately on a round stalk, which they embrace by a tubular basis. The root is short, commonly near an inch thick, with numerous fibres hanging from it, externally of a brownish colour, internally more white. When fresh, it has a disagreeable smell, and a nauseous, bitter, pungent taste. It is common on mountainous places in Switzerland and Germany; and occurs in Italy, and even in Russia. This is, probably, not the same with the hellebore of the ancients, so celebrated for the cure of insanity; that appears rather, from the synonyms in Caspar Bauhine's Pinax, to be a species of anemone.

White hellebore acts as a violent emetic and purgative, producing great heat about the throat and fauces, and an increase of all the secretions. It is not often employed internally. As an external application, in the form of a decoction, it is very beneficial in many diseases of the skin; particularly the itch, which it frequently cures very speedily.

Hellebore is cultivated with success in this country, and in different parts of France, and in the Levant. The hellebore of the Levant is looked upon as the best of any that has hitherto been met with. It is sometimes mixed in external applications for destroying cutaneous insects.

HELM *of a ship,* is a piece of timber fastened into the rudder, which comes forward into the steerage, or place where the person at the helm steers the ship, by holding the whipstaff in his hand, which is joined to the helm. Steering-wheels are now more generally used. There are several terms in the sea-language relating to the helm: as, "bear up the helm;" that is, let the ship go more large before the wind: "helm a midship," or "right the helm;" that is, keep it even with the middle of the ship; "port the helm;" put it over to the left side of the ship: "starboard the helm;" put it on the right side of the ship.

HEMP, (Ger. *Hanf.* Du. *Hennip, Kennip.* Da. *Hamp.* Sw. *Hampa.* Fr. *Chanvre.* It. *Canape.* Sp. *Canamo.* Port. *Canhamo, Linhocanhamo.* Rus. *Konapli, Konopel.* Pol. *Konop.* Lat. *Cannabis,*) a valuable plant which grows wild in the East Indies, and is cultivated to a very considerable extent in Britain.

It does not appear that the ancients were acquainted with the use of hemp, in respect of the thread it affords. Pliny, who speaks of the plant in his natural history, lib. xx. cap. 23., says not a word of this; contenting himself with extolling the virtues of its stem, leaves, and root. In effect, what some writers of the Roman antiquities remark, viz. that the hemp necessary for the use of war was all stored up in two cities of the western empire, viz. at Ravenna, and Vienne, under the direction of two procurators, called *procuratores linificii,* must be understood of linum or flax.

The use of hemp is so extensive and important, that vast quantities of it are annually imported into this, and other, kingdoms,

from those countries where it grows in greatest plenty, of which Russia and Poland are the principal.

Only the coarser kinds of hemp are employed in making cordage; the better sorts being used for linen, which, though it can never be made so fine as that from flax, is yet incomparably stronger, and equally susceptible of bleaching, both in the old, and new manner. Cloths made of hemp have also this property, that their colour improves by wearing, while that of linen decays. The prices of hemp-linen are various: from 10*d.* to 4*s.* 6*d.* per yard. The low-priced kinds are very generally worn in Suffolk, where hemp is cultivated, by husbandmen, farmers, &c.; those from 1*s.* 6*d.* to 2*s.* by farmers and tradesmen; and those from 2*s.* 6*d.* to 4*s.* 6*d.* are frequently preferred by gentlemen to flax-linen, on account of their strength and warmth. The English hemp is much superior in strength to that which grows in any other country. Next to it is the Russian, from which sacking is usually made, as it is sometimes also from the offal of the English kind; but none of the Suffolk hemp is ever made into cordage, on account of its fineness. A considerable quantity of Russia sheeting is imported into England merely on account of its strength, and is much coarser at the price than any other foreign linen.

Besides these uses of hemp, it is said to possess a property as a plant which renders it almost invaluable; viz. that of driving away almost all insects that feed upon other vegetables. Hence in some places of the continent they secure their crops from these mischievous attacks, by sowing a belt of hemp round their gardens, or any particular spot which they wish to preserve.

The important uses of hemp, and the superiority of that produced in Britain to other kinds, have rendered the culture of it an object of attention to government. Accordingly, in the year 1787, a bounty of three-pence per stone was allowed on all the hemp raised in England; and duties have been laid on that which comes from abroad. The export of British hemp is free.

The usual height of the plant when growing is from five to six feet, but this varies very considerably according to circumstances. That which is cultivated in Alsace is sometimes more than twelve feet high, and upwards of three inches in circumference, the stalks being so deeply rooted that a very strong man can scarce pull them up. Mr. A. Young, in a tour through Catalonia in Spain, says, that where the country is well watered, the crops of hemp are extraordinary; and that the plants generally rise to the height of seven feet. In Italy hemp is generally cultivated, though the Bolognese only can pretend to any superiority in the management of it. It is there sown upon their best lands, which are rich strong loams; and on which they are at all possible pains to procure a fine friable surface. For manure they use dung, pieces of rotten cloth, feathers, and horns brought from Dalmatia. The plant, however, may be cultivated upon ground of every kind; the poorer land producing that which is finer in quality, though in smaller quantity; whereas strong and rich land produces a great quantity, but coarser. It does not exhaust the land on which it grows like flax. It may be raised for many years successively on the same ground, provided it be well manured. An acre requires from nine to twelve pecks, according to the nature of the soil; the latter being the most usual, though a variation in the quality of the soil makes an alteration both in the quantity, and quality, of the hemp. An acre produces on an average 36 or 38 stone. The season for sowing it extends from the 25th of March to the 15th of June. The seed ought always to be thin, not exceeding two bushels to an acre; and with the advantage of a drill-plough, still less will answer. As there are two kinds of hemp, the male, and female, of which the former only produces seed, regard must be had to this circumstance. In Sussex the male, and female, are pulled together about thirteen weeks after the sowing, but in the fens they are frequently separated. This last method is recommended, and little paths should be made lengthwise through the field, at about seven feet distance from each other, to allow a passage for the person who pulls up the female hemp from among the other; the latter requiring to stand more than a month after for the purpose of ripening the seeds. The female hemp is known to be ripe by the fading of the flowers, the falling of the farina fecundans, and some of the stalks turning yellow. After the whole of this kind is pulled, it must be manufactured according to the directions to be afterwards given, and ought to be worked if possible while green; the hemp thus produced being much finer than that which is previously dried. The reason of this is, that the plant contains a great quantity of glutinous matter; which being once dried, agglutinates the fibres in such a manner that they can never be afterwards perfectly separated. The female hemp, however, is always in smaller quantity than the male; and therefore where the crop is large, it will be impossible to work the whole as fast as it is pulled or cut. It is known to be ripe by the stems becoming pale; but it must be remembered, that hemp of any kind will be much less injured by pulling the plants before they are ripe, than by letting them stand too long.

The male hemp being stripped of its leaves, &c. as afterwards directed, will soon be dry for storing by the heat of the atmosphere, though sometimes it may be necessary to use artificial means; but where these are

used, the utmost care must be taken, hemp, when dry, being exceedingly inflammable. The stored, or dried, hemp must be steeped and treated in every other respect as though it had been green; whence it is evident that this operation ought never to be used but in cases of necessity. It is likewise impossible to make hemp, which has been dried previous to its being steeped, so white, as that which has been worked green.

After the hemp is pulled, it must be taken in large handfuls, cutting off the roots (though this is not absolutely necessary), the leaves, seeds, and lateral branches, being dressed off with a wooden sword or ripple. It is then to be made up into bundles of twelve handfuls each, in order to be steeped, like flax, in water. This, or something similar, is absolutely necessary, in order to separate the bark, which is properly the hemp, from the reed or woody part. In Suffolk this operation is called water-retting; but sometimes a mere exposure to the air is substituted in its place, turning the hemp frequently during the time it is exposed. This is called dew-retting; but the former method is universally deemed preferable. Such hemp as is designed for seed is seldom water-retted. Dew-retted hemp is generally stacked and covered during the winter; in January and February it is spread upon meadow land, and whitens with the frost and snow; though it is always much inferior to the other, and proper for coarser yarns only.

The length of time required for steeping hemp is various, and a complete knowledge of it can only be attained by practice. In Suffolk it is usual to continue the immersion four, five, or six days; standing water is preferred, and the same water will steep hemp three times during the season, but the first has always the best colour. Some prefer clear and running water, especially if overhung with trees. The bundles are to to be laid crosswise upon each other, taking particular notice of the manner in which they lie when put in, that they may be taken out without difficulty. The time of steeping is from six to eleven days; and here we must observe, that it is much better to let it remain too long in the water than too short a time. The slenderest hemp requires the most soaking. The operation is known to be finished by the reed separating easily from the bark.

After the hemp is thoroughly steeped, the next operation is to separate the bark from the reed or woody part; and this may be done in two ways, viz. either pulling out the reed from every stalk with the hand, or drying and breaking it like flax. This last operation, called *reeding*, may be performed either in a trough under water or upon a table. The whole, however, may be reduced to the following, viz. pressing down the bundles either in a trough, or on a table, by proper weights, to keep the hemp steady in the middle and top end. Then beginning at the upper part of the bundle, pull out the reeds one by one. As you proceed, the rind which remains will press closely upon the remaining unreeded hemp, and keep it more steady; so that you may take two, four, or even six stalks at a time. The weight is then to be removed from the top, and all the pieces of reed which remain there, having been broken off in the former operation, are to be taken out. Lastly, the middle weight is to be taken off, and any small pieces which remain there taken out. If the reeding is performed on a table, the bundle must be weeded frequently, though slightly; a continual dropping of water would perhaps be the best method.

After the hemp is reeded, it must next be freed from the mucilaginous matter with which it still abounds. This is done by pouring water through it, squeezing out the liquid after every affusion, but taking care not to let the threads twist or entangle each other.

Hemp is broken by machinery, after being steeped, in a manner similar to flax; but the instruments used for this purpose in Suffolk are all worked by the hand. That which breaks in the operation is called *shorts*, and is about half the value of the long hemp.

Beating is the next operation, which formerly was performed entirely by hand, but now in most places by a water-mill, which raises three heavy beaters that fall upon it alternately; the hemp being turned all the while by a boy in order to receive the strokes equally. The finer it is required to make the tow, the more beating is necessary. It is then dressed or combed by drawing it through heckles formed like the combs of wool-manufacturers, only fixed. Sometimes it is divided into two or three sorts of tow, and sometimes the whole is worked together into one sort; the prices varying from 6*d.* to 1*s.* per pound.

The hemp thus manufactured is sold to spinners, who reel their yarn as follows:

2 yards make		1 thread.
40 threads	-	1 lea.
20 leas	-	1 skain.
3 skains	-	1 clue of 4800 yds.

It is next delivered to the bleachers, who return it bleached on receiving 20 or 21 clues for every 120 bleached.

By 33 Hen. 8. c. 17., hemp or flax shall not be watered in any running stream, or common pond, under pain of 40*s.*

By 15 Car. 2. c. 15., any person, native or foreigner, may freely exercise the trade of dressing and using hemp, flax, or make tapestry hangings, twine, knots, or cordage, and after three years shall have the privilege of natural-born subjects.

HEMP-SEED, (Ger. *Hanfsaat.* Du. *Hennipzaad, Kennepzaad.* Da. *Hampefröe.*

Sw. *Hampfrö.* Fr. *Chenevis, Chenevi.* It. *Canuapuccia.* Sp. *Canamon.* Port. *Linhaça do canhamo.* Rus. *Konopljanoe Semja.* Pol. *Siemi Konepnianie.* Lat. *Semen cannabinum,*) the seed which produces hemp. It is deemed a good medicine in coughs, but its great virtues are against the jaundice.

The best hemp-seed for producing a crop is that which looks brightest, and will not break when rubbed. It should always be of the growth of the preceding year, and also the produce of some different soil. Nothing is better for the food of domestic fowls. It will feed those which are designed for the table, and will make laying hens very prolific.

HEPATIC ALOES. The inspissated juice of the common aloe, a native of Barbadoes, and other West India islands. Its smell is stronger and more disagreeable than the soccotrine aloes; the taste is uncommonly bitter and nauseous.

The best hepatic aloes come from the island of Barbadoes in large gourd-shells; an inferior sort, which is generally soft and clammy, is imported in casks. *See* ALOES.

HERRINGS, (Ger. *Häringe, Heringe.* Du. *Haringen.* Da. *Sild.* Sw. *Sill.* Fr. *Harengs.* It. *Aringhe.* Sp. and Port. *Arenques.* Rus. *Seldi.* Pol. *Sledzie.*) No herrings shall be sold in any vessel, unless the barrel contain 32 gallons, and in the same proportion for the half barrel and firkin. Such fish are also directed to be well packed, and all of the same salting, and to be as good in the middle of the cask as at the ends, under the penalty of 3*s.* 4*d.* each barrel; and all vessels containing herrings are to be marked with the quantity they contain, and the place where packed. Sworn packers are also employed at all fishing-ports, under penalty of 100*l.* *See* FISHERY.

HIDE *of land,* such a quantity of land as may be ploughed with one plough within the compass of a year, or so much as would maintain a family; some call it 60, some 80, and some 100 acres.

HIDES, (Ger. *Häute.* Du. *Huiden.* Da. *Huder, Huuder.* Sw. *Hudar.* Fr. *Peaux.* It. *Cuoja.* Sp. *Pellejos, Pieles.* Port. *Pelles.* Rus. *Koshi.* Pol. *Skory,*) signify, generally, the skins of beasts; but the term is more particularly applied to those of large cattle, such as bullocks, cows, horses, &c.

Hides are either raw or green; that is, the same as when taken off the carcase, or salted and seasoned, in which case they are dressed with salt, alum, and saltpetre, to prevent them from putrefying, or they are cured or tanned.

The hides of South America are in the highest repute, and vast quantities of them are annually imported into Great Britain. Ireland also, where so many heads of cattle are slaughtered for provision, supplies England with horse, cow, and ox hides of very excellent quality. These are mostly imported in the hair. When sent to foreign countries they are usually salted. *See title* CURRIERS.

HINGES, (Ger. *Häspen, Thürangeln.* Du. *Herren, Hengzels.* Da. *Dorhager.* Sw. *Dorhakar.* Fr. *Gonds.* It. *Arpioni, Gangheri.* Sp. *Goznes, Quicios.* Port. *Gonzos, Couceiras,*) are joints made of brass, iron, &c. on which gates, doors, lids and covers of boxes, trunks, &c. turn. They are principally manufactured at Birmingham, Wolverhampton, and in the neighbourhood of all these places, of all sizes and descriptions.

HITCH, in the sea-language, is to catch hold of any thing with a hook or rope, and by this means to hold it fast: thus when a boat is to be hoisted in, the sailors say, hitch the tackles into the ring-bolts of the boat; and when they are about to weigh anchor, hitch the fish-hook to the fluke of the anchor.

HIVE, (*Bee-hives.* Ger. *Bienenkörbe.* Du. *Biekorven.* Da. *Biekurve.* Sw. *Bekorgar, Bikupor.* Fr. *Ruches, Paniers.* It. *Arnie.* Sp. *Colmenas.* Port. *Colmeas, Corticos.* Rus. *Ulei.* Pol. *Uly,*) a convenient receptacle for bees, which is frequently formed of glass, but more commonly of platted straw, woven in the shape of a dome.

HOCK, a German wine of exquisite flavour when old. The best comes from Frankfort on the Maine, whence it is brought to us in easks called *aumes,* each of which contains 140 gallons. *See* WINE.

HOG, on board of a ship, is a sort of flat scrubbing broom, formed by inclosing a number of short twigs of birch or some such like wood between two pieces of plank fastened together, and cutting off the ends of the twigs. It is used to scrape the filth from a ship's bottom under water. For this purpose they fit to this broom a long staff with two ropes; one of which is used to thrust the hog under the ship's bottom, and the other to guide and pull it up again close to the planks.

HOGS' BRISTLES. *See* BRISTLES.

HOGSHEAD, a measure of capacity, containing sixty-three gallons. A hogshead is equal to half a pipe.

HOLLAND, a fine close kind of linen cloth. so called from its being first manufactured in Holland; but this kind of linen is now made in Ireland, and also in Scotland, in as great perfection as in any other part of the world.

HOLLAND, NEW. An island in that part of the globe lately distinguished by the appellation of Australasia, and entitled to a separate consideration here, as belonging to none of the four continents already described, and at the same time partaking of the qualities to entitle it to the denomination of a continent itself.

Its length from E. to W. is about 43 de-

grees of longitude; being 2730 British miles; and its breadth from N. to S. extends from 11° to 39°, being 1960 British miles. Comprehending in the estimate a great number of inferior islands in its vicinity, the area of this last discovered portion of the terraqueous globe is more than equal to that of Europe. It has been discovered only about two centuries, and not attempted to be peopled by Europeans till within about 40 years, when the loss of that receptacle for the off-scourings of an exuberant population, the largest portion of British America, obliged the government to look out for some other refuge for expatriated criminals. A considerable district on the eastern coast of this country was then seized, and appropriated to the purpose, under the denomination of New Holland; and, as it does not seem probable that any other power will speedily have the means of placing any limit to our colonization, it bids fair to rival, in interest and importance, some other of our possessions; which the man must be blind indeed who does not foresee will, at some future period, slip from our grasp, as the principal part of the North American continent has already done. Nature has done her part, even liberally, toward making this country a valuable possession; cultivation and commerce may, ere long, do the rest. The soil of the principal island abounds in coal, and some of the adjacent ones have lime-stone. There is plenty of timber, of at least an useful kind, if not equal to the produce of Europe: pines flourish luxuriantly, and furnish an extremely hard wood; and the gum-tree grows to an immense size. There are indeed but few kinds of animals fit for food, but cattle of all kinds imported from other countries thrive well, and increase abundantly. Water-fowl are in excessive plenty, and the coasts excel in various kinds of fish, and incredible numbers of turtle. There are fine bays, and excellent harbours for shipping. Wheat, maize, and most of the vegetables, which have been introduced from Europe, grow well; and there is no reason to doubt that various others from different parts of the world would succeed with proper care and cultivation, as the general state of the climate is mild and salubrious; and though occasionally subject to drought and storms, not more frequent in occurrence, nor more injurious in their effects, than in the West India islands, and other parts of the foreign dominions of Great Britain. Flax and wool have already afforded specimens of great promise for an export commerce. Their imports are necessarily confined to the wants of an infant colony, but these are rapidly increasing. Not an inconsiderable number of ready-made clothes shops, especially among the Jews, in London, derive their chief support from their intercourse with New Holland.

HOLLANDS. *See* GENEVA.

HONEY, (Ger. *Honig.* Du. *Honig, Honing.* Da. *Honning.* Sw. *Honing.* Fr. *Miel.* It. *Mele.* Sp. *Miel.* Port. *Mel.* Rus. *Med.* Pol. *Miod.* Lat. *Mel,*) a saccharine substance prepared by bees. It has a white and yellowish colour, a soft and grained consistence, a saccharine and aromatic smell. By distillation it affords an acid phlegm, and an oil, and its coal is light and spongy, like that of the mucilage of plants. Nitric acid extracts from it oxalic acid precisely as it does from sugar; it is very soluble in water, with which it forms a syrup, and like sugar passes to the vinous fermentation. There are three distinctions of honey, according to its purity, fluidity, and the manner in which it has been procured from the honey-combs. The first and finest kind is virgin honey, or the first produce of a swarm, obtained from the combs without pressing; these being only set to drain, in order to its running out. The second kind is that known by the name of white honey, being thicker than the former, and often indeed almost solid; it is procured by pressing the combs, but without the assistance of heat. The third and worst kind is the common yellow honey, obtained from the combs first heated over the fire, and then pressed. It is frequently adulterated with flour, sugar, &c.; the best way, therefore, of buying it is in the comb.

By stat. 23 Eliz. c. 8. s. 4. All vessels of honey are to be marked with the initial letters of the name of the owner, on pain of 6*s.* 8*d.* and be of such a content, as follows: the barrel 32 gallons, the kilderkin 16 gallons, and the firkin 8 gallons, on pain of 5*s.* for every gallon wanting; and if any honey sold, be corrupted with any deceitful mixture, the seller shall forfeit the honey, &c.

HOOFS of ANIMALS. The hoofs of animals are composed of a substance nearly of the same nature as horn. They are not applied to any use, but to afford ammonia and animal coal, in the preparation of the prussiat of potash, and in the case-hardening of iron.

HOOKS, (Ger. *Haken.* Du. *Haaken.* Da. *Hager.* Sw. *Hakar.* Fr. *Croos, Crochets.* It. *Ganci, Uncini.* Sp. and Port. *Ganchos.* Rus. *Kajuki.* Pol. *Haki,*) pieces of iron, or other metal, properly tempered and bent, and employed for various purposes. Such are fish-hooks, boat-hooks, meat-hooks, &c.

HOOPS, (Ger. *Reifen, Fassreifen.* Du. *Hoepen, Banden.* Da. *Tondebaand.* Sw. *Band.* Fr. *Cercles, ou Cerceaux.* It. *Cerchi* Sp. *Aros, Cellos.* Port. *Arcos.* Rus. *Obrutschii.* Pol. *Obroozy,*) are made of wood, and also of iron, for the purpose of binding such vessels as are used for domestic purposes, for the conveyance of liquids, &c. Iron hoops are exported to Spain, Portugal, the island of Madeira, and to our colonies in the West Indies, where they are employed

for hooping the pipes and butts of wine, the rum puncheons, &c. &c. Iron designed for making hoops should be remarkably well tempered.

HOPS. (Ger. *Hopfen*. Du. *Hoppe*. Da. *Humle, Humble*. Sw. *Humla*. Fr. *Houblon*. It. *Luppoli, Bruscandoli*. Sp. *Oblon*. Port. *Luparo, Lupolo*. Rus. *Chmel*. Pol. *Chmiel*. Lat. *Humulus, Lupulus*.) Of hops there is only one species, the *lupulus*, which is sometimes found wild in the hedges near houses and gardens, but probably it is not indigenous. The stalk is weak and climbing; it creeps up the support in a spiral, ascending always from the right hand to the left.

Hops are said to have been first brought into England from the Netherlands, in the year 1524. They are first mentioned in the English statute-book in the year 1552, viz. in the 5th and 6th Edw. 6. c. 5.; and by an act of parliament of the first year of James 1. anno 1603, c. 18. it appears that hops were then produced in abundance in England. The hop being a plant of great importance in this country, we shall consider what relates to the culture, and management, of it, under distinct heads.

The soil. — As to the choice of soil, the hop-planters esteem the richest and strongest ground the most proper; and if it is rocky within two or three feet of the surface, the hops will prosper well; but they will by no means thrive on a stiff clay, or spongy wet land. The Kentish planters account new land best for hops; they plant their hop gardens with apple-trees at a large distance, and with cherry-trees between; and when the land has done its best for hops, which they reckon it will in about ten years, the trees may begin to bear.

To plant hops.—In the winter time provide your soil and manure for the hop-ground against the following spring. If the dung be rotten, mix it with two or three parts of common earth, and let it incorporate together till you have occasion to make use of it in making your hop-hills; but if it be new dung, then let it be mixed as before till the spring in the next year, for new dung is very injurious to hops. Hops require to be planted in a situation so open that the air may freely pass round and between them, to dry up and dissipate the moisture, which often destroys the middles of large plantations, while the outsides remain unhurt.

The hills should be eight or nine feet asunder. If the ground be intended to be ploughed with horses between the hills, it will be best to plant them in squares, chequer-wise: but if the ground is so small that it may be done with the breast-plough or spade, the holes should be ranged in a quincunx form. Which way soever you make use of, a stake should be stuck down at all the places where the hills are to be made. Be very particular in the choice of the plants as to kind; for if the hop-garden be planted with a mixture of several sorts of hops, that ripen at several times, it will cause much trouble, and great detriment.

The two best sorts are the white, and the grey bind; the latter is a large square hop, more hardy, bears more abundantly, but ripens later than the former. There is another sort of the white bind, which ripens a week or ten days before the common; but this is tenderer, and a less plentiful bearer; though it has this advantage, that it comes first to market. If there be a sort of hop you value, and would wish to increase, the superfluous binds may be laid down when the hops are tied, cutting off the tops, and burying them in the hill; or when the hops are dressed, all the cuttings may be saved; for almost every part will grow, and become a good set the next spring.

Seasons of planting hops. — The Kentish planters approve the months of October and March. The most usual time of procuring the cuttings is in March, when the hops are cut and dressed. As to the manner of planting the sets, there should be five good sets planted in every hill, one in the middle, and the rest round about, sloping. Let them be pressed close with the hand, and covered with fine earth; a stick should be placed on each side of the hill to secure it.

Dressing hops. — When the hop-ground is dug in January or February, the earth about the hills, and very near them, ought to be taken away with the spade, that you may come the more conveniently at the stock to cut it. About the end of February, if the hops were planted the spring before, or if the ground be weak, they ought to be dressed in dry weather; but if the ground be strong and in perfection, the middle of March will be a good time; and if it is apt to produce over-rank binds, the beginning of April, may be soon enough. Then having, with an iron picker, cleared away all the earth out of the hill, so as to clear the stock to the principal roots, with a sharp knife you must cut off all the shoots which grew with the binds the last year; and also all the young suckers, that none be left to run in the alley, and weaken the hill. It will be proper to cut one part of the stock lower than the other, and also to cut that part low that was left highest the preceding year. In dressing those hops that have been planted the year before, you ought to cut off both the dead tops and the young suckers which have sprung up from the sets, and also to cover the stocks with fine earth, a finger's length in thickness.

The poling of hops.—About the middle of April the hops are to be poled, when the shoots begin to sprout up; the poles must be set to the hills deep in the ground, with a square iron picker or crow, that they may the better endure the winds; three poles are sufficient for one hill. These should be

placed as near the hill as possible, with their bending tops turned outwards from the hill, to prevent the binds from entangling; and a space between two poles ought to be left open to the south, to admit the sun-beams.

The tying of hops.—The buds that do not clasp of themselves to the nearest pole when they are grown to three or four feet high, must be guided to it by the hand, turning them to the sun, whose course they will always follow. They must be bound with withered rushes, but not so close as to hinder them from climbing up the pole. This you must continue to do till all the poles are furnished with binds, of which two or three are enough for a pole; and all the sprouts and binds that you have no occasion for, are to be plucked up; but if the ground is young, then none of these useless binds should be plucked up, but should be wrapped up together in the middle of the hill.

The gathering of hops.—About the beginning of July hops begin to blow, and will be ready for gathering about Bartholomew-tide. A judgment may be made of their ripeness by their strong scent, their hardness, and the brownish colour of their seed. When by these tokens they appear to be ripe, they must be picked with all the expedition possible; for if at this time a storm of wind should come, it would do them great damage, by breaking the branches, and bruising and discolouring the hops; and it is very well known, that hops, being picked green and bright, will sell for a third more than those which are discoloured and brown.

The most convenient way of picking them is into a long square frame of wood, called a bin, with a cloth hanging on tenter-hooks within it, to receive the hops as they are picked. They must be picked very clean, *i. e.* free from leaves and stalks; and as there shall be occasion, two or three times in a day, the bin must be emptied into a hop-bag made of coarse linen cloth, and carried immediately to the oast or kiln in order to be dried; for if they should be long in the bin or bag, they will be apt to heat and be discoloured. If the weather be hot, there should no more poles be drawn than can be picked in an hour, and they should be gathered in fair weather, if it can be, and when the hops are dry; this will save some expense in firing, and preserve their colour better when they are dried.

Drying of hops.—The best method of drying hops is with charcoal on an oast or kiln, covered with hair-cloth of the same form and fashion that is used for drying malt. The kiln ought to be square, and may be of ten, twelve, fourteen, or sixteen feet over at the top, where the hops are laid, as your plantation requires, and your room will allow. There ought to be a due proportion between the height and breadth of the kiln, and the beguels of the steddle where the fire is kept; viz. if the kiln be twelve feet square on the top, it ought to be nine feet high from the fire, and the steddle ought to be six feet and a half square, and so proportionable in other dimensions.

The hops must be spread even upon the oast, a foot thick or more, if the depth of the curb will allow it; but care is to be taken not to overload the oast if the hops are green or wet. The oast ought to be first warmed with a fire before the hops are laid on, and then an even steady fire must be kept under them; it must not be too fierce at first, lest it scorch them, nor must it be suffered to sink or slacken, but rather be increased till the hops are nearly dried, lest the moisture or sweat which the fire has raised fall back or discolour them. When they have lain about nine hours they must be turned, and in two or three hours more they may be taken off. It may be known when they are well dried, by the brittleness of the stalks, and the easy falling off of the hop-leaves.

Bagging of hops.—As soon as the hops are taken off the kiln, lay them in a room for three weeks or a month to cool, give, and toughen; for if they are bagged immediately, they will powder, but if they lie a while, (and the longer they lie the better, provided they are covered close with blankets to secure them from the air,) they may be bagged with more safety, as not being liable to be broken to powder in treading; and this will make them bear treading the better, and the harder they are trodden the better they will keep.

The laws relating to hops are extremely numerous. In the first place, those for their protection; secondly, those which make them a subject of duty.

The 6 Geo. 1. commonly called the Black Act, enacts, that if any person shall maliciously cut any hop binds growing on poles, he shall be guilty of felony *sans* clergy.

9 Anne, c. 12. prohibits brewers from using other bitters to serve as substitutes for hops, under a penalty of 20*l.*

By 42 Geo. 3. c. 88. and 56 Geo. 3. c. 58. not only brewers are prohibited from using, but druggists are also prohibited from selling to brewers, any substitute for malt or hops, under a penalty of 500*l.*

By 9 Ann. c. 121. an additional duty of 3*d.* a pound is laid on all hops imported, over and above all other duties; and hops landed before entry and payment of duty, or without warrant for landing, shall be forfeited and burnt; (the ship also shall be forfeited, and the person concerned in importing or landing shall forfeit 5*l.* a hundred weight, 7 Geo. 2. c. 19;) and hop-grounds are required to be entered on pain of 40*s.* an acre. Places of curing and keeping are also to be

entered, on pain of 50*l.* which may be visited by an officer at any time without obstruction, under the penalty of 20*l.* All hops shall, within six weeks after gathering, be brought to such places to be cured and bagged, on pain of 5*s.* a pound.

The re-bagging of foreign hops in British bagging, for sale or exportation, incurs a forfeiture of 10*l.* a hundred weight; and defrauding the king of his duty, by using twice or oftener the same bag, with the officer's mark upon it, is liable to a penalty of 40*l.* Concealment of hops subjects the concealer to the forfeiture of 20*l.* and the concealed hops; and any person who shall privately convey away any hops, with intent to defraud the king and owner, shall forfeit 5*s.* a pound. And the duties are required to be paid within six months after curing, bagging, and weighing, on pain of double duty, two-thirds to the king, and one-third to the informer.

By 49 & 50 Geo. 3. c. 81. the grower of hops is to give 24 hours' notice to the excise officer of his intention to weigh, under a penalty of 50*l.*; and shall keep true weights and scales for the purpose, under a penalty of 100*l.*; and shall assist in weighing, under a penalty of 50*l.*; and shall not suffer any officer of excise inferior to a supervisor to weigh between five o'clock in the evening and four in the morning, under a penalty of 20*l.*; and shall mark on his bags, before bagging, his name and place of abode in durable paint or ink, under a penalty of 20*l.*; and the weight of each bag shall be no greater than in the proportion of 10lb. to the gross weight of bag and hops together of 112lb. under a penalty of 20*l.*; and the officer shall put his mark on each bag, and counterfeiting the said mark, shall be subject to a penalty of 100*l.*, and defacing the same, to a penalty of 20*l.*

By 48 Geo. 3. c. 134. the grower shall also mark on each bag the name of the parish and county where the hops were grown, under a penalty of 20*l.*; and obliterating the same, shall be subject to a like penalty. By 54 Geo. 3. c. 23. the letters of the said mark shall be four inches in length, and half an inch in breadth, for the name of the person, and of three inches length and half an inch breadth, the name of the parish, &c. under a penalty of 20*l.*; and shall not put the name of any other person, parish, or county on the same than the true one, under a like penalty; and shall not put hops of different values and qualities into the same bag, under a penalty of 20*l.* for every such bag.—Adulterating (by which is intended also any process to give them a false colour) hops is made subject to a penalty of 5*l.* per hundred weight, by 7 Geo. 2. c. 19. *See*, on this subject, 6 *Term R.* 674. *R. v. Pack.*

The hops principally sold in the London market are those of Kent, Sussex, Essex, and Farnham, the last mentioned of which are usually sold in *pockets* only. These sell at nearly double the price of the other growths. The principal hop-factors reside in the borough of Southwark, where all hops are sold by sample.

HOREHOUND, or the WATER of GIPSEYWORT, an indigenous perennial plant, growing on the banks of streams and ponds.

The French manufacturers are chiefly indebted to this plant for the deep black colour of their cloths; its juice imparts a permanent dye to wool, silk, and linen.

HORN, (GER. DA. and SW. *Horn.* DU. *Hoorn.* FR. *Corne.* IT. *Corno.* SP. *Cuerno, Asta, Hasta.* PORT. *Corno.* RUS. and POL. *Rog.* LAT. *Cornu,*) a hard substance growing on the heads of animals, particularly the cloven-footed quadrupeds; and serving them both as weapons of offence, and defence. Horns are not very hard, as they may be easily cut with a knife, or rasped with a file; but they are so tough, as not to be capable of being pounded in a mortar.

When in thin plates they have a degree of transparency, and have been sometimes substituted for glass in windows. When heated sufficiently, they become very soft and flexible, so that their shape may be altered considerably. Hence they may be gradually squeezed into a mould and wrought into various forms. Horns make a considerable article in the arts and manufactures. Bullocks' horns, softened by the fire, serve to make lanthorns, combs, handles for knives, ink-horns, tobacco-boxes, &c. Glue is sometimes made of the raspings or shavings.

Dyeing of horns.—Black is performed by steeping brass in aqua-fortis till it is turned green: with this the horn is to be washed once or twice, and then put into a warmed decoction of logwood and water.

Green is begun by boiling it, &c. in alum-water; then with verdigris, ammoniac, and white-wine vinegar, keeping it hot therein till sufficiently green.

Red is begun by boiling it in alum-water; and finished by decoction in a liquor compounded of quick-lime steeped in rain-water, and to every pint an ounce of Brazil wood added. In this decoction the bone, &c. is to be boiled till sufficiently red.

Dyeing or staining horn to imitate tortoise-shell.—The horn to be dyed must be first pressed into proper plates, scales, or other flat form, and the following mixture prepared: Take of quick-lime two parts, and litharge one part; temper them together to the consistence of a soft paste, with soap-ley. Put this paste over all the parts of the horn, except such as are proper to be left transparent, in order to give it a near resemblance of the tortoise-shell. The horn must remain in this manner covered with the paste till it is thoroughly dry; when, the paste being brushed off, the horn will be found partly opaque and partly transparent, in the

manner of tortoise-shell, and when put over a foil of the kind of latten, called orsedue, will be scarcely distinguishable from it. It requires some degree of fancy and judgment to dispose of the paste in such a manner as to form a variety of transparent parts, of different magnitudes and figures, to look like the effect of nature: and it will be an improvement to add semi-transparent parts, which may be done by mixing whiting with some of the paste, to weaken its operation in particular places, by which spots of a reddish-brown will be produced, which if properly interspersed, especially on the edges of the dark parts, will greatly increase the beauty of the work, and its similitude to real tortoise-shell. British horns, unwrought, may not be transported, or sold to strangers, upon forfeiture of double their value. 4 Edw. 4. c. 8. s. 1. 1 Jac. 1. c. 25. s. 44. 7 Jac. 1. c. 14. s. 4.

HORN-BEAM. This is a very valuable tree, and grows to a large size: the wood is very tough and white, and will burn like a candle; it is much used by turners, is very useful for various implements of husbandry, and is wrought into cogs for the wheels of mills, presses, &c. which are far superior to those manufactured of other wood.

The inner bark gives a permanent colour to yarn.

HORNERS are artificers whose business it is to prepare various utensils of the horns of cattle.

The horners were a very ancient company in the city of London, being incorporated 12th January, 1638. To protect their trade from the intrusion of foreigners, a statute, 6 Edw. 4. was made, by which the sale of horns to foreigners (except such as the said horners refused) was prohibited; and the wardens had certain powers granted them to search all the markets in London, &c. This law was repealed in the reign of James I. but the horners again applied to parliament, and king Edward's statute was renewed, and still remains in force. The importation of unwrought horns into this country is also prohibited.

HORN-PRESSER. This is an art which requires more strength than ingenuity. The horns of oxen are cut into several rings about an inch and a half broad, and being held over the fire, these rings, when softened by the heat, are cut and pulled open with a pair of pincers. They are then placed between hot iron plates, and pressed with great force till they are spread, and become as thin as is necessary; this operation is repeated, in order to make the horns for lanthorns, horn-books, &c. by heating fresh irons, and again putting them in the press till they become transparent and thin.

HORSE, (Ger. *Pferd*. Du. *Paard*. Da. *Hest*. Sw. *Häst*. Fr. *Cheval*. It. *Cavallo*. Sp. *Caballo*. Port. *Cavallo*. Rus. *Loschad*. Pol. *Kon*. Lat. *Equus*,) a domestic quadruped, very useful in agriculture, commerce, war, hunting, racing, &c. Horses are distinguished into divers kinds, with regard to their country, as the Arabian, Neapolitan, Spanish genet, Barbarian, Dutch, English, Flemish, &c.; with regard to their uses, as race-horse, war-horse, coach-horse, dray-horse, pack-horse, &c.; and with regard to their colours, as bay, dun, grey, black, &c.

The Arabian and Barbary coursers are the swiftest in the known world, and next to these rank the English racers. For the harness and for draught, the horses of England are deemed superior to most others, as well on account of their uncommon vigour and activity, as their extraordinary beauty.

No horse shall be exported without the king's licence, nor mare above the value of 6*s*. 8*d*. 11 Hen. 7. c. 13.

By 1 Ed. 6. c. 5. no horse or mare shall be exported without the king's licence, on forfeiture thereof, and of 40*l*.; and no mare shall be exported exceeding 10*s*. in price.

Although the above acts remain on the face of the statute-book, they have long since fallen into total disuse and non-observance, particularly as subsequent acts, from 22 Car. 2. down to the present time, allow of the exportation of horses, mares, or geldings of British breeding, at an export duty; and they do in fact make a considerable article of export to most parts of the world, especially Russia.

No person convicted of feloniously stealing a horse, mare, or gelding, shall have the privilege of clergy. 1 Edw. 6. c. 12. And not only all accessories before such felony done, but also all accessories after such felony, shall be deprived and put from all benefit of their clergy, as the principal, by statute heretofore made, is, or ought to be.

If a horse be stolen out of the stable, or other curtilage of a dwelling-house in the night-time, it falls under the denomination of burglary; if in the day-time, under that of larceny from the house; and in either case there was till lately a reward of 40*l*. for convicting an offender, and the prosecutor was entitled to a certificate, which would exempt him from all parish and ward-offices in the parish and ward where the burglary or larceny was committed, and which might be once assigned over, with the same exemption to the assignee, as to the original proprietor. But now by 58 Geo. 3. c. 70. the pecuniary rewards for convictions are done away, and the certificates of exemption from parochial, and other, offices, are declared not to be transferrable or assignable.

Horses, sale of. The property in horses is not easily altered by sale, without the express consent of the owner, 2 Inst. 719. for a purchaser gains no property in a horse that has been stolen, unless it be bought in a fair or market overt, according to the directions of the stats. 2 Phil. and Mar. c. 7. and 31 Eliz. c. 12.

Slaughtering horses.—Great abuses having arisen, and many horses having been stolen, from the facility and safety of disposing of them to those who kept slaughter-houses for horses, some regulations and restrictions seemed absolutely necessary for the prevention of the evil. These were accomplished by 26 Geo. 3. c. 71. and subsequent statutes. *See title* CURRIER.

Killing or maiming horses.—Where any person shall, in the night-time, maliciously, unlawfully, and willingly, kill or destroy any horses, sheep, or other cattle, of any person, every such offence shall be adjudged felony, and the offender shall suffer as in the case of felony. 22 & 23 Car. 2. c. 7. Offenders may be transported for seven years, either at the assizes or at the sessions, by three justices of the peace, one to be of the quorum. By the 9th Geo. 1. c. 22. commonly called *the black act*, if any person shall unlawfully and maliciously kill, maim, or wound any cattle, every person so offending, being thereof convicted in any county of England, shall be adjudged guilty of felony, and shall suffer death, as in cases of felony, without benefit of clergy. But not to work corruption of blood, loss of dower, nor forfeiture of lands or goods.

Prosecution upon this statute shall be commenced within three years from the time of the offence. If a horse, or other goods, be delivered to an inn-keeper or his servants, he is bound to keep them safely, and restore them when his guest leaves the house. 2 *Black.* 451.

By the custom of London and Exeter, if a man commit a horse to an inn-keeper, if he eats out his price, the inn-keeper may take him as his own, upon the reasonable appraisement of four of his neighbours; which was, it seems, a custom arising from the abundance of traffic with strangers, that could not be known so as to be charged with an action. But though an inn-keeper in London may, after long keeping, have the horse appraised and sell him, yet, when he has had him appraised, he cannot justify the taking him to himself at the price he was appraised at. *Vin. Abr.* 233. Stat. 182 Geo. 4. repeals certain duties on husbandry horses, and makes perpetual several former acts for reducing other duties on horses and mules.

HORSE, in a ship, is a rope made fast to each yard-arm, and on which the men stand to furl the sails.

It is also a wooden frame with a rowel fixed in it, made use of by the riggers to woold ships' masts.

HORSE ALOES. (Ger. *Ross aloe.* Du. *Paarde aloe.* Da. *Heste aloe.* Sw. *Grof aloe.* Fr. *Aloes caballin.* It. *Aloé caballino.* Sp. *Acibar cabalino.* Port. *Azevre caballino.* Lat. *Aloe caballina.*) *See* ALOES.

HORSE-BREAD. Inn-keepers shall not make horse-bread. 13 Rich. 2. c. 8. 4 Hen. 4. c. 25. 21 Jac. 1. c. 21. Permitted to bake horse-bread, 32 Hen. 8. c. 41.

HORSE-CHESNUT, *the common.* A method is said to have been discovered of making soap, as also of preparing a paste, or size, from horse-chesnuts, which may be used preferably to that made of wheaten flour, by shoemakers, bookbinders, card manufacturers, and paper-hangers, in which no moths or vermin will breed.

The horse-chesnut is also said to have been advantageously employed in tanning: the husks, when burnt to coal, produce an excellent black water colour; the branches and leaves communicate a good brown in dyeing; the shells also produce a good brown water colour, and the timber is useful in building.

HORSE-DEALERS. Every person exercising the trade or business of a horse-dealer, must take out a licence from the stamp-office, for which he shall pay annually, if within London, Westminster, the bills of mortality, the parish of St. Pancras, or the Borough of Southwark, 25*l.* elsewhere 12*l.* 10*s.*

Horse-dealers so licensed shall cause the words "*licensed to deal in horses*" to be painted or written in large and legible characters, either on a sign hung out, or on some visible place in front of their house, gateway, or stables, under a penalty of 10*l.* 36 Geo. 3.; and if they carry on the said business without having obtained a licence under the act, shall be liable to be assessed to the duties on riding-horses, and shall deliver lists thereof as other persons.

HORSE-HAIR, (Ger. *Pferdehaar.* Du. *Paardshaair.* Da. *Hestehaar, Hestetagl.* Sw. *Hästhor, Tagel.* Fr. *Crin de cheval.* It. *Crine del cavallo.* Sp. *Crin.* Port. *Crina s. Sedas do cavallo.* Rus. *Scherst loschadinaja.* Pol. *Wlosie konskie,*) is principally used by upholsterers, for stuffing chairs, sofas, &c. also by saddlers, in their manufacture of saddles, &c. It is an article of great consumption in Great Britain and Ireland, and from the latter country vast quantities of the article are annually exported.

HOSIER. The hosiers sell silk, worsted, thread, and cotton hose, (or stockings,) night-caps, and gloves, linsey, and bays; also cotton, silk, and worsted pieces for waistcoats, breeches, &c. which some export, and others sell only by retail. Some employ looms themselves, and are in that respect stocking-weavers. The hosiery branches of manufacture are mostly carried on at Nottingham, Leicester, and Derby.

HOT-PRESSER. The business of a hot-presser is to render smooth, glossy, and in even folds, most sorts of woollen goods for sale, by means of hot-presses, made of steel plates and screws. In the same manner he presses paper and gives its surface a fine gloss. *See* PRESSING.

HOUR-GLASS. An ordinary chronometer, measuring time for one hour by two glass vessels, and sand, which descends in

a given quantity from one to the other. Almost every ship carries with her hour, half-hour, quarter of an hour, and minute-glasses.

HOVERING, is an expression used to denote the vessels which keep near to, or *hover about* the coasts, for the purposes of smuggling, and the statutes which have been made to encourage the seizure and condemnation of them, "*hovering acts.*" These are numerous, but the principal ones are, 9 Geo. 2. c. 35. 19 Geo. 3. c. 69. 42 Geo. 3. c. 82. and 56 Geo. 3. c. 104.

HOY, a large decked boat, or coasting vessel.

HUDSON'S BAY COMPANY. *See* COMPANY.

HULKS, large vessels that have their gun-decks from 113 to 150 feet long, and from 31 to 40 broad. They will carry from 400 to 1000 tons. They chiefly serve to set masts into ships, &c.

HULL, in the sea language, is the main body of a ship, without either masts, yards, sails, or rigging. Thus to strike a hull in a storm, is to take in her sails, and to lash the helm on the lee side of the ship; and to hull, or lie a hull, is said of a ship whose sails are thus taken in and helm lashed a-lee.

HUMHUMS, a species of Bengal calico.

HUNDRED, is ten times ten, or the square of ten. The proportion of the profits in commerce is reckoned by the hundred, or so much per cent.

HUNDRED *of a County*, a well-known division of the English counties, first ordained by king Alfred. Each hundred had its court, which was only a large court baron, holden for the inhabitants of that hundred. They are fallen into general disuse, but are still preserved in some particular places. The courts of conscience, as they are called, in and about the metropolis, are remnants of this antiquated institution.

HUNDRED-WEIGHT, a weight of 112lb. avoirdupois.

HUNGARY-WATER, a distilled water, so denominated from a queen of Hungary, for whose use it was first prepared. It is now known to be only a distillation of rosemary flowers. Take of them two pounds, and of rectified spirits of wine two quarts; put them together, and distil them immediately in balneo. This spirit, though of German origin, is now principally manufactured in France, under the name of *Eau de Cologne*. Considerable quantities of it are imported into Great Britain, although the duties on it are extremely heavy. The Jesuits, who were much addicted to medical science, contributed largely to its celebrity, by prescribing the use of it extensively.

HUSO, the Danube whale, from which chiefly is obtained the glue called *ichthyocolla*, or *isinglass*. Fish-glue is a solid gelatinous substance obtained from certain large fish. It is brought to us from Muscovy, folded up in different forms. Such rolls, or cakes, as are composed of white, thin, transparent plates, which have no smell, and perfectly dissolve in water, are best.

HYACINTH, a pellucid gem, whose colour is red, with an admixture of yellow. *See* ZIRCON.

HYDRO-CARBONATES, combinations of carbon with hydrogen. A gas of this name is obtained from moistened charcoal by distillation.

HYDROGEN GAS, is the gaseous fluid which is given out in such abundance in coal-mines, and is known under the name of *fire-damp* by the miners: it has also been termed *inflammable gas*. It is perpetually issuing from stagnant lakes, drains, &c. from decomposing animal and vegetable matter. The *ignes fatui*, or *Jack-a lanterns*, seen in low marshy grounds and church-yards, arise from phosphuretted hydrogen gas, disengaged from putrefying animal bodies, which takes fire spontaneously on contact with the atmosphere. In combination with water it forms, in bulk, two parts of that fluid.

Hydrogen gas may be obtained artificially by the following process:—Take one part of iron or zinc filings, and introduce them into a tubulated retort; add two parts of sulphuric acid, previously diluted with four times its bulk of water. A violent effervescence immediately takes place, and the gas that is evolved may be collected in the usual way. It is the lightest body known; 100 cubic inches weigh at a mean temperature and pressure, 2.25 grains. It is elastic, transparent, and colourless; has no taste, a disagreeable smell, and though it may be respired for a short time, soon proves fatal.

It is highly combustible when pure. The flame of hydrogen, when pure, is of a white colour; but when carbon is held in solution, it is reddish. Nitrous gas passing into it, occasions a green flame. When it is mixed with seven or eight times its bulk of air, it burns rapidly and with detonation. Combined with oxygen, by combustion, it forms water. Combined with chlorine, in equal proportions, it forms muriatic acid gas, which, dissolved in water, constitutes muriatic acid.

Hydrogen gas has lately been employed for the production of artificial light; for this purpose it may be obtained sufficiently pure from pit-coal. (*See* GAS-LIGHT.) It has, from its lightness, been also used for filling air-balloons.

HYDROMEL, a fermented liquor, made of honey and water. It is more commonly known by the name of MEAD, which see.

HYDROMETER, an instrument much used for determining the specific gravities of liquids. The most accurate of these in-

struments was contrived by *Fahrenheit*. It is a metallic hydrometer, having a very slender stem, terminating in a small dish. The middle, or half-length of the stem, is distinguished by a fine line across. In this instrument every division of the stem is rejected, and it is always immersed to the line by means of weights put into the dish. Thus, as the part immersed is constantly of the same magnitude, and the whole weight of the hydrometer is known; this last weight, added to the weight in the dish, will be equal to that of the fluid displaced by the instrument. Consequently, as the whole weight of the hydrometer and its load, when adjusted in distilled water, is to 1.000; so is the whole weight, when adjusted in any other fluid, to the number expressing the specific gravity of that fluid.

HYGROMETER, or Hygroscope, an instrument whereby to measure or ascertain the dryness or moisture of the atmospheric air; or, in other words, to ascertain the disposition of the atmosphere to deposit water in the shape of rain, or to absorb it and be fair weather.

HYPOCIST, (Ger. *Hypocisten, Cistensaft*. Du. *Hypocist*. Da. *Hypocistsaft*. Sw. and Fr. *Hypocist*. It. *Ipocistide*. Sp. *Hypocistide*. Port. *Hypociste, Putegas*. Lat. *Hypocistides succus*,) is an inspissated, shining black juice, of a rough, styptic, and sourish taste. It greatly resembles the juice of acacia. C. Bauhine terms it the inspissated juice, of the (*hypocistis subcisto*) undergrowth or excrescence of the cistus.

The herb which yields this juice grows abundantly in Provence, Languedoc, and some other parts of France; and is held there in some esteem as a slight astringent, but is in little request here.

HYPOTHECATE, (from the Lat. *hypotheca*, a pledge,) is the pledging or pawning of a ship for necessaries. Thus if a ship be at sea and spring a leak, or be otherwise in danger of being lost, or the voyage defeated, for want of provisions or other necessaries, in these cases of extremity, the master may pledge, or hypothecate, the ship and goods, or either of them, for such necessaries as are wanting; which power is impliedly given him, in constituting him master, and which he may exercise rather than that the ship should be lost, or the voyage defeated. *Roll. Abr.* 53. 2 *Black. Com.* 159.

But the master can only hypothecate where the calamity or want of necessaries happened after the ship had put to sea. *Molloy*, 214. And in no case, but for the preservation of the ship, and completing her voyage. *Molloy*, 213.

And although the power of *hypothecation* be necessary for the navigation, without which masters could not get credit abroad, yet a master cannot make the owner *personally* liable by any contract of his: but only the ship and cargo by way of hypothecation. 6 *Mod.* 79. And therefore the admiralty court hath jurisdiction, so far as to subject the ship, but cannot proceed against the person, otherwise than is necessary to make him a party towards condemnation of the ship. *Molloy*, 214. 6 *Mod.* 70. But the master of a ship has no right to *sell* the cargo, except in cases of absolute necessity; and therefore, where in the course of a voyage the ship was wrecked, and some indigo was saved and sold by public auction, by the authority of the captain, acting bonâ fide according to the best of his judgment, for the benefit of all persons concerned, but the jury found that there was no absolute necessity for the sale, the court of King's Bench held, that the purchaser acquired no title; and the indigo having been sent to this country, the original owners were held entitled to recover its value. *Freeman* v. *The East India Company*, 5 *B. & A.* 617.

I, The ninth letter of our alphabet, used as a numeral, signifies no more than one; and stands for so many units as it is repeated; thus, I, one; II, two; III, three, &c. and when put before a higher numeral, it subtracts itself, as IV, four; IX, nine, &c. but when set after it, so many are added to the higher numeral, as there are I's added; thus, VI, is $5+1$, or six; VII, $5+2$, or seven; VIII, $5+3$, or eight. The ancient Romans likewise used IↃ for 500, CIↃ for 1000, IↃↃ for 5000, CCIↃↃ for 10,000, IↃↃↃ for 50,000, and CCCIↃↃↃ for 100,000. Farther than this, as Pliny observes, they did not go in their notation, but when necessary, repeated the last number, as, CCCIↃↃↃ, CCCIↃↃↃ for 200,000, CCCIↃↃↃ, CCCIↃↃↃ, CCCIↃↃↃ for 300,000; and so on.

JACK, in mechanics, an instrument in common use used for raising heavy timber, or very great weights of any kind, being a powerful combination of teeth and pinions; the whole is inclosed in a strong wooden stock or frame, and moved by a winch or handle.

JACK is also the name of a well-known engine in the kitchen, used for turning a spit. Here the weight is the power applied, acting by a set of pulleys; the friction of the parts, and the weight with which the spit is charged, are the forces to be overcome; and a steady, uniform motion is maintained by means of a fly.

The most common sorts of jacks for roasting meat are those moved by weight, consisting of a double set of wheels, a barrel, round which the rope fastened to the pulleys is wound, a perpetual screw, and a fly. Some of them have a multiplying wheel, or a wheel of a larger diameter, upon which the rope first goes, and then round

the barrel of the jack; as the barrel is four, or five, times less than the wheel, the jack is proportionably longer in going down, since every five turns of the barrel take off but one turn of the multiplying wheel.

The *smoke-jack* is generally moved by a fan of tin, or sheet-iron, placed horizontally in the chimney. This moves a wheel, round which the chain is placed by a pinion; and this fan being carried about by the smoke of the fire, the jack goes constantly, and having no weight, is never wound up.

Smoke-jacks are also sometimes moved by means of spiral flyers coiling about a vertical axle, and at other times by a vertical wheel, with sails like the float-boards of a mill.

JACK, in a ship, a flag hoisted up at the sprit-sail top-mast head.

JACOBUS, a gold coin, struck in the reign of King James I. of England, value twenty-five shillings.

JADE, (Ger. *Nierenstein.* Du. *Nierensteen.* Da. *Nyresteen.* Sw. *Njunpsten.* Fr. *Pierre nephritique, Jade.* It. *Pietra nefritica.* Sp. *Nefritica.* Port. *Nephritica.* Rus. *Potschetschnoi kamen.* Pol. *Nerek polenie.* Lat. *Nephriticus lapis,*) or nephritic stone, a species of jasper. It is sometimes of a whitish milky colour, from China; but mostly of a greenish or deep green colour, from America. It gives fire with steel, is semi-pellucid like flint, does not harden in the fire, but melts by the solar heat in the focus of a burning lens. It is supposed to cure nephritic pains, by external application to the loins, and is therefore called *lapis nephriticus.*

JALAP, or Jalop, (Ger. *Jalapp.* Du. *Jalappe.* Da. *Jalaprod.* Sw. *Jalaprot, Purgerot.* Fr. *Jalap.* It. *Sciarappa.* Sp. *Jalapa.* Port. *Jalappa, Batatade purga.* Rus. *Jalap.* Pol. *Jalapa.* Lat. *Jalappa,*) is the root of a sort of convolvulus, which is a native of Chalapa, or Xalapa, situated between La Vera Cruz and Mexico, in South America, whence its name is derived. The leaves of this species of convolvulus are like those of ivy, but not so thick; the flowers are red, and have this remarkable property, that they open in the night, and shut again on the least appearance of the sun; whence the French call the plant *Belle de nuit,* the beauty of the night.

Jalap is brought over to us cut into transverse slices; which should be chosen dry, dark-coloured, heavy, close, full of resin, hard, and neither brittle nor pliable. It is a strong acrid purgative to the human race, but is eaten by hogs in large quantities without any detriment. Half an ounce of the juice, or a drachm of the resin, when reduced to powder, is an acrid purge. The leaves of this root, applied externally, are said to diminish dropsical swellings of the feet. The roots of jalap grown in Europe are by no means so strong as the American.

JAMAICA-PEPPER. (Ger. *Piment* Du. *Piement, Jamaikapeper.* Da. *Piment, Allehaande.* Sw. *Kryddpeppar.* Fr. *Piment des Anglois, Poivre de la Jamaique.* It. *Pepe garofanato.* Sp. *Pimienta de Jamaica, Todaespecia.* Port. *Amomo ou pimenta da Jamaica.* Rus. *Anglinskoi pere.* Pol. *Pieprz Jamaiki.* Lat. *Piper Jamaicense.*) *See* PIMENTO.

JAMAICA-WOOD, is an appellation commonly bestowed upon mahogany, and all other kinds of wood the produce of the island of Jamaica. Properly speaking, however, it is only used to signify a species of speckled wood, (whereof mention is made in 15 Car. 2. c. 5.) from which cabinet-ware is manufactured. The tree which furnishes this speckled timber grows abundantly in the island of Jamaica: it is low and small, seldom exceeding the size of a man's leg. Jamaica-wood, properly so called, is not very frequently imported into Great Britain.

JAMDANNIES, a species of Bengal muslin.

JAPAN, a kind of cane, called also *Wangee.*

JAPANNING, is properly the art of varnishing and painting ornaments on wood, in the same manner as is done by the natives of Japan, in the East Indies. The substances which admit of being japanned are almost every kind that are dry and rigid, or not too flexible; as wood, metals, leather, and paper, prepared for the purpose. Wood and metals do not require any other preparation, but to have their surfaces perfectly even and clean; but leather should be securely strained, either on frames, or on boards; as its bending, or forming folds, would otherwise crack and force off the coats of varnish. Paper should be treated in the same manner, and have a previous strong coat of some kind of size; but it is rarely made the subject of japanning till it is converted into *papier maché,* or wrought by other means into such form, that its original state, particularly with respect to flexibility, is changed. One principal variation, from the method formerly used in japanning, is, the omitting any priming, or under-coat, on the work to be japanned. In the older practice, such a priming was always used; the object of which was to save in the quantity of varnish, by filling up the inequalities in the surface of the substance to be varnished. But there is this great inconvenience arising from the use of it, that the japan coats are constantly liable to be cracked, and to peel off, by any violence, and will not endure near so long as the articles that are japanned without any such priming.

The nature of japanned grounds.—When a priming is used, the work should first be prepared by being well smoothed with fish-skin or glass-paper; and being made thoroughly clean, should be brushed over once

or twice with hot size, diluted with two-thirds water, if it is of the common strength. The priming should then be laid on as evenly as possible, and should be formed of a size, of a consistency between the common kind and glue, mixed with as much whiting as will give it a sufficient body of colour to hide the surface of whatever it is to be laid upon, but not more. This must be repeated until the inequalities are completely filled up, and then the work must be cleaned off with Dutch rushes, and polished with a wet rag.

When wood or leather is to be japanned, and no priming is used, the best preparation is to lay two, or three, coats of coarse varnish, composed in the following manner:

Take of rectified spirit of wine one pint, and of coarse seed-lac, and resin, each two ounces; dissolve the seed-lac and resin in the spirit, and then strain off the varnish. This varnish, as well as all others formed of spirit of wine, must be laid on in a warm place; and if it can be conveniently managed, the piece of work to be varnished should be made warm likewise; and for the same reason, all dampness should be avoided; for either cold or moisture chills this kind of varnish, and prevents its taking proper hold of the substance on which it is laid. When the work is so prepared, or by the priming with the composition of size, and whiting, above described, the proper japan-ground must be laid on, (of which the best is that formed of shell-lac varnish,) and the colour desired, except white, which requires a peculiar treatment; and if brightness is wanted, then also other means must be pursued. The colours used with the shell-lac varnish may be any pigments whatever, which give the tint of the ground desired. As metals never require to be under-coated with whiting, they may be treated in the same manner as wood, or leather.

The method of painting japan-work.—Japan-work ought properly to be painted with colours in varnish; though, for the greater dispatch, and in some very nice work, for the freer use of the pencil, the colours are sometimes tempered in oil, which should previously have a fourth part of its weight of gum anime dissolved in it; or in default of that, gum sandarach, or gum mastich. When the oil is thus used, it should be well diluted with oil of turpentine, that the colours may lie more evenly and thin; by which means fewer of the polishing or upper coats of varnish become necessary. In some instances, water-colours are laid on grounds of gold, in the manner of other paintings; and are best, when so used in their proper appearance, without any varnish over them; and they are also sometimes so managed, as to have the effect of embossed work. The colours employed in this way, for painting, are best prepared by means of isinglass-size, corrected by honey or sugar-candy. The body, of which the embossed work is raised, need not, however, be tinged with the exterior colour, but may be best formed of very strong gum-water thickened to a proper consistence by bole armenian and whiting in equal parts; which being laid on the proper figure, and repaired when dry, may be then painted with the proper colours, tempered with isinglass-size, or, in the usual manner, with shell-lac varnish.

The manner of varnishing japan-work.—The finishing of japan-work depends on the laying on, and polishing, the outer coats of varnish, which are necessary, as well in the pieces that have only one simple ground of colour, as with those that are painted. This is in general done best with common seed-lac varnish, except in the instances, and on those occasions, where particular methods are deemed to be more expedient; and the same reasons which decide as to the fitness or impropriety of the varnishes, with respect to the colours of the ground, hold equally with regard to those of the painting. For where brightness is the most material point, and a tinge of yellow will injure it, seed-lac must give way to the whiter gums; but where hardness and a greater tenacity are most essential, it must be adhered to; and where both are so necessary, that it is proper one should give way to the other, in a certain degree reciprocally, a mixed varnish must be adopted. This mixed varnish, as we have already observed, should be made of the picked seed-lac. The common seed-lac varnish, which is the most useful preparation of the kind hitherto invented, may be thus made: Take of seed-lac three ounces, and put it into water, to free it from the sticks and filth that are frequently intermixed with it; which must be done by stirring it about, then pouring off the water, and adding fresh quantities, in order to repeat the operation, till it is freed from all impurities, as is very effectually done by this means: dry it then, and powder it grossly, and put it, with a pint of rectified spirit of wine, into a bottle, of which it will not fill above two-thirds. Shake the mixture well together, and place the bottle in a gentle heat, till the seed-lac appears to be dissolved; the shaking being in the mean time repeated as often as may be convenient; then pour off all that can be obtained clear by this method, and strain the remainder through a coarse cloth. The varnish, thus prepared, must be kept for use in a bottle well stopped. When the spirit of wine is very strong, it will dissolve a greater proportion of the seed-lac; but this quantity will saturate the common, which is seldom of a strength sufficient to make varnishes in perfection.

The manner of using the seed-lac, and the white varnish, is the same, except with regard to the substance used in polishing: which, where a pure white of a great clearness of other colours is in question, should be itself white, whereas the browner sorts of polishing dust, as being cheaper, and doing their business with greater dispatch, may be used in other cases. The pieces of work to be varnished, should be placed near a fire, or in a room where there is a stove, and made perfectly dry: and then the varnish may be rubbed over them by the proper brushes made for that purpose, beginning in the middle, and passing the brush to one end, and then with another stroke from the middle, passing it to the other; but no part should be crossed, or twice passed over, in forming one coat, where it can possibly be avoided. When one coat is dry, another must be laid over it; and this must be continued at least five or six times, or more, if on trial there be not sufficient thickness of varnish to bear the polish, without laying bare the painting or ground-colour underneath. When a sufficient number of coats is thus laid on, the work is fit to be polished; which must be done, in common cases, by rubbing it with a rag dipped in tripoli, or rotten stone, finely powdered; but, towards the end of the rubbing, a little oil of any kind should be used along with the powder; and when the work appears sufficiently bright and glossy, it should be well rubbed with the oil alone, to clear it from the powder, and give it a still brighter lustre.

A patent was several years ago obtained by one Eyre of Sheffield, for a method of impressing japan upon the ornamented handles of knives and other articles: this process, which is very simple, is as follows:

As soon as the pattern is impressed on the handle, &c. it is taken out of the press, (having been previously marked so as to be replaced in the same situation,) and the japan is laid on. The press is then heated to a certain degree, and the japanned article returned to it, by which means the varnish is pressed in, and rendered more firm and capable of receiving a high polish.

This method is applicable to ornamented handles of knives and forks, &c. made of wood or paper, in imitation of carved horn or bone.

JAPANNED WARES, (Ger. *Japanische ware.* Du. *Japansch lakwerk.* Da. *Japonisk varer.* Sw. *Japonish varor.* Fr. *Merchandises de Japon,*) articles of every description, such as tea-trays, clock-dials, candlesticks, snuff-boxes, &c. covered with coats of japan, whether plain, or embellished with painting, or gilding. Birmingham is the grand staple of this manufacture, which is carried on in the town and its vicinity to an astonishing extent. Many ingenious artists are here employed in painting designs for the centres of tea-trays, &c. and numbers of women and children are engaged in making the numerals upon clock-dials, and in the various inferior branches of the manufacture. Vast quantities of japanned wares are annually exported from Birmingham to all parts of the habitable globe (some parts of Asia excepted,) and very high prices are frequently given for articles of this description, more especially for such as are made from *papier maché.* No inconsiderable quantity of the smaller articles are also now japanned in the metropolis. At Pontypool, in Monmouthshire, there is a manufactory of a peculiar species of japanned wares, which bears the name of that town: it is extremely beautiful, but very little of it is exported, and the manufacture of the article there is said to be on the decline. At Bilston, in Staffordshire, the coarser kinds of japanned wares are made in abundance; as also at other places in the neighbourhood.

JAR, an earthen pot or vessel of oil, containing 20 gallons.

JASPER. (Ger. *Jaspiss.* Du. Da. Sw. and Lat. *Jaspis.* Fr. *Jaspe.* It. *Diaspro.* Sp. and Port. *Jaspe.* Rus. *Jaschma.* Pol. *Jaspid, Kamien.*) This stone, which is usually found in the East Indies, Egypt, Tartary, and China, is an ingredient in the composition of many mountains. It occurs usually in large amorphous masses, sometimes in round or angular pieces; its fracture is conchoidal; specific gravity from 2.5 to 2.7. Its colours are various; when heated it does not decrepitate: it is usually divided into four sub-species.

1. *Egyptian pebble.*—This variety is found chiefly in Egypt; it usually has a spheroidal or flat-rounded figure, and enveloped in a coarse rough crust; specific gravity 2.564 to 2.6. It is chiefly distinguished by the variety of colours which always exist in the same specimen, in regular stripes or layers. These colours are different browns and yellows, greens, &c.

2. *Striped jasper.*—This variety is also distinguished by regular stripes or layers of different colours: these colours are yellow, brownish-red, and green. It is distinguished from the last variety by its occurring in large amorphous masses, and by the disposition of its stripes.

3. *Porcelain jasper.*—So called because its fracture presents the appearance of porcelain. Its colours are various shades of grey, yellow, red, brown, green, mixed together. Found in mass, and in rounded pieces. Greasy. Fracture imperfectly conchoidal: opaque: brittle. It is found in the neighbourhood of pseudo volcanoes, supposed to have been altered by the action of fire.

4. *Common jasper.*—Its colours are different shades of white, yellow, red, brown, and green; often variegated, spotted, or veined, with several colours.

The above are the species of jasper, com-

monly known to exist in various parts of the world; but M. Daubenton, an ingenious French naturalist, mentions no less than 15 varieties of this precious stone, an enumeration of which we shall extract from his work.

"1. The *green* jasper, brought from Bohemia, Silesia, Siberia, and the shores of the Caspian sea. 2. The *red*, or *diaspro rosso* of the Italians, which is neither so common, nor in such great masses as the green. 3. The *yellow*, from Freyberg and Rochlitz: it is sometimes of a lemon colour, and looks as if composed of silky filaments; this is called the *silk jasper*. 4. *Brown*, from Dalecarlia, in Finland and Sweden. 5. *Violet*, from Siberia. 6. *Black*, from Sweden, Saxony, and Finland; this is the *paxagone antico* of the Italians. 7. *Blueish-grey*, which is very rare. 8. *Milky white*, of which Pliny speaks; it is found in Dalecarlia. 9. *Variegated* with *green*, *red*, and *yellow* clouds. 10. *Blood-stone*, which is green with red specks, brought from Egypt, and was supposed to stop the blood. 11. *Veined*, with various colours; when these veins have the resemblance of letters, the stone is then called *jaspe grammatique* by the French; some of this kind are found near Rochelle, in France. 12. That which has various coloured *zones*. 13. That called *fiorto* by the Italians, which has its various colours blended promiscuously. 14. When the jasper has a great number of colours together, it is then called *universal*. 15. When the jasper is found to contain some portions of agate, it is then called *agatized jasper*."

Jasper is mostly employed by jewellers in the formation of seals, and when well polished is esteemed a very beautiful stone.

Green jasper put into the fire loses all its greenness, and becomes of a fine pale grey.

JAZEL, a precious stone of a fine blue colour, found in different parts of the East Indies.

ICELAND AGATE, a precious stone met with in the islands of Iceland and Ascension, employed by the jewellers as an agate, though too soft for the purpose. It is supposed to be a volcanic product, being solid, black, and of a glassy texture; when held between the eye and the light, it is semi-transparent, and greenish, like the glass bottles which contain much iron. In the islands which produce it, such large pieces are met with that they cannot be equalled in any glass-house.

ICELAND MOSS, (Ger. *Isländisches moos*. Du. *Yslandsch mos*. Da. *Islands mos, Fiællegræs*. Sw. *Hedemossa*. Fr. *Lichen ou mousse d'Islande*. It. *Muschio islandico*. Sp. *Musgo de islandia*. Port. *Lichen islandico*. Lat. *Lichen islandicus*,) a species of lichen or liver-wort, which grows on many mountains both of the highlands, and lowlands, of Scotland; it consists nearly of erect leaves about two inches high, of a stiff substance when dry, but soft and pliant when moist, variously divided without order into broad distant segments, bifid or trifid at the extremities; the upper or interior surface of the leaves is concave, chesnut colour, smooth and shining, but red at the base; the under or exterior surface is smooth and whitish, a little pitted, and sprinkled with very minute black warts; the margins of the leaves, and all the segments from bottom to top, are ciliated with small, short, stiff, hair-like spinules, of a dark chesnut colour, turning towards the upper side; the shields are rarely produced. Made in broth, gruel, or jelly, it is said to be very serviceable in coughs and consumptions, and, according to Haller and Scopoli, is much used in these complaints at Vienna. No inconsiderable quantities have of late been imported from the Northern countries, especially Norway, into Great Britain, where also it is becoming a fashionable medicine.

ICELAND SPAR, a substance which has greatly engaged the attention of philosophers under this name, or that of Iceland crystal; Bertholin, Huygens, Newton, Beccaria, and others of later date, have made experiments on its remarkable property of separating the rays of light in such a manner as to exhibit two images of an object seen through it.

ICHTHYOCOLLA, ISINGLASS. *See* HUSO, and ISINGLASS.

JENNET, a name given to a fine species of Spanish horses, as also the Barbary horse. The jennet is principally valued for its fine figure.

JEER, or Jeer-Rope, in a ship, is a large rope reeved through double or treble blocks, lashed at the mast-head, and on the yard, in order to hoist or lower the yards.

JERQUER, or Jerker, an officer of the customs, whose duty it is to visit vessels in port, for the purpose of discovering whether they have any unentered goods on board. This proceeding is called *jerquing* the ship; and when the jerquer certifies that the goods found on board are conformable to the manifest, the vessel is said to be *jerqued*.

JERSEY. The finest wool, separated from the coarse by an instrument, called a Jersey comb. The Flemings first introduced the manufacture into England, and denominated it *Ostades*, of which probably our *worsted* is merely a corruption. The French call it *Estame*.

JESUITS'-BARK. *See* BARK, *Peruvian*.

JET. (Ger. Da. Sw. and Rus. *Gagat*. Du. *Git, Zwarte barnsteen*. Fr. *Jais, Jayet*. It. *Gagata, Lustrino*. Sp. *Azabache*. Port. *Azexiche*. Pol. *Gagatek*. Lat. *Gagus, Gagates*.) This substance is found in France, Spain, Germany, Britain, and other countries. It is found in detached kidney-formed masses, of various sizes, from an inch to seven or eight feet in length. The

colour is full black; internal, glossy, opaque: not so brittle as asphaltum: texture striated: fracture conchoidal. Specific gravity 1.259. It has no smell except when heated, and then it resembles asphaltum in its odour. It melts in a strong heat, burns with a greenish flame, and leaves an earthy residuum. Becomes electric by friction; and when distilled, it yields a peculiar acid. This fossil admits of a high polish, and is chiefly converted into small boxes, bracelets, buttons, and other toys. Combined with oils, it forms an ingredient in varnishes; and when mixed with pulverized lime, it is said to produce a hard and durable cement.

JETSON, Jetsen, or Jetsam, in law, is used for any thing thrown out of a ship or vessel that is in danger of being a wreck, and which is driven by the waves on shore. *See* FLOTSAM.

JEWELS, (Ger. and Du. *Juweelen.* Da. and Sw. *Juveler.* Fr. *Pierreries, Joyaux.* It. *Gioje.* Sp. *Jovas, Pedreria.* Port. *Joias, Pedraria.* Rus. *Almasii.* Pol. *Drogie kamienie, Kleinoty,*) include all kinds of precious stones, as diamonds, rubies, &c. used as ornaments of dress.

JEWELLER, it is scarcely necessary to say, is a person dealing in jewels.

A jeweller should be a good judge of the quality and value of all kinds of precious stones. Those of this business send rough diamonds to be cut and polished to the diamond-cutter, and all other stones for the same purpose to the lapidary, and afterwards send them to be set to the working jewellers.

JEWS'-EARS, (Ger. *Judasohren, Fliederschwämme.* Du. *Judasooren.* Da. *Hyldesvamp, Judaösre.* Sw. *Judeöron.* Fr. *Oreilles de Judas.* It. *Orecchi di Guida.* Sp. *Orejas de Judas.* Port. *Orelhas de Judas.* Lat. *Auriculæ Judæ, Spongiæ sambusic,*) so called from its resemblance to the human ear, is a fungus, tough and thin; naturally, while growing, of a rumpled figure, like a flat and variously hollowed cup; from an inch to two inches in length, and about two-thirds of its length in breadth. A decoction of this fungus in milk is used as a gargle in some cases of *quinsy.*

JEWS'-PITCH, (Ger. *Judenpech.* Du. *Jodenlym.* Da. *Jödeberg, Jodelüm.* Sw. *Judebeck.* Fr. *Asphalte, Bitume de Judée, Poix joive.* It. *Asfalte, Bitume guidaico.* Sp. *Asfalto, Betun Judaico.* Port. *Asphalto, Betume Judaico.* Rus. *Asfalt, Jidowskaia smola.* Pol. *Kly ziemsky.* Lat. *Asphaltum, Bitumen Judaicum.*) *See* ASPHALTUM.

IGNATIUS's or JESUITS' BEANS, (Ger. *Ignatius Bohnen.* Du. *Ignatius boonen.* Da. *Ignatius bönner.* Sw. *Ignatius bönor.* Fr. *Feves de St. Ignace.* It. *Feve de S. Ignacio.* Sp. *Habas de S. Ignacio.* Port. *Favas de S. Ignacio.* Lat. *Ignatii fabæ,*) a small solid fruit which grows upon a tree in some of the Philippine islands, and is eagerly bought up by the Chinese. The figure of this fruit is irregular; it is about the size of a green almond, when wrapped up in all its coats; its outward colour is grey; the inside of the bean resembles a brown jelly, but its consistency is almost as hard as that of horn, on which account it is usually grated; its taste is bitterish, and it commonly weighs a little above a drachm. These beans have been used as a medicine in ague, epilepsy, &c.; but they must be given with the utmost caution.

JIB, the foremast sail of a ship, being a large stay-sail extended from the outer end of the bowsprit prolonged by the jib-boom, towards the fore-top-mast-head. *See* SAIL.

JIB-BOOM, a boom run out from the extremity of the bowsprit, parallel to its length, and serving to extend the bottom of the jib, and the stay of the fore-top-gallant-mast.

IMBEZZLE, signifies to steal, pilfer, or purloin, and also to waste or diminish goods, &c. entrusted to a person's charge or care.

To such an extent had imbezzlement by agents and servants of different denominations arrived, that the detection and punishment of the offence makes now a principal title in our criminal law. *See* ante, *title* EMBEZZLEMENT.

IMPORTATION, the act of bringing goods into a country from foreign parts. But the mere coming into a port, without intention to break bulk, or unlade, is not an importation, so as to make duties of customs due, nor to subject ship or cargo to forfeiture. *Reeves*, 200. 2 *Chalmers*, 280. It has generally been considered, that for any country to carry on a profitable trade, it is necessary that the value of the goods sent out of it should be greater than that of the articles imported: this, however, is a very erroneous axiom, unless it be understood with great limitations. All articles of merchandise, imported merely for re-exportation, and also such as are used or worked up in our own manufactures, are far from being hurtful to our commerce; and may even, in many respects, be deemed of equal profit with our own native commodities; it is therefore an excess of such importations alone, as are either for luxury, necessity, or for both, which is disadvantageous to the country; and not such importations as, like many of ours, consisting of raw silk, Spanish wool, cotton wool and yarn, mohair, flax, and hemp, iron, oils, pot-ashes, dyeing stuffs, naval stores, &c. either used in our ship-building, or worked up in our manufactures, a principal part of which are for exportation: neither can our importations of East India goods and colonial produce, which are chiefly designed to be afterwards exported, be deemed unprofitable, but are, on the contrary, some of the most lucrative branches of our foreign trade.

The following statement of the total value of the imports of England, in the year

1354, furnishes a curious comparison with their present magnitude, viz.

	£.	s.	d.
1831 fine cloths, at 6*l.* pr. cloth	10,986	0	0
3973¾ cwt. of wax, at 40*s.* per cwt. with the customs	815	7	5
1829½ tons of wine, at 40*s.* per ton, which with do. come to	3,841	19	0
Linen cloth, mercery, grocery, and all other wares	22,943	6	10
On these last articles the customs were -	285	18	3
Total -	£38,872	11	6

At this period, and for a long time after, foreigners were the principal importers of goods into this country; and as it was thought that many of them, after disposing of their merchandise here, returned with the value in money to their own country, which was deemed a serious injury, many laws were made against carrying out of the realm any gold or silver, either in coin, plate, or bullion; and merchant strangers were compelled to give security that they would lay out all the money they received for the wares they imported, in English merchandise to be exported. These injudicious restrictions have been long since done away; and, excepting the prohibition of some foreign manufactures, the import of this country is probably as free, as the regulations necessary to secure the payment of heavy duties on almost every article of trade, will admit.

During the 12 years which comprised the reign of Geo. I. the whole produce of the duties of customs was 21,632,985*l.* The produce of the single year ending Jan. 5, 1816, was 10,487,522*l.* This, too, it must be recollected, was immediately after the conclusion of a war of 25 years' duration, during the greatest part of which we had little connection with the continent of Europe. The imports for the year ending Jan 5, 1821, were value 31,517,891*l.* and the duties of customs in the same year were 10,547,579.

IMPORTATION, *Laws of.* These laws, comprehending that immense mass of provisions, by which the shipping and trade of Great Britain, and its dependencies, are protected, are too numerous, even to be referred to more than once individually in this work; we must therefore, for particular information on the subject, point the reader's attention to *title* SHIPPING AND TRADE, in this place only observing in general terms the few following rules.

Goods imported or conveyed away without entry or payment, or security given for the duties, are to be seized.

After a ship is cleared inwards, and the watchmen or tidesmen discharged from their attendance, and any goods are found concealed which have not paid the import duties, the master or other person taking charge of such vessel, shall forfeit 100*l.*

Porters, carmen, watermen, &c. assisting in carrying on board, or landing uncustomed or prohibited goods, shall be committed for the first offence until they find surety for their good behaviour, and for the second, be committed for two months, with a penalty of 5*l.*

Merchants trading to the ports of London, may load, and unload, their goods at any of the lawful quays; between the Tower and London-Bridge, between sun-rising and sun-setting, from the 10th of September to the 10th of March; and between six in the morning and six in the evening, from the 10th of March to the 10th of September, giving notice thereof to the respective officer appointed to attend the lading and unlading of goods, who shall, upon refusal for such attendance, forfeit 5*l.* for every default.

All foreign goods permitted to be landed by bills of sight, bills of sufferance, or bills of view, shall be landed at the most convenient quays and wharfs, as the officers of the customs shall direct; and there or at the King's storehouse of the respective ports, shall be measured, weighed, numbered, &c. by the officers appointed, who shall perfect the entry, and thereunto subscribe their names, and the next day make their report to the customer, collector, or comptroller, under penalty of 100*l.*

Produce of the British plantations must be imported directly to some port of Great Britain or Ireland.

No ship arriving from beyond sea shall be above three days sailing from Gravesend to the place of discharge in the river Thames, unless prevented by a contrary wind, or any other just impediment; nor shall any ship, bound to the port of London, touch or stay at any place adjoining to any shore between Gravesend and Chester quay; and true entries shall be made of all such ship's lading, upon oath of the master or purser of that voyage; and shall also specify the place where she took in her lading, of what country built, how manned, who was master, and who the owners; and all vessels belonging to the out-ports, shall come directly to the port of unlading, under penalty of 100*l.*

IMPOST, signifies the tax received by the prince, for such merchandise as is brought into any haven within his dominions from foreign nations. It may be distinguished from *custom*, because *custom* is rather that profit the prince makes of wares shipped outwards; yet they are usually confounded.

IMPRESSING *Men.* By stat. 2 & 3 Phil. & Mar. c. 16. if any waterman, who uses the river Thames, shall hide himself during the execution of any commission for pressing for his majesty's service, he is liable to heavy penalties.

By stat. 5 Eliz. c. 6. no fisherman shall

be taken by the queen's commission to serve as a mariner, but the commission shall be first brought to two justices of the peace, inhabiting near the sea-coast, where the mariners are to be taken, to the intent that the justice may choose out and return such a number of able-bodied men as in the commission are contained to serve her majesty. And by stat. 7 & 8 W. c. 21. 2 Anne, c. 6. 4 & 5 Anne, c. 19. 13 Geo. 2. c. 17. especial protections are allowed to seamen in particular circumstances, to prevent them from being impressed. All of which certainly imply a power of impressing to reside somewhere; and if any where, it must, from the spirit of our constitution, as well as from the frequent mention of the king's commission, reside in the crown alone. 1 Black. 419.

IMPREST. A word which it should seem has outgrown, as it were, its original meaning. It is now used colloquially, as well as technically in public offices, for an authority from public boards to certain officers to advance money on account; but it probably at first stood for that seal, or other mark, which was *impressed* by the examiners or commissioners of public accounts on them, as vouchers of their correctness, and of their having passed examination.

INCENSE, or FRANKINCENSE. *See* FRANKINCENSE.

INCH, a well-known long measure, being the twelfth part of a foot, and equal to three barley-corns in length.

INCH OF CANDLE, *Sale by.* In this mode of selling, a small piece of wax-candle, about *an inch* long, is kept burning, and the last bidder, when the candle goes out, is entitled to the lot or parcel exposed to sale.

If any difference arise in adjusting a lot, when several bid together, the lot is again put up, and the last bidder is bound to stand to his bargain, and take the lot with all its imperfections.

In these cases, the goods are set up at a certain price, and no person shall bid less than a sum specified, more than the last bidder.

INCLE. *See* INKLE.

INDEMNITY, is where one person secures another from responsibility against any particular event; thus, a policy of insurance is a contract of indemnity against any particular loss.

Where one person also becomes bail for another, a bond of indemnity is frequently executed; and where a bond or bill of exchange has been lost or mislaid, the acceptor or obligee would not act prudently in paying it, without being secured by a bond of indemnity.

As circumstances occur daily in trade, which may render an indemnity necessary, the following are forms which are in general use.

The Condition of a Bond of Indemnity on paying a lost Bond.

Whereas the above-named B. B. by his bond or obligation, duly sealed and delivered, and bearing date on or about the —— day of ——, became bound to the above-bounden A. A. in the penal sum of ——*l.* conditioned for the payment of the sum of ——*l.* unto the said B. B. his executors, administrators, or assigns, at the end of —— months next after the date thereof, as in and by the said bond, when produced, will more fully appear. And whereas the said bond is alleged to be lost, or so mislaid that the same cannot be found. And whereas the said B. B. the day of the date hereof, at the request of the said A. A. and on his promise of indemnity, have made him full satisfaction of and for the said bond. Now the condition of this obligation is such, that if the above-bounden A. A. his heirs, executors, or administrators, or any or either of them, do and shall, in case the said bond or obligation shall happen to be found, or come to his, their, or any of their hands, custody, or power, or of the hands, custody, or power of any other person for them, deliver, or cause the same to be delivered, unto the , in order to be made void, cancelled, and destroyed; and also shall and do, from time to time, and at all times hereafter, save, keep harmless, and indemnified, the said master, wardens, and society, and their successors, of and from all actions, suits, troubles, costs, charges, damages, and expenses whatsoever, which shall or may at any time hereafter happen or come to them, for or by reason of the said bond or obligation, or any of the money thereby paid, or for, touching, and concerning the same, then this, &c.

Condition of a Bond of Indemnity upon paying a lost Bill.

Know all men, &c. (See BOND.)

Whereas the above named A. B. in the name of himself and C. D. his partner, gave a bill or note under his hand, dated, &c. for the sum of ——*l.* payable to E. F. which said bill or note was delivered to the above-bound G. H. and I. K. but is since lost or mislaid. And whereas the said A. B. hath, at or before the sealing and delivery hereof, paid unto the said G. H. and I. K. the said sum of ——*l.* due and payable on the said bill, notwithstanding the said bill or note cannot be found to be delivered up, the receipt of which said sum the said G. H. and I. K. do hereby acknowledge; and of and from the same and every part thereof, do acquit and discharge the said A. B. and C. D. their executors and administrators for ever, by these presents. Now the condition, &c. that if the said G. H. and I. K. their heirs, executors, and administrators, do and shall deliver up the said note, when it shall be found, to be cancelled, and until the same shall be so delivered up and cancelled, s ve,

and keep harmless and indemnified, the said A. B. and C. D. their heirs, executors, and administrators, and their and every of their lands, tenements, goods, and chattels, of and from the said bill and note, and the sum of ——*l.* therein mentioned, and of and from all actions, suits, costs, charges, payments, and damages whatsoever, which shall or may be brought, commenced, sued, prosecuted, recovered, or awarded against them, or any or either of them; or which they, either, or any of them, may sustain or be put unto, by any person or persons whatsoever, for, upon, or concerning the said bill or note, and the said sum of ——*l.* therein mentioned, and which is so paid to the said G. H. and I. K. as aforesaid. Then the said obligation to be void, otherwise to be, and remain, in full force virtue, and effect.

Sealed and delivered, being first duly stamped, in the presence of - - - }

INDIAN-BERRY, (*Indian berries.* Ger. *Fischkörner, Follkörner.* Du. *Kokeltjes.* Da. *Köckekjerner.* Sw. *Fiskkärnor.* Fr. *Coques da Levant.* It. *Coccole di Levante.* Sp. and Port. *Cocas de Levante.* Lat. *Cocci Indici, Cocculus Indicus,*) the name of a poisonous berry, too frequently mixed with malt liquors, in order to make them intoxicating; but this practice is expressly forbidden by act of parliament. It is the fruit of the *menispermum cocculus.* Fishermen have a way of mixing it with paste; this the fish swallow greedily, and are thereby rendered lifeless for a time, and float on the water. We have it from Malabar, and other parts of the East Indies.

INDIAN ARROW-ROOT, *Maranta Arundinacea.* It has a stalk and leaf exactly like the plant called Indian Shot; but the flower differs; that of the latter being a beautiful scarlet, and that of the former milk-white. The leaves fall in December, and the root is fit to dig up in January. It is mealy, but may be kept perfectly sound for many years, as no insect will meddle with it. It is the root of the tree from which the Indians in South America used to make their arrows. It is indigenous in South America, has been introduced abundantly into all the West India islands, and is not uncommon now in the hot-houses of England.

INDIAN-CORN. (Ger. *Türkischer weigen, Maïs.* Du. *Spaansche tarro, Turksch koorn, Indiaansch koorn, Mays.* Da. *Tyrkisk korn.* Sw. *Tyrkiskt hvete.* Fr. *Maïs, Bled de Turquie, d'Espagne, d'Inde, de Guinée.* It. *Gran Turco, Formento Turco, Grano d'India.* Port. *Mair, Milho de Turquia.* Rus. *Turezkoï chljeb.* Pol. *Zyto turreckie albo Indyyskie.* Lat. *Frumentum Indicum.*) *See* MAIZE, and ZEA.

INDIAN-INK. (Ger. *Tusch.* Du. *Oostindische inkt.* Da. *Tusk.* Sw. *Tusch.* Fr. *Encre de la Chine.* It. *Inchiostro della China.* Sp. *Tinta dela China.* Port. *Tinta da China S. de Nankin.* Rus. *Tschernilii, Kitaïskia, Tusch.* Pol. *Czernidlo Indyyskie, Tusa.* Lat. *Atramentum Indicum.* S. *Chinense.*) This valuable black, for water-colours, is brought to us from China and the East Indies, in small quadrangular cakes, generally marked with Chinese characters. By dipping the end of one of the cakes in a little water, and rubbing it about on the bottom or sides of the vessel, a part of its substance is taken up by the water, which may thus be readily tinged to any shade of black or grey, from such as shall just colour paper, to a fine full black.

It is ascertained, as well from experiment as from information, that Indian ink is made of lamp-black and size, or animal glue, with perfumes. The fine soot from the flame of a lamp or candle, mixed with clean size, will make an ink equal to that imported.

INDIAN-LEAF, (Ger. *Indianisches Blatt.* Du. *Indiaansch blad.* Da. *Indianskt blad.* Sw. *Indianiskt blad.* Fr. *Feuille d'Inde, Malabatre.* It. *Foglio Indo.* Sp. *Folio Indico, Hoja Indica.* Port. *Folha da India.* Lat. *Folium Indicum, Malabathrum,*) a large leaf of a dusky-green, or somewhat brownish colour, the produce of a tree which is large and lofty, and in its flowers and fruit resembles the cinnamon-tree. This tree is common in Malabar. Indian leaf has an aromatic smell, somewhat resembling that of a mixture of cloves and cinnamon; its taste is rather acrid and bitter, but very aromatic. It is used in pharmacy, being an ingredient in the *theriaca mithridate,* and some other compositions.

INDIAN-RUBBER. (Ger. *Federharz.* Da. *Veérkragtig hars.* Du. *Fiergummi, Elastisk gummi.* Sw. *Elastisk Kåda.* Fr. *Caoutchou, Résine élastique.* It. *Gomma o Resina elastica.* Sp. *Resina elastica, Ulc, Ulce.* Port. *Boracha, Resina do Para, Resina elastica das borachinhas.* Lat. *Gummi elasticum.*) *See* GUM, *Elastic.*

INDIAN SAFFRON. *See* TURMERIC.

INDIGO, (Ger. Du. Da. Sw. and Fr. *Indigo.* It. *Indaco.* Sp. and Port. *Anil.* Rus. *Krutick, Bruskowaja, Kraska, Indigo.* Pol. *Indych.* Lat. *Indigo,*) *Indigofera, is the indigo plant,* and of this there are 35 species, the most remarkable of which is the *tinctoria,* now a native of the warm parts of Asia, Africa, and America, but originally of Asia only, whence the Dutch alone imported it, till about the commencement of the 17th century, when their exorbitant extortions occasioned its being transplanted to other hot climates. Indigo, as well as woad and madder, are the objects of protection of an early stat. of Car. I. This plant requires a rich soil, well tilled, and not too dry; the seed of it, which, as to figure and colour, resembles gunpowder, is sown in little furrows that are about the breadth of the hoe,

two or three inches deep, at a foot distance from each other, and in as straight a line as possible. Continual attention is required to pluck up the weeds, which would soon choke the plant. Though it may be sown in all seasons, the spring is commonly preferred. Moisture causes this plant to shoot above the surface in three or four days; it is ripe at the end of two months. When it begins to flower, it is cut with pruning-knives; and cut again at the end of every six weeks, if the weather is a little rainy. It lasts about two years, after which term it degenerates; it is then plucked up, and fresh ones planted. As it soon exhausts the soil, because it does not absorb a sufficient quantity of air and dew to moisten the earth, it is of advantage to the planter to have a vast space which may remain covered with trees, till it becomes necessary to fell them in order to make room for the indigo. The valuable dye-stuff, called indigo, bears some faint resemblance to starch; but its properties are sufficiently peculiar to distinguish it from all other substances, and its importance entitles it to a distinguished place among vegetable productions.

The method of making indigo.—When the plant has been cut down, it is placed in layers in a large wooden vessel, and covered with water. In this situation it cannot remain long in warm climates without undergoing some change. Putrefaction, accordingly, very soon commences, or rather a kind of fermentation, which goes on best at the temperature of 80°. The water soon becomes opaque, and assumes a green colour; a smell resembling that of volatile alkali is exhaled, and bubbles of carbonic acid are emitted. When the fermentation has continued long enough, which is judged of by the paleness of the leaves, and which requires from six, to twenty-four, hours, according to the temperature of the air, and the state of the plant, the liquid is decanted off the plants into large flat vessels, where it is constantly agitated till blue flocculi begin to make their appearance; fresh water is now poured in, which causes the blue flakes to precipitate. The yellow liquid is decanted off, and the blue sediment poured into linen bags. When the water is drained from it sufficiently, it is formed into small lumps, and dried in the shade. In that state it is imported into Europe, and sold under the name of indigo.—A bastard sort of indigo may be obtained from the *isatis tinctoria* or woad; and from other plants, commonly enough cultivated, and even found wild, in England. When arrived at maturity, woad is cut down, washed, dried hastily in the sun, ground in a mill, placed in heaps, and allowed to ferment for a fortnight. It is then mixed, and made up into balls, which are piled upon each other, and exposed to the wind and sun. In this state they become hot, and exhale a putrid, ammoniacal smell. The fermentation is promoted, if necessary, by sprinkling the balls with water. When it has continued for a sufficient time, it is allowed to fall to a coarse powder; in which state it is sold as indigo.

Genuine indigo is a fine light friable substance, of a deep blue colour; its texture is very compact, and the shade of its surface varies according to the manner in which it has been prepared. The principal tints are copper, violet, and blue; the lightest indigo is the best, but it is always more or less mixed with foreign substances, partly owing, doubtless, to the carelessness of the preparation, and partly to the bodies which the plant containing indigo yields to water. From the analyses of Bergman, to whom we are indebted for one of the most complete treatises on the properties of indigo which has yet appeared, the purest indigo which he could procure was composed of the following constituents:

47 pure indigo.	The earth consisted of
12 gum	10.2 barytes
6 resin	10.0 lime
22 earth	1.8 silica
13 oxide of iron	
	22.0
100	

But in all probability the earth differs in different specimens; for Proust found magnesia in considerable quantity in the specimens which he examined.

Berthollet speaks of the indigo from Guatimala as the best of any; it is so light as to swim on the surface of the water, instead of sinking to the bottom, as all the other kinds do. Carolina indigo is usually of very inferior quality; the Jamaica indigo is still worse. The different qualities of South American indigo are expressed by the three terms, *Flora*, *Sobres*, and *Cortes*, whereof the first is the best, and the last the worst. The indigo brought from South America is imported in *serons*, or small bags made of buffalo-hides; that of North America in casks and boxes. Many species of the *indigofera* have been discovered at the Cape of Good Hope.

INDORSEMENT, is a term usually applied to the holder of a negotiable instrument, characterising that act by which he transfers or assigns his interest in the same to some third person, by indorsing or signing his name on the back of the instrument.

Indorsements are either *in blank* or *in full*; in the former, the party signs his name only; in the latter, some particular person is mentioned: they may also be either *general* or *restrictive*; a general indorsement is synonymous with an indorsement in blank; a restrictive indorsement is to some particular person, or upon some certain condition.

The indorsement is considered in law as constituting a new instrument, and an addi-

tional security; as the indorser guarantees the payment of the bill, and stands responsible for the acceptor and all antecedent indorsers. *See* BILLS OF EXCHANGE.

INFERNAL STONE, (Ger. *Höllenstein.* Du. *Helsche steen.* Da. *Sölvsteen, Blaasteen, Helvedes Steen.* Sw. *Silfver, Frätsten.* Fr. *Pierre infernale.* Sp. *Piedra infernal.* Port. *Pedra infernal.* Rus. *Adzkii, Kamen.* Pol. *Kamich piekielnü.* Lat. *Lapis infernalis,*) in pharmacy, is prepared from an evaporated solution of nitrate of silver, commonly known by the name of lunar caustic.

INGOT, a mass of gold or silver from the mines, melted and cast into a sort of mould, but neither coined nor wrought. *See* BULLION.

INGROSSER. *See* FORESTALLING.

INK. (*Writing-ink.* Ger. *Dinte.* Du. *Ink, Inkt.* Da. *Blek.* Sw. *Bläk.* Fr. *Encre.* It. *Inchiostro.* Sp. *Tinta.* Port. *Tinta de escrever.* Rus. *Tschernilo.* Pol. *Atrament, Inkaust.* Lat. *Atramentum.*) There are two principal kinds of ink, writing and printing ink.

Black writing-ink.—Take eight ounces of Aleppo galls, in coarse powder; four ounces of logwood, in thin chips; four ounces of green copperas; three ounces of gum-arabic, in powder; one ounce of blue vitriol; and one ounce of sugar-candy. Boil the galls and logwood together in twelve pounds of water for one hour, or till half the liquid has been evaporated. Strain the decoction through a hair-sieve, or linen-cloth, and then add the other ingredients. Stir the mixture till the whole is dissolved, more especially the gum; after which leave it to subside for twenty-four hours. Then preserve it in bottles of glass or stone-ware corked closely, and laid by for use. For another species of ink, *see title* PRIVET.

Red ink.—Take of the raspings of Brazil-wood a quarter of a pound, and infuse them two or three days in vinegar. Boil the infusion for an hour over a gentle fire, and afterwards filter it while hot. Put it again over the fire, and dissolve in it, first, half an ounce of gum-arabic; and afterwards of alum and white sugar, each half an ounce.

Printing-ink is a black paint, composed of lamp-black and linseed, or other oil, boiled, so as to acquire considerable consistence and tenacity. The obtaining good lamp-black appears to be the chief difficulty in making it. The ink used by copper-plate printers differs from the last only in the oil not being so much boiled, and the black which is used being Frankfort-black. *See title* PRINTING.

Sympathetic inks are such as do not appear after they are written with, but which may be made to appear at pleasure, by certain means to be used for that purpose. A variety of substances have been recommended. The most common are these:

1. Dissolve some sugar of lead in water, and write with the solution. When dry, no writing will be visible. When you want to make it appear, wet the paper with a solution of alkaline sulphuret, (liver of sulphur,) and the letters will immediately appear of a brown colour. Even exposing the writing to the vapour of this solution will render it apparent.

2. Write with an infusion of galls, and when you wish the writing to appear, dip it into a solution of green vitriol; the letters will appear black.

3. Write with diluted sulphuric acid, and nothing will be visible. To render it so, hold it to the fire, and the letters will instantly appear black.

4. Milk, the juice of lemons, or onions, a solution of sal ammoniac, green vitriol, &c. will answer the same purpose, though not so easily, nor with so little heat.

5. Green sympathetic ink. Dissolve cobalt in nitro-muriatic acid, and write with the solution. The letters will be invisible till held to the fire, when they will appear green, and will disappear completely again when removed into the cold. In this manner they may be made to appear, and disappear, at pleasure; and a very pleasant experiment of this kind is to make a drawing representing a winter scene, in which the trees appear void of leaves, and to put the leaves on with this sympathetic ink; then, upon holding the drawing near to the fire, the leaves will begin to appear in all the verdure of spring. *See title* COBALT.

INK, *Indian.* *See* INDIAN INK.

INK, *removing stains of.* The stains of ink on cloth, paper, or wood, may be removed by almost all acids; but those acids are to be preferred which are least likely to injure the texture of the stained substance. The muriatic acid, diluted with five or six times its weight of water, may be applied to the spot, and, after a minute or two, may be washed off, repeating the application as often as may be found necessary. But the vegetable acids are attended with less risk, and are equally effectual. A solution of the oxalic, citric, (acid of lemons,) or tartareous acids, in water, may be applied to the most delicate fabrics without any danger of injuring them; and the same solutions will discharge writing, but not printing. Hence they may be employed in cleaning books which have been defaced by writing on the margin, without impairing the text. Lemon-juice, and the juice of sorrel, will also remove ink-stains, but not so easily as the concrete acid of lemons, or citric acid.

INKLE, a sort of broad linen tape, principally manufactured at Manchester and some other towns in Lancashire.

INLAID-WORK. *See* MARQUETRY.

INLAND BILLS, bills of exchange made payable in the same country in which they are drawn. *See* BILLS OF EXCHANGE.

INSOLVENT. A tradesman, who has not a capital adequate to the payment of his debts, is said to be insolvent. By 1 Geo. 4. c. 119. amended by 3 Geo. 4. c. 123. a court of three commissioners, barristers of ten years standing, is established. It is styled, *The Court for Relief of Insolvent Debtors.* The court may remand insolvents for spaces of time, of which none exceed three years. If insolvents are imprisoned in the country, the final hearing is before the magistrates, at general quarter sessions, or an adjournment thereof.

INSTALMENT, is where a sum of money due is, by agreement between the debtor and creditor, to be paid in certain proportions, and at stipulated times.

Where a warrant of attorney, bond, or other instrument, has been given to pay by instalments, unless it is stipulated, that, upon default in payment of the first instalment that shall become due, the penalty shall attach, and the creditor shall be at liberty to proceed for the whole, he will be compelled to wait until the day after that assigned for payment of the last, before he can proceed: it is therefore the usual practice, to stipulate on any instrument for payment by instalments, that upon default of payment of the first, the creditor shall be at liberty to proceed for the whole. *See* COMPOSITION and AGREEMENT.

INSURANCE. Although there are many different sorts of insurance, in their principle, and objects, they are perfectly similar. The principle consists in giving a certain small sum to avoid an eventual great loss; and the sum given, which is called a premium, is in all cases proportioned to the loss against which the persons insuring are to purchase a guarantee, and the degree of probability of the event taking place.

Several insurance-offices have been established against loss by fire, losses at sea, and what are called life-insurances: the two first are perfectly simple in the abstract, however complicated in detail. The latter is liable to an infinite variety of cases, and is transacted in many different modes.

No human invention is perhaps more creditable to the wisdom of man, nor is any so conducive to the alleviation of misery, as insurances; because loss of money in the small is scarcely an evil, but in the great is sometimes productive of the most lamentable consequences.

There are a great variety of incorporated bodies or companies established for these purposes, and all of them publish their plans and conditions in a plain and fair manner. No wise man who has risks to run, should omit applying to one or other of these companies, that, whilst he is in affluence, he may secure himself against eventual misfortune. To the credit of the understanding of the inhabitants of this country, there are few so foolish and heedless as not to take advantage of so great a benefit. *See title* EUROPE, *article* LONDON.

The *life-insurances* are to secure a man or his survivor, &c. &c. against want, by laying up a trifle when he can afford to do so. Nothing is more prudent for individuals, nor more advantageous for the community, than this practice: all persons who have children under age, and no property to leave them, persons enjoying annual incomes which must cease with their lives, or following professions which age or disease may render unproductive, ought to avail themselves of those advantages which insurance holds forth to persons in their predicament; but as the circumstances are almost infinite, the most eligible method is for each person to inspect the different printed proposals, and select those which are more peculiarly adapted to their case.

Insurance against fire.—A policy of insurance against fire is a contract of indemnity, by which the insurers are bound to be responsible against any loss which the insured may sustain from accidents by fire.

A premium is given as a consideration for this policy, and several companies and societies have been established in London and different parts of the country for this purpose: some of these are called contribution societies, in which the parties insured become members or proprietors, participating in profits and losses; the other companies insure houses and goods at their own risk.

The conditions of insurance are contained in the proposals, and they vary in the different offices.

The London Assurance inserts a clause, that they will not be liable for any damage by fire, occasioned by any invasion, foreign power, or any military or usurped power whatever: under this clause it has been held, that the insurers were liable to make good a loss by fire occasioned by a mob, which, under pretext of the high price of provisions, assembled riotously and burned down the plaintiff's malting-house.

The Sun fire-office, in its exempting clause, introduces civil commotions; and under this it was held, that they were exonerated from the losses occasioned by the rioters in the year 1780.

By the proposals of the Phœnix Company it is stipulated, that "persons insured shall give notice of the loss forthwith, deliver in an account, and procure a certificate of the minister and churchwardens, and some reputable householders of the parish, importing, that they knew the character "of the assured, and believed that he really sustained the loss, and without fraud." On the question whether the procuring of such certificate were a condition precedent to the

right of the assured to recover on the policy, the Court of B. R. on a writ of error from the Court of B. C. held it to be a condition precedent, and that it was immaterial that the minister, &c. wrongfully refused to sign the certificate. *Wood* v. *Worsley*, 2 H. B. 574. 6 T. R. 710.

The proposals of these societies comprise the terms of the contract, and the conditions upon which they agree to insure; these proposals therefore must be strictly complied with; and when any loss happens, the insured ought to give notice immediately of the loss, stating as particular an account of the value as circumstances will permit.

A policy of insurance is not in its nature assignable, nor can it be transferred, without the express consent of the office; when, however, any person dies, his interest shall remain in his executors or administrators respectively, who succeed or become entitled to the property, provided such representatives respectively procure their right to be indorsed on the policy.

The party insured, to be entitled to indemnity, must prove an interest in the property insured, at the time the fire happened. The subject of insurance may be considered under two points of view:

First, The nature and commencement of the risk.

Second, The interest of the insured.

First, *The nature and commencement of the risk.* — The risk commences in general from the signing of the policy, unless there be some other time specified. Policies of insurance may be annual, or for a term of years, at an annual premium; and it is usual for the office, by way of indulgence, to allow fifteen days after each year for the payment of the premium for the next year in succession, and provided the premium were paid within that time, the insured has always been considered as within the protection of the office.

In case of the burning of houses under lease, and there is an exception of damages by fire, the landlord is not obliged to rebuild, although he may have insured; and if there be an express covenant to pay the rent, the tenant is bound by law to pay the rent for the remainder of the term, although he has no premises to occupy.

If in a general covenant to repair without any exception as to fire, the tenant, in case of accidental fire, will be compelled to rebuild.

Any trustee, mortgagee, reversioner, factor, or agent, has sufficient interest in the goods under his custody, to effect a policy of insurance, provided the nature of such property be distinctly specified at the time of executing such policy.

Table of Annual Premiums of Insurance at the different Offices.

ALBION.

Sums Insured. £.	*Com. Insurance.* £. s. d.	*Hazard. Insur.* £. s. d.	*Double ditto.* £. s. d.
3000	0 2 0	0 3 0	0 5 0

ATLAS.

5000	0 2 0	0 3 0	0 5 0
Farm. Stock not exceed. 200*l.*	0 2 0	not exceeding 500*l.*	

BRITISH.

1000	0 2 0	0 3 0	0 5 0 per cent.
2000	0 2 6	0 4 0	0 6 0
3000	0 2 6	0 5 0	0 7 6
5000	0 3 6	0 5 0	

EAGLE.

——	0 2 0	0 2 6	0 5 0
		not exceed. 4000*l.*	0 6 0
		not exceed. 5000*l.*	0 7 6

GLOBE.

3000	0 2 0	0 3 0	0 5 0 per cent.
6000	0 2 6	0 4 0	0 6 0
10000	0 3 0	0 5 0	0 7 0

HOPE.

10000	0 2 0	0 3 0	0 5 0 not exceed. 3000.
Farming-stock not exceeding 10000	0 2 0	not exceed. 6000	

Sums Insured. £.	Com. Insurance. £. s. d.	Hazard. Insur. £. s. d.	Double ditto. £. s. d.
HAND-IN-HAND.			
3000	0 2 0	0 3 0	0 5 0
IMPERIAL.			
3000 or under	0 2 0 (1000 or under)	0 3 0 (1000 or under)	0 5 0 (per cent.)
LONDON.			

On goods hazardous, or not hazardous, not exceeding 20,000*l.* in one place, *within five miles of the Royal Exchange*, 7*s.* 6*d.* per cent

On goods not hazardous in *brick-tiled warehouses*, where no hazardous goods are deposited, within the above distance, nor exceeding the above value, 5*s.* per cent.

1000	0 2 0	0 3 0	0 5 0 (per cent.)
2000	0 0 0	0 4 0	0 7 6
3000	0 2 6	0 5 0	0 0 0
PHŒNIX.			
1000	0 2 0	0 3 0	0 5 0
2000 (in one risk)	0 0 0	0 4 0	0 6 0 (in 1 risk)
3000 ditto	0 2 6	0 5 0 (in 1 risk)	0 7 6 (per cent.)
ROYAL EXCHANGE.			
1000	0 2 0	0 3 0	0 5 0 (per cent.)
2000	0 2 6	0 4 0	0 6 0
3000	0 2 6	0 5 0	0 7 6
SUN.			
100	0 2 0 per ann.	0 3 0 per ann.	0 5 0
1000	0 2 0	0 3 0	0 5 0 (pr. ct. p. annum.)
2000	0 2 6	0 4 0	0 6 0
3000	0 2 6	0 5 0	0 7 6
UNION.			
1000	0 2 0	0 3 0	0 5 0 (per cent.)
2000	0 2 6	0 4 0	0 7 6
3000	0 2 6	0 5 0	0 8 0
30000	0 3 0	0 5 0	0 8 0

The Union Fire-office differs from the rest in the adoption of two new terms, viz. *half-hazardous*, and *hazardous and half-hazardous*. The premium for 1000*l.* half-hazardous is 2*s.* 6*d.*—Hazardous and half-hazardous, 4*s.*—2000*l.* half-hazardous, 3*s.*—Hazardous and half-hazardous, 5*s.* 6*d.*—3000*l.* half-hazardous, 3*s.* 6*d.*—Hazardous and half-hazardous, 6*s.* 6*d.*—30,000*l.* half-hazardous, 4*s.*—Hazardous and half-hazardous, 7*s.*

WESTMINSTER.			
10000	0 2 0	0 3 0	0 5 0

Exclusive of these, is the County Fire-office, Southampton-street, and several others for different counties.

Explanation of the Terms.

COMMON INSURANCE.

Buildings not hazardous.—Brick or stone buildings, with party-walls, covered with slate, tile, or metal, in which no hazardous trades are carried on, or hazardous goods deposited.

Goods not hazardous.—Wearing apparel, printed books, plate, and liquors, in private use, come under the general article *furniture*, without any particular specification. Watches, jewels, and trinkets, in private use, must be separately described; but the premium on these does not exceed that upon goods not hazardous.

HAZARDOUS INSURANCE.

Hazardous buildings.—Timber, or plaister buildings, and buildings without party-walls of stone, or brick, in which no hazardous trades are carried on, or hazardous goods deposited.

Brick or stone buildings, in which hazardous trades are carried on.

Thatched buildings not having a chimney, and not adjoining to any building having a chimney.

Hazardous goods.—Goods not hazardous, deposited in hazardous buildings.

Stock of hazardous trades in brick or stone buildings.

Pictures, horses, harness, carriages, and fodder, in buildings not hazardous.

Ships in port, and their cargoes; ships building, or repairing; barges, and other small craft, on rivers.

DOUBLE HAZARDOUS.

Buildings.—Hazardous buildings, in which hazardous trades are carried on.

Goods.—The stock of hazardous trade in hazardous building.

Pictures, horses, carriages, and fodder in hazardous buildings.

China and glass.

Insurance upon Lives.—A policy of insurance upon lives, is, like all other policies, a contract of indemnity, whereby persons having incomes determinable upon their own lives, or the lives of others, arising from landed property, church livings, public employments, pensions, annuities, &c. by paying such annual premium as they can spare from their present necessities, may secure to their widows, children, or other dependants, an adequate sum of money, or an equivalent annuity, payable upon their deaths.

The fines to be paid on the renewal of copyhold leases, may also be provided for by these annuities: and any person having a life-income, who wants to borrow money, but who can give only his own personal security for it, may, by insuring his life, secure to the lender the repayment of such money, though he should die before he is enabled to discharge the debt.

The first life-insurance established in England was that of the Amicable Society, which was so beneficially productive, that the precedent was followed upon a more enlarged basis by the establishment of the *Royal Exchange*, and *London Insurance*, companies, which, by charter in the reign of George the First, were also enabled to make insurances upon lives.

The society for equitable insurances on lives and survivorships was founded by deed, enrolled in the court of King's Bench, in the year 1762, in which every person insured becomes a member, participating the profit and loss of the society.

Subsequent to the above, other establishments were formed upon similar principles, viz. the *Westminster Society* for insurance upon lives and survivorships, and granting annuities, and others.

This subject may be considered in three distinct points of view:

First, Warranty of health and age of the insured.

Second, The interest of the insured.

Third, The risk, its commencement, and termination.

FIRST, *Warranty of health and age of the insured.*—This warranty is generally inserted in the policy, or contained in the declaration or agreement signed by the insured, that the person whose life is the object of insurance, has no disorder which tends to the shortening of life; that he has had or has not had the small-pox; and that his age does not exceed so many years; that this declaration shall be the foundation of the contract between the parties; and that if any misrepresentation or untrue averment be contained therein, the contract shall not only be void, but the premium shall be forfeited.

It is to be understood from the words in the warranty, that the insured has no disorder which tends to the shortening of life, and that he is perfectly free from the seeds of all disorder.

The warranty is sufficiently true, if the party insured, at the time of insurance, be in such a reasonable good state of health as to be insured upon common terms, for persons of his age and condition; and even if, at the time of insurance, the party insured laboured under some particular infirmity, as spitting blood, &c. if it can be proved that such particular infirmity had no tendency to shorten life; nor will the warranty be forfeited, by showing that the party was troubled with spasms and cramps, arising from violent fits of the gout.

Where there is no warranty, the insurer takes the risk upon himself, however the health of the insured may be, unless there should be some concealment or fraudulent misrepresentation.

Where the insured refuses to warrant, but the broker tells the first underwriter, that from the account he had received he believed it to be a good life, there being no fraud, the underwriter runs all risks.

Every subsequent underwriter may give in evidence any representation made to the first.

SECONDLY, *The interest of the insured.*—Every insurance made upon lives, in which the insurer has no interest, is void; the name of the person interested in the event shall be inserted in every policy, and the insured shall recover no more than the amount or value inserted in such policy, and his interest, as proved therein.

Every creditor has an insurable interest in the life of his debtor; but it has been determined, that the holder of a note won at play, the consideration of which is void by law, has no insurable interest in the life of the maker, and consequently such policy will be void; but the infancy of a debtor cannot be objected to a person insuring, and a trustee may insure the life of his *cestui que trust*.

THIRDLY, *Of the risk, its commencement, and termination.*—In insurance upon lives, as there can be no partial event, the loss must universally be total.

The following are among the exceptions annexed to the conditions of different insurance companies. In some, as in the *Royal Exchange* and *Westminster Societies*,

"Every insurance shall be void, if the party insured shall depart the limits of Europe; shall die upon the seas; or enter into any military or naval service whatever without the consent of the company; or shall die by suicide, duelling, or the hands of justice."

Where the insurance, however, is made by a person on the life of another, death by suicide, duelling, or the hands of justice is not excepted. Such too are the terms of the *Equitable Insurance and Pelican Life Insurance*, with the exception of duelling.

In all insurance upon lives, not only the cause of the loss, but the loss itself, must appear to have happened during the continuance of the risk; and, therefore, if a man's life be insured for a year, and some short time before the expiration of the term he receive a mortal wound of which he dies after the year, the insurer will not be liable; but where there is any uncertainty, whether the death happened within the time limited, this is a question of fact that must be left to the decision of a jury. 1 *T. R.* 260.

A creditor may insure the life of his debtor to the extent of his debt, but such a contract is substantially a contract of indemnity against the life of the debtor; and therefore if after his death his executors pay the debt to such insuring creditor, the latter cannot afterward recover upon the policy; and that although the debtor died insolvent, and the executors were furnished with means of payment by a third person. *Godsal v. Boldico*, 9 *East. R.* 72.

It is not to be concluded that a disorder with which a person is afflicted before he effects an insurance on his life is "a disorder tending to shorten life" within the meaning of the declaration required by the Equitable Assurance Office, from the mere circumstance that he afterwards dies of it, if it be not a disorder which generally has that tendency. *Watson v. Mainwaring*, 4 *Taunt.* 763.

Shipping Insurance, or insurance against losses by sea, is of very ancient date in this kingdom, being recognized by stat. 43 Eliz. c. 12. as a practice "time out of mind." In what country this practice originated, or at what period *written* policies were introduced, are matters of little interest but to the antiquary; however, it is highly probable that a maritime country gave birth to them, and there is reason to think that country was England, for, in 1523, in the policies of the merchants of Antwerp, there was a clause providing that "all things concerning the said assurance should be as was accustomed to be done in Lombard-street, in London." At that time Lombard-street was the emporium of wealth, as it is now, and was inhabited by the "goldsmiths," of whom the present race of bankers are the successors in calling or profession, as well as in situation.

Marine Insurance, is regarded by the law as a contract between two or more parties; that on one paying a certain premium he shall be indemnified and insured against certain risks set forth in the policy. As it was a common practice of insuring large sums on vessels, without having property on board, and which were called wager-policies of insurance, interest or no interest, and of insuring the same goods several times over, it was enacted by 10 Geo. 2. c. 37. that all insurances, interest or no interest, or without further proof of the interest than the policy, or by way of gaming, or without benefit of salvage to the insurer, should be void, except on privateers, or on ships or goods from the Spanish or Portuguese dominions, and that no re-assurance shall be legal, unless the former insurer be insolvent or dead; and that in the East India trade the lender of money on bottomry, or at respondentia, shall alone have a right to be insured for the money lent; and the borrower shall recover no more upon any insurance than the surplus of his bottomry or respondentia bond. This statute, however, does not extend to foreign ships, upon which, as before the statute, there may still be insurances, interest or no interest. These were not included in the act, on account of the difficulty of bringing witnesses from abroad to prove the interest. *Doug.* 302. But where there is an interest on board, the owner by a valued policy, in which the value of the goods is agreed upon and fixed between the parties, may insure far beyond the extent of the real value. For the excess of the insurance is held not to be within the statute, unless it should appear, that the interest is so small as to be a mere evasion of the act, and a pretence for gaming. In an open policy, where no value is fixed, the prime cost of the goods must be proved. 2 *Burr.* 1170.

No insurance can be made on any illegal voyage. It is generally stipulated in policies that the insurer shall not be answerable for any partial loss on certain articles; but on others less difficult to be preserved at sea, but liable to partial injuries, shall be liable for any partial loss above five per cent.; and as to all other goods and the ship and freight, he shall only be liable for such losses, above three per cent. But he is liable on all losses, however small, called general average, or losses occasioned by the ship stranding, but this loss must be an immediate, not a remote consequence of the stranding. The commencement of the risk on the ship varies in most cases, but usually continues till the ship has been twenty-four hours at safe anchor. Upon goods it commences when they are on board, and continues till they are removed or landed. The ship insured must be sound, and in every respect fit to bear the sea, and perform the voyage; and if she deviates from the usual

course, and stops at places not usually stopped at, without a proper cause, the contract is void.

The following are some of the principal cases relative to *Marine, Fire, and Life* INSURANCES which have been determined in our courts of law.

ABANDONMENT.

Insured must *abandon* before he can recover. *Randall v. Cockran*, 1 *Ves.* 98.

Proceedings to be adopted. *Mitchell v. Edie*, 1 *Term Rep.* 608. *Da Costa v. Newnham*, 2 *T. R.* 407.

Abandonment must be *total*, not *partial*. 2 *Burr.* 697.

Upon an embargo in a foreign port, the owner, who had separately insured *ship* and *freight, abandoned* them; after which the embargo was taken off, and the ship completed her voyage and earned her freight: held assured could not recover as for a total loss of freight, the freight having been earned. *M'Carthy v. Abell*, 5 *East*, 388.

Insured cannot take chance of endeavouring first to save and make the best of their cargo on their own account, and afterwards *abandon*, when they find they cannot turn it to their advantage. *Anderson v. The Royal Exchange Assurance Company*, 7 *East*, 38.

On a wagering policy the assured cannot abandon. *Kemp v. Vyne*, 1 *T. R.* 304.

When the voyage is lost, but the property is saved, the owners may abandon. *Mitchell v. Edie*, 1 *T. R.* 608.

A foreigner insuring here his ships, or goods, on a voyage, is not entitled to abandon on an embargo laid on the property in the ports of his own country, as his assent is virtually implied in every act of his own government, and makes such embargo his own voluntary act. *Conway v. Grey*, 10 *E. R.* 536.

Ship wrecked, but goods landed in a damaged state, so that they become unprofitable to the assured. Underwriters on the goods, who were freed by the policy from particular average, could not be made liable as for a total loss by abandonment. *Thompson v. Ass. Com.* 16 *E.R.* 214.

ACTION,

Not maintainable for premiums on *Reassurance*. *Edgar and another, assignees of Carden, v. Fowler*, 3 *East*, 222.

Will lie *for not insuring*, triable on the same principles as action on policy. *Harding v. Carter and another, Sittings at Guildhall, after Easter T.* 1781.

Against insurance companies must be *debt* or *covenant*. *The Royal Exchange Assurance Company, and the London Assurance Company, erected by* 6 *Geo.* 1. *c.* 18. *Park*, 396. 39 *Geo.* 3. *c.* 83, *&c.*

Against a private underwriter, *indebitatus assumpsit*, and may be brought in the broker's name. 3 *Black. Com.* 157. *Park*, *c.* 20. *See* 19 *Geo.* 2. *c.* 37. *sec.* 6.

In what cases *action* for money had and received lies. 2 *Burr. B. R.* 103. 1 *Tidd.* 557. *Park's Introd.*

Actions upon promises will lie to recover general average loss, incurred by sacrificing ship's tackle, &c. for benefit of the whole concern. *Birckley v. Presgrave*, 1 *East*, 220.

ADJUSTMENT.

What is so called. *Park*, 117, 118.

Consequence of underwriter refusing to pay after adjustment. *Thellusson v. Fletcher*, *Dougl.* 315. *See also tit.* Loss.

A partial loss on a policy on goods by reason of sea damage, is to be calculated by ascertaining the difference between the respective gross proceeds of the same goods when sound, and when damaged, not the net proceeds. *Harry v. Exch. Com.* 3 *Bos. and Pul.* 308.

A ship was insured, warranted free of capture in port. A letter announcing her capture stated it to be in port, on which the underwriter and insured *adjusted*; the former returning, and the latter receiving back, the premium. It afterwards appeared the capture was *not* in port. Held that the assured was not precluded by the adjustment and repayment from recovering on the policy. *Reyner v. Hall*, 4 *Taunt.* 725.

AVERAGE, *general.*

Goods must be *thrown* overboard; the mind and agency of man must be employed to recover for general average. *Dig.* 14, 2, 1. *Mouse's Case*, 12 *Co.* 63. mentioned also in *Bird v. Astock*, 2 *Bulst.* 280. *Park*, 124. 6. *Lex Merc.* 2 *Term R.* 407.

Definition and acceptation of the word *average*. 3 *Burr.* 1553.

Where owners are liable to contribute. 2 *Magens*, 96, 283. *Molloy, tit. average*, 7, 12.

Diamonds and jewels must contribute. *De Leg. Rhod. s.* 2. *art.* 8. *Oler. art. Wisb. art.* 20. *Molloy, l.* 2. *c.* 8. *s.* 4.

Ships' provisions, wearing apparel, &c. bottomry and respondentia bonds, sailors' wages, &c. shall not. *De Leg. Rhod. s.* 2. *art.* 8. *Oler. art. Wisb. art. Molloy, l.* 66. *c.* 8. *s.* 4.

Where a ship is obliged to go into port for the benefit of the whole concern, expence of repairs, &c. are *general average*. *Da Costa v. Newnham*, 2 *T. R.* 407.

Goods stowed upon deck are excluded from *general average*. *Liv.* 3. *tit. Du. Jet. art.* 13. *Mayer and others v. Vander Doyl, Sittings at Guildhall, Dec.* 1803. *Backhouse and another v. Ripley, tried before Chambre J. a short time before; Abbott, part* III. *c.* VII.

Principle on which *general average* is to be calculated. 1 *Mag.* 59. *Abbott, part.* III. *c.* VIII. 328.

Customary for a broker to draw up adjustment of *average*. *Shepherd and others v. Wright, Show. Parl. Case*, 18.

What sort of estimate must be made in

settling *gross average*. *Beawes' Lex Merc. fo. edit.* 149.

Charge of reclaiming ship, wages, and expences of ship's company, may be brought into a general average. *Magens*, 290.

When contribution of *general average* is made. *Peters v. Milligan, Sittings after Mich.* 787.

Small or petty *averages* do not fall on the underwriter. *2 Mag.* 189, 278.

AVERMENT.

Where *averment* is good. *Knight v. Cambridge*, 2 *Ld. Raym.* 1349. 1 *Stra.* 581. *Park, c.* 20. *Gardiner v. Crosedale*, 2 *Burr.* 904. 1 *Black. Rep.* 198. *Page v. Rogers, Sittings after Hil.* 1785. *Nantes v. Thompson*, 2 *East*, 385. *Perchard v. Whitemore*, 2 *Bos. and P.* 155. *n. Page v. Fry, ibid*, 240. (*See also tit. Proceedings.*)

BARRATRY,

Derivation and definition of. *Cowp.* 154. *Knight v. Cambridge*, 1 *Stra.* 581. *Stamma v. Brokin*, 2 *ibid.* 1173. *Vallejo v. Wheeler. Cowp.* 143. 1 *Term Rep.* 323.

It is barratry in the master to smuggle. *Cowp.* 143. *Lockyer v. Offley*, 1 *T. R.* 252. *Havelock v. Hancel*, 3 *ibid.* 277, *on demurrer*, 1 *ibid.* 127.

Freighter considered owner *pro hac vice*, and if master commit criminal act without *his* privity, though with knowledge of original owner, it is *barratry. Cowp.* 143. 154.

Act of captain, *with knowledge of owner of the ship*, without privity of *owner of goods*, is not barratry. *Natt and others, assignees of Hague, v. Bourdieu.* 1 *T. R.* 323.

If master of the ship be also owner, he cannot be guilty of barratry. *Park*, 94.

In an action for loss by barratry, proof of that person described as master, without showing negatively that *he* was not the owner, or affirmatively that another person was, held sufficient to entitle plaintiff to recover. *Ross v. Hunter*, 4 *T. R.* 33.

Not necessary loss should happen 4 *ibid* very act of barratry. 1 *T. R.* 252. in the 33. *Cowp.* 143. *Park*, 84, 90.

The moment ship is carried from its proper track with evil intent, it is barratry. *idem.*

Assurer undertakes against *barratry* of master, &c. though appointed by *insured*, which is peculiar to law of England. *Park*, 85.

If ship take a prize, and is obliged to return to port therewith, against orders of owners, it is not barratry. *Elton v. Brogden*, 2 *Stra.* 1264. Punishment of barratry, and statutes for prevention thereof. *De Frise v. Stephens*, 1 *July*, 1800. 1 *Anne, st.* 2. *c.* 9. 12 *Anne, st.* 2. *c.* 18. 11 *Geo.* 1. *c.* 29. 29 *Geo.* 3. *c.* 46. Case of *Easterby and Macfarlane*, tried at Admiralty Sessions, 1802. *See Addenda per East's Pl. of the Crown*, xxvi. 11 *Geo.* 1. *c.* 29. *s.* 5, 6, 7. 43 *Geo.* 3. *c.* 113.

Where *master* had general instructions to make purchases with dispatch, he was not warranted in going to an enemy's settlement — deemed *barratry. Earle and others v. Rowcroft*, 8 *East*, 126.

Barratry in master, not paying port duties, whereby goods are forfeited. *Knight v. Cambridge, ib.* 135.

If captain, contrary to instruction of his owners, cruize for and take a prize, and his vessel is afterwards lost, it is *barratry. Moss v. Byrom*, 6 *T. R.* 379.

Deviation of captain through ignorance, *barratry. Phyn v. Royal Ex. As. Com.* 7 *T. R.* 505.

BILL OF LADING

Held to be complete acknowledgment of captain of receipt of goods. *Caldwell and others v. Ball.* 1 *T. R.* 205.

Assignable in its nature, *id.*

Where there are several *bills of lading*, of same date, but different imports, no reference to be had to time when first was signed by captain. *Hibbert v. Carter*, 1 *T. R.* 145. *Kulen and Kemp v. Vigne*, 1 *ibid.* 304. *Taylor v. Royal Ex. As. Com.* 8 *East*, 393.

A bill of lading is not a necessary instrument of the transfer of property in goods consigned to the owner. *Meyer v. Sharpe*, 5 *Taunt.* 80.

A bill of lading may operate as a contract between the master and consignee for payment of demurrage, as well as freight. *Lees v. Yates*, 3 *Taunt.* 387.

There is no distinction between a bill of lading indorsed in blank, and an indorsement to a particular person. *Lickbarrow v. Mason*, 2 *T. R.* 63.

The usual clause in a bill of lading, engaging the master of the ship to deliver the goods to the consignee or his assigns, *he or they paying freight for the same*, is introduced for the benefit of the master only, and not for that of the consignee, and the master is not bound to consign or to withhold delivery unless the consignee or his assigns pay freight. *Shepherd v. De Bernales*, 13 *East*, *R.* 565.

BOTTOMRY.

Bottomry and *respondentia bonds* do not contribute to general average. *De Leg. Rhod. s.* 2. *art.* 8. *Oler. art. Wisb. art.* 20. *Molloy, l.* 2. *c.* 8. *s.* 4.

All sums lent on *bottomry* and *respondentia* shall be lent only on ship and merchandise, and so expressed in bond, 19 *Geo.* 2. *c.* 37. *s.* 5.

And must be mentioned and specified in policy. *Glover v. Black*, 3 *Burr.* 1394.

Definition of *bottomry.* 2 *Blackst. Com.* 457. *Ibid.* 458. 2 *Valin. Com. p.* 4.

Distinction between *bottomry* and *respondentia.* 2 *Valin. Com. p.* 4.

Various application of term *bottomry.* 2 *Blackst. Com.* 458. 1 *Siderfin.* 27.

Legislative regulations contained in 19 *Geo.* 2. *c.* 37. *Molloy, lib.* 2. *c.* 11. *s.* 8. Above act does not mean to prevent king's subjects

from lending money on *bottomry* on foreign ships trading from their own country to their settlement in the East Indies. 19 *Geo.* 2. *c.* 27. *s.* 5. *Sumner v. Green*, 1 *H. B.* 301. *act.*

Loan upon voyage without a security upon ship or goods, is entirely prohibited by the laws of France. *Ord. de Lou.* 14 *tit. de Contràts à grosse avant. art.* 3. *Loc. cit. art.* 15.

Origin of *bottomry* and *respondentia.* 1 *Blackst. Com.* 457. *Barnard v. Bridgman, Moor*, 918. fully reported in *Hobart, p.* 11.

Master may hypothecate either ship or goods. *Justin v. Ballam*, 1 *Salk.* 34. The ship Gratitudine, 3 *Robinson's Adm. Rep. p.* 240. *Molloy, b.* 2. *c.* 2. *s.* 14. *Leg. Oler. art.* 1. *c.* 22. *Laws of the Hanse Towns, art.* 60. *Hobart*, 11. *Noy*, 95.

Ship must be *abroad*, as well as in a state of necessity, to justify captain in taking money on *bottomry. Molloy, l.* 2. *c.* 11. *s.* 11. *Molloy, Loc. cit. Ord. of Lou.* 14. *tit. avant. à la grosse, art.* 8. *c.* 9. 2 *Valin. Com.* 10.

Lenders on *bottomry*, or at *respondentia*, run nearly the same risk as insurer. *Pothier, Tr. du pret à la grosse avant, not.* 6.

Ancients well acquainted with *bottomry* and *respondentia. Leg. Rhod. s.* 1. *art.* 21. *Leg. Rhod. s.* 2. *art.* 16. *Digest. lib.* 22. *tit.* 2. *Cod. lib.* 4. *tit.* 33. 2 *Valin. Coms.* 1. *Laws of Oleron, art.* 1 *and* 2. *Laws of Wisberg. art.* 45.

If ship arrive safe, lender on *bottomry* shall be paid his principal, however much it exceeds the legal rate. *Molloy, lib.* 2. *c.* 11. *s.* 8. 13. 2 *Ves.* 148. 154. 12 *Anne, st.* 2. *c.* 16. *Pothier, not.* 16.

Usury cannot be pleaded to actions for obligations on *bottomry*, &c. as on account of risk, the interest shall be larger than the common rate. *Sharpley v. Hurrel, Cro. Jac.* 208. *Roberts v. Tremayne, Cro. Jac.* 508. *Joy v. Kent, Hard. Rep.* 418. *Park, 5th edit.* 417. *Soame v. Gleen*, 1 *Sid.* 27. 1 *Lev.* 54.

But a court of equity will not assist a *bottomry* bond which carries unreasonable interest. *Dandy v. Turner*, 1 *Equity Cases, Abr.* 372.

If a contract were made by colour of *bottomry* in order to evade the statute, it would be usurious and void. 4 *Com. Dig.* 193. 2 *Ves.* 146.

Where ship does not perform voyage, and lender incurs no hazard, he should lose the premium, and be content with principal and ordinary interest. *Deguilder v. Depeister*, 1 *Vern.* 263.

Commencement of contingency in *bottomry* bond. *Beawes' Lex Merc. Red. 4th edit. p.* 127.

Amount of loan on *bottomry* or *respondentia* not restrained by any regulation. 19 *Geo.* 2 c. 37. *s.* 50.

Lender is likewise answerable for losses by capture. *Joyce v. Williamson. B. R. Mich. Term*, 23 *Geo.* 3. *Park, 5th edit.* 422.

But if a ship be taken and detained for a short time, and yet arrive at destined port within time limited, bond is not forfeited. *Id.*

Lender on *bottomry* or at *respondentia* not entitled to benefit of salvage, nor liable to contribute in case of general average. 19 *Geo.* 2. *c.* 37.

In an action on a *respondentia* bond, the ship being *Danish*, and an average loss sustained, held that plaintiff was entitled to recover, as by the law of *Denmark* lenders upon *respondentia*, &c. are liable to average, and bound to contribute. *Walpole v. Ewer, Sitt. aft. Trin.* 1789.

Where ship deviates from voyage described, lender not bound to bear the loss. *Weston v. Wildy, Skinn.* 152. *Williams v. Steadman, Holt's Rep.* 126. *Skin.* 345. *S. C.* 1 *Eq. Cases, Abr.* 372. 2 *Ch. Cases*, 130.

Obligee in any *bottomry* or *respondentia* bond may be admitted to claim under a commission of bankruptcy, and receive a dividend. 19 *Geo.* 2. *c.* 32. See *second section of this statute.*

BROKER

Has a *lien* on policies; though he part with possession of policy, if it returns into his hands *lien* revives. *Whitehead* v. *Vaughan, Trin.* 25 *Geo.* 3. *Parker* v. *Carter, Trin.* 1788. When no *lien.* 1 *East*, 335.

May open policy in his own name, declaring for whose use, &c. 25 *Geo.* 3. *c.* 44. 28 *Geo.* 3. *c.* 56. 1 *Burr.* 490.

If limited to too small a premium (whereby insurance cannot be effected), *merchant* is liable to his correspondent. 2 *Term Rep.* 188, *note* (*a*).

Broker to draw up adjustment of average. *Shepherd* v. *Wright, Show. Parl. Cas.* 18.

Is only authorized to receive payment of loss from underwriters, for the assured *in money*; and therefore a custom to set off the general balance due from broker to underwriter, in the settlement of a particular loss, is illegal. *Todd* v. *Reid*, 4 *B. & A.* 210.

CAPTURE,

Definition of. *Park, c.* 4. 2 *Burr.* 694.

No *capture* can be so total a loss, as to leave no possibility of recovery. 2 *Burr.* 696. 29 *Geo.* 2. *c.* 35. *s.* 24. 33 *Geo.* 3. *c.* 66. *s.* 42. 2 *Burr.* 683. *Park*, 66.

Effect, re-capture had, upon contracts of insurance before, 19 *Geo.* 2. *c.* 37. 10 *Mad.* 77. 2 *Burr.* 695. *Com.* 360. 1 *Wils.* 191. 2 *Strat.* 1250. *Park*, 73, 77. 2 *Burr.* 695. 1198.

On payment of salvage in case of *re-capture*, right of original owner preserved to him for ever. *See* 43 *Geo.* 3. c. 160. *s.* 39. *and* 45 *Geo.* 3. *c.* 72. *s.* 7.

A capture having been illegal, but charges, &c. being great, insured made compromise on liberation of ship. Underwriter held answerable for charges of such compromise. *Berens* v. *Bucker*, 1 *Black. Rep.* 312.

Rule not settled among nations, as to pre-

cise period when property is diverted by *capture*. *Helena, Heslop*, 4 *Rob. A. R.* 3.

Marine law of England, as to *capture*. 1 *Rob. A. R.* 139. *See ante*, I. 3. *Geyer v. Aguilar. Christie v. Secretan. Oddy v. Bovil. Bolton v. Gladstone. Baring v. Roy. Ex. Ass. Comp.*

States in alliance with the *captors*, and at war with the country to which *captured* ship belongs, form one community with *captor*. *Oddy v. Bovil*, 2 *East*, 473.

And prize carried into such state may be legally condemned. *The Christopher, Slyboom*, 2 *Rob. A. R.* 109.

Unlawful for British subjects to ransom ship captured by enemy. Penalty 500*l*. 22 *Geo.* 3. *c.* 25. *sec.* 1. *sec.* 3. 43 *Geo.* 3. *c.* 160. *s.* 34, 36. 33 *Geo.* 3. *c.* 66. 43 *Geo.* 3. *c.* 160. *s.* 33.

Sum paid on account of ransom, not recoverable from underwriters. *Havelock v. Rockwood*, 8 *Term Rep.* 268.

CHANGING SHIP,

Proceedings in regard to. *Dick v. Barrel*, 2 *Stra.* 1248.

Insured have no right to change ship, as one may be less able to resist perils of the sea, or sail faster, so as to escape an enemy, than another, and consequently alters the risk. 1 *Burr.* 351. See *Plantamous v. Staples*, 1 *Term Rep.* 611. *note*.

But if *necessity* required, ship may be changed. *Park*, 19. *a.* 290.

CONCEALMENT

Vitiates all contracts of insurance. *Park, c.* 10. *Dougl.* 247. 260. *Park, c.* 10. *Skinn.* 327. 3 *Burr*, 1419. 1 *Black. Rep.* 427. 2 *P. Wms.* 170. 1 *Black. R.* 463. 594. *Park, c.* 10. *Carter v. Boehm.* 3 *Burr.* 1905. 1 *Black. Rep.* 593. *Littledale and others, assignees of Kenyon v. Dixon*, 1 *Bos. and Pull. New Reports, p.* 151.

Policy is void if broker *conceal* any material circumstances, though the only ground for not mentioning them should be, that the facts *concealed* appeared immaterial. *Park, c.* 10. *Cowp.* 785. *Dougl.* 247. *Dougl.* 260. *Bize, v. Fletcher, Dougl.* 271; *or Lavabre v. Wilson*, 271. 284. *See ante*, I. 3, *Shirly v. Wilkinson, Doug.* (295) 306. *n.*

What is *not* deemed fraudulent *concealment*. *Thompson v. Buchanan and another*, 4 *Bro. Parl. Cases*, 482. *Freeland and another, assignees of Tipping, a bankrupt, v. Glover*, 7 *East*, 457.

If a ship is advertised to be in danger, and the insurer effect a policy on ships, knowing that the ship in danger is one of them, without stating the ships' names, this is a concealment which avoids the policy, even though the rumour was false. *Lynch v. Hamilton*, 3 *Taunt.* 37.

If insurer effect a policy on ship or ships knowing their names, but not communicating them, such an insurance is tantamount to a representation that he does not know by what ships the goods will come. *Ibid.*

But it is not necessary to disclose to the underwriter on a policy *at and from* London, whether the ship has sailed, or not. *Tort v. Lee*, 3 *Taunt.* 381.

It was known at Lloyd's that a particular ship of Bristol was at sea without convoy, and the broker enquired of plaintiff at Bristol if that ship was insured, and was informed it was, and plaintiff supposed adverse winds had prevented her joining convoy; but broker got policy altered without disclosing this answer to underwriters. This concealment voided the policy. *Sawtell v. London*, 5 *Taunt.* 363.

CONDEMNATION.

Condemnation on ground of infraction of treaty, in not being properly documented, conclusive against warranty of neutrality. *Baring v. Christie*, 5 *East*, 398.

Condemnation on goods warranted *American*, though in ship hired and loaded at London, and destined for the English islands, not conclusive evidence against warranty of neutrality. *Calvert v. Bovill*, 7 *Term Rep.* 523.

Condemnation of ship warranted *American*, for want of *role d'equipage*, or list of crew, conclusive against warranty of neutrality, though really *American*. *Geyer v. Aguilar*, 7 *Term Rep.* 681.

Practice of courts relative to sentences of foreign courts of admiralty. *Park, c.* 18. *ad fin. Dougl.* 554. 574. *Bernardi v. Motteux. Christie v. Secretan*, 8 *Term Rep.* 192. *Havelock v. Rockwood*, 8 *Term Rep.* 268. *Price v. Bell*, 1 *East*, 663. *Wright v. Barnard, Sittings after Mich.* 1798.

Sentence of foreign court conclusive on a policy, upon every matter *within jurisdiction* of such court. *Bolton v. Gladstone*, 5 *East*, 155.

CONSIGNEE

May insure commissions. *Flint v. Le Messirier, Sittings after Hil. Term*, 1796.

CONVOY.

Unforeseen separation from *convoy* renders underwriters liable. 3 *Ler.* 320. 2 *Salk.* 443. *Carth.* 216. 1 *Show.* 320. 4 *Mod.* 58. *S. C.*

Where ship is prevented from joining *convoy* by tempestuous weather, yet endeavours to do so, deemed a satisfaction of warranty to sail with convoy. *Victoria v. Cleeve*, 2 *Stra.* 1250.

Penalty on captain of merchant-ship, under *convoy*, disobeying signals or instructions, 500*l*.

The term *convoy*, in a policy, means such convoy as shall be appointed by government. *D'Eginno v. Bewick*, 2 *H. B.* 551.

The 43 *Geo.* 3. *c.* 57. is the great statute for the regulation of convoys; by that stat. a policy is not avoided on the ground of the ship sailing without convoy, unless the party

interested in the insurance was privy to it. *Henderson v. Hind*, 1 *Taunt.* 250.

DETENTION.

What is deemed a *detention*. *Park*, 78. 2 *Burr.* 696.

On *detention* by foreign power, to search for enemies property, costs and charges, &c. must be borne by underwriter. *Sallouci v. Johnson, B. R. Hill.* 25 *Geo.* 3.

But not on *detention* for non-payment of customs, or navigating against laws of those countries. 2 *Vern.* 176.

Uncertain whether *detention* by power of country to which ship belongs is within the policy. *Green v. Young, Ld. Raym.* 840. 2 *Salk.* 444.

In case of loss by *detention*, assured must abandon, as detention includes and entitles assured to abandon, and recover for a total loss. *Park*, 82.

DEVIATION.

What is so understood. *Roccus, Not.* 52. *Dougl. Rep.* 288. *Fox v. Black. Townson v. Guyon, Park*, 295. *Elliot and others v. Wilson's Crs.* 4 *Bro. Parl. Cases, 2d edit.* 470.

Whenever *deviation* is occasioned by *absolute necessity*, the underwriter continues liable. *Elton v. Brogden*, 2 *Stra.* 1264.

It is no *deviation* when ship is obliged by storm, &c. to make the nearest port to refit 1 *Term R.* 22. 2 *Salk.* 445. 2 *Stra.* 1265. *Motteux and others v. the Lond. Ass. Com.* 1 *Atk.* 545. *Park, c.* 17.

So if to escape a storm she goes out of her course, or is driven thereout by stress of weather. *Delaney v. Stoddard*, 1 *T. R.* 22. *Park, c.* 17.

Deviation may be justified if done to avoid an enemy, or seek convoy. *Bond v. Gonsales.* 2 *Salk.* 445. *Gordon v. Morley, Campbell v. Bordieu*, 2 *Stra.* 1265. *Park, c.* 17.

In case of *deviation* from *necessity*, ship must pursue such *voyage of necessity* in the direct course, and in the shortest time possible. *Lavabre v. Walter, Dougl.* (271) 284.

Deviation merely intended, but never effected, does not discharge insurers. *Foster v. Wilmer*, 2 *Stra.* 1249. *Thelluson v. Fergusson, Dougl.* 346, 361. *Green v. Young*, 2 *Ld. Raym.* 840. 2 *Salk.* 444. *S. C.*

Wilful *deviation* from the due course of voyage insured, is a determination of policy. *Elliot and others v. Wilson and Co. Bro. Parl. Cases, 2d edit.* 470.

If voyage described in policy be from A. to B. and C. and the ship go to C. before B. (though C. be nearer to A. than B.), it is a *deviation*, if it be not the regular course of the voyage to C. first. *Beatson v. Haworth*, 6 *T. Rep.* 531.

Deviation from voyage insured, through ignorance of captain, though it void policy, is not barratry. *Phyn v. Royal Ex. Ass. Company*, 7 *Term Rep.* 505.

On policy for goods "*against sea risk and fire only*," ship *was carried out of her course* by a king's vessel and being afterwards released, proceeded on the voyage, and sustained *sea damage*, underwriters held liable, *Scott and another v. Thompson*, 1 *Bos. and Pul. New Rep.* 181.

Policy on ship *with or without letters of marque*, giving leave to chace, capture, and man prizes, will not warrant, after capture, *shortening sail and lying to* for protection of prize, although port within voyage insured. *Laurence and others v. Sydebotham*, 6 *East*, 45.

Nor authorise direct cruizing *out of the voyage*. *Pan v. Anderson*, 6 *East*, 202.

DOUBLE ASSURANCE

Different from *re-assurance*, and is not void. 1 *Burr.* 496. *Park*, 285.

Cases in which double insurances may be made. 1 *Black. Rep.* 416. 1 *Burr.* 492. *Godin v. London Ass. Comp.* 1 *Burr.* 489. 1 *Black. Rep.* 103.

EAST INDIA VOYAGES,

Usage of trade in respect of. *Salvador v. Hopkins, &c.* 3 *Burr.* 1707, *& seq. Lavabre v. Wilson, and Lavabre v. Walter, Dougl.* 234.

EMBARGO.

Ship arriving at a port where an *embargo* is previously laid, and the day after extended to her, not deemed moored in safety twenty-four hours. *Minet v. Anderson, Park*, 211. *Sittings after Hil.* 34 *Geo.* 3.

Effect of *embargo* by this country on ship insured here; any act done in contravention of *embargo* is illegal. *Rotch v. Edie*, 6 *Term Rep.* 422. *Hadley v. Clark*, 8 *Term Rep.* 259. *Thompson v. Rowcroft*, 4 *East.* 34.

ENEMY,

Trading with, illegal. *Potts v. Bell.* 8 *T. R.* 548. *Vandyck v. Whitmore*, 1 *East's R.* 475. *Brandon v. Nesbitt*, 6 *T. R* 23. *Gamba and another v. Le Mesurier*, 4 *East*, 407 *Lubbock v. Potts*, 7 *East*, 449.

As also insurances on *enemies' ships. Id.*

But *enemies'* ships taken, and condemned as lawful prizes, may become entitled to privileges and advantages of British ships *under the regulations of the register acts and* 45 *Geo.* 3. *c.* 32.

FIRE, INSURANCE AGAINST.

Definition. *Park, c.* 23.

Construction therein. *Park, c.* 23.

Clause of *London Assurance* and some other offices, that they do not hold themselves liable for any loss or damage by fire happening by any invasion of foreign enemy, or any *military or usurped power. Ibid.*

Question, what species of insurrection should be deemed a *military or usurped power?* It was held by the Court of Common Pleas, against the opinion of Mr. Justice *Gould*, that it could only mean to extend to houses set on fire by means of an invasion from abroad, or of internal rebellion, when armies are employed to suppress it. *Park, c.* xxiii. *Drinkwater v. the Corporation of the London Assurance*, 2 *Wils.* 363.

Proviso against *civil commotion* by *Sun Fire Office* deemed good. *Longdale v. Mason and*

others, Sittings at Guildhall, Mich. Vac. 1780. *Park, c.* xxiii.

Loss happening within fifteen days appointed for renewal of policy, but before premium paid; does not entitle assured to recover. *Tarleton and others v. Staneforth, 5 Term Rep.* 695. *This judgment was afterwards affirmed in the Ex. Chamber, 1 Bos. and Pull.* 471.

Notice of *Phœnix Company* that they would hold themselves liable for loss during fifteen days, notwithstanding above judgment. *Ibid.*

When fire happens, insured must give immediate notice, and make proof of loss by affidavit, &c. and produce certificate from churchwardens, &c. *Park, c.* xxxiii.

Printed proposals, requiring certificate, held as part of the policy, and that such certificate is a condition *precedent* to right of assured to recover, and cannot be dispensed with. *Worsley v. Wood, 6 Term Rep.* 701. *2 H. Black. Rep.* 573. *S. C.* See also *Routledge v. Burrell, 1 H. Black.* 254.

When loss is settled and adjusted, sufferers are to receive immediate satisfaction without any deduction. *Lex Mercatoria.*

Policies are not in their nature assignable. *Delaney v. Stoddard, 1 T. Rep.* 26. *Lynch and another v. Dalzell and others, 3 Brown's Parl. Cases,* 497. But where person dies, policy and interest shall continue to the heir, executor, &c. *Park, c.* xxiii.

Assignment executed after loss null and void. *Delaney v. Stoddard, 1 T. Rep.* 26. *Salvin v. James, 45 Geo. 3. 6 East,* 571.

No insurance takes place till premium actually paid. *Idem.*

On notice from office to pay increased premium, if insured do not comply, *they cannot recover. Idem.*

FOREIGN PROPERTY.

Doubts as to extension of, 19 *G.* 2. *c.* 37. with regard to insurance on foreign property. *Thelluson v. Fletcher, Dougl.* 301.

FRAUD

Annuls all policies. *Grot. de Jure Belli, lib.* 2. *c.* 12. *sec.* 23. *Puffendorf de Jure Nat. l.* 5. *c.* 9. *sec.* 8. *Bynkershoek Quest. Jur. p.* 4. *c.* 26. *Or de Lew.* 14. *sec.* 38.

Various cases of fraud. *Park, c.* 10. *Dougl.* 247. 260. *Park, c.* 10. *Skinn.* 327. *Burr.* 1419. 1 *Black. Rep.* 427.

Misrepresentation will void policy equally as *fraud. Park, c.* 10. *Cowp.* 785. *Dougl.* 247. *Dougl.* 260. *Bize v. Fletcher, Dougl.* 271.; or *Lavabre v. Wilson,* 271. 284. See *ante,* 1. 3. *Shirley v. Wilkinson, Dougl.* (293) 306. *n.*

In all cases of *fraud,* immaterial whether it be act of person himself or his agent. *Stewart v. Dulop, in Dom. Proc.* 1785. *Fitzherbert v. Mather, 1 Term Rep.* 12. *Park, c.* 10.

Policy will not set aside on the ground of *fraud,* unless fully and satisfactorily proved. *Park,* 214.

Positive and direct proof of *fraud* not necessary. *Roccus, Not.* 51. 78. *Middlewood v. Blakes, 7 Term Rep.* 162.

Statutes for punishment of *fraud* in policies. 1 *Ann. st.* 2. *c.* 9. 4 *Geo.* 1. *c.* 12. *s.* 4. 43 *Geo.* 3. *c.* 113. *s.* 1. *Rex v. Easterby and Macfarlane, at the Admiralty Sessions, Oct.* 1802.

FREIGHT

Cannot be recovered by insured, if accident prevent ship from sailing. *Tonge v. Watts, Sitt. after Trin.* 1791. 1251.

But if policy be a valued one, and part of cargo on board, freight may be recovered. *Montgomery v. Egginton, 3 Term R.* 362.

Where ship chartered from A. to B. to take goods and proceed to C. for which *freight* was to be paid at so much per ton. policy attached from sailing of ship. *Thompson v. Taylor, 6 T. Rep.* 478.

No insurable interest in *freight,* unless legal transfer of ship. *Camden v. Anderson, 5 T. R.* 709.

Insured cannot recover, if ship does not carry her *freight* to its destined port. *Seller v. M'Vicar, 1 B. and P. New Rep. p.* 23.

Insurance for *freight* will attach while delivering outward cargo, and before homeward are shipped. *Annesley on Insurance, p.* 44.

Freight being received at so much *per month,* was earned at the end of each month, although the stipulated time of payment were from four months to four months (beginning at the end of two months), and the ship were lost before the end of fourteen months. *Havelock v. Geddes,* 10 *East. R.* 555.

If the owner of a ship, having chartered her for a voyage, assign her before the voyage, though he afterward assign the charter-party to another, if she earn freight, the assignee of the ship is entitled to the freight as incidental to the ship. *Morrison v. Parsons, 2 Taunt.* 407.

If the master be prevented by fault of consignees, or restraint of governments, from delivering the *whole* cargo, he shall be entitled to freight *pro ratâ* for part delivered. *Christy v. Row, 1 Taunt.* 300.

If ship be freighted for single voyage outward, and be prevented from delivering her cargo, she shall be entitled to freight for bringing it back, and master would not be entitled on losing delivery, to cast away residue of cargo. *Ibid.*

ILLEGAL VOYAGES.

Insurance made on *voyage* prohibited by law, void *ab initio. Johnston v. Douglas, Dougl.* 241. *Camden v. Anderson, 6 T. R.* 723. 1 *Bos. and Pul. Rep.* 273. *Wilson v. Marryat, 8 T. R.* 31. 1 *Bos. and Pull.* 430. *Bird v. Appleton, 8 T. R.* 562. 1 *Black. Com.* 270. *Grot. de Jure Belli, lib.* 2. *c.* 2. *sec.* 10. *Delmaaa v. Motteux, B. R. Mic.* 25 *Geo.* 3. *Lever v. Fletcher, Park,* 237.

INFRACTION OF TREATY.

Condemnation of ship on ground of *in-*

fraction of treaty, in not being properly documented, &c. conclusive against *a warrant of neutrality*. *Baring v. Royal Exchange Assurance Company*, 5 *East*, 99.

INSURANCE.

On seamen's wages prohibited. *Webster v. De Tastet*, 7 *Term Rep.* 157.

"*On goods*" *generally* does not include goods lashed on deck, captain's clothes, or ship's provisions. *Park*, 21. *Abbott, on merchants' ships, &c. Part.* III. *c.* viii. 323. *See* PORT.

"*On ship and furniture*," includes provisions sent out for the use of the crew. 4 *Term Rep.* 206.

"*On goods till safely landed*," damaged in lighter, renders underwriter liable. *S. P. Rucker v. London Assurance Company, Guildhall*, 8*th June*, 1804, *coram Buller J.* 432, *note* (*a*).

"*On goods till safely landed*," lost in a lighter, cases where underwriter was not liable. *Strong v. Natally*, 1 *Bos. and Pull. New Rep.* 16. See *Sparrow v. Carruthers*, 2 *Stra.* 1236. Where a party by taking goods into his own lighter, discharged the underwriters. *Rook* J. observed, that in *Hurry v. the Royal Exchange Company*, they did not intend to shake the authority of *Sparrow v. Carruthers*. *Ib. p.* 19.

May be effected on profits of a cargo. *Barclay v. Cousins*, 2 *East*, 544.

Ditto on a fort against attacks of an enemy. *Carter v. Boehm*, 3 *Burr.* 1905.

Ditto on goods, though purchased with the proceeds of a former illegal cargo. *Bird v. Appleton*, 8 *Term Rep.* 562.

Ditto on imaginary profit. *Henrickson v. Margetson*, 2 *East*, 549. *in n.*

Ditto on enemy's property prohibited. *See Post. III.* 5. 7. *Brandon v. Nesbitt, and Bristow v. Towers*, 6 *Term Rep.* 23 *and* 35. *Potts v. Bell*, 8 *Term Rep.* 548.

Cannot be effected on slaves in certain cases. 34 *Geo.* 3. *c.* 80. *s.* 10. continued by 39 *Geo.* 3. *c.* 80. *s.* 24, 25.

On alien property, cannot extend to cover any loss during *existence of hostilities* between the countries of the assured and assurer. *Brandon v. Curling*, 4 *East*, 410.

On freight will attach while delivering outward cargo, and before homeward are shipped. *Annesley on Insurance, p.* 44. made in order to protect smuggled goods, or in contravention of navigation acts, *void. Park*, 255. 4 & 5 *W.* & *M.* *c.* 15. s. 14, 15, & 16. *and* 8 & 9 *W.* 3. *c.* 36. *s.* 1. *Mir. c.* 1. *s.* 3. 11 *Ed.* 3. c. 1. 8 *Eliz. c.* 3. 12 *Car.* 2. *c.* 32. 7 & 8 *Wm.* 3. *c.* 28. 4 *Geo.* 1. *c.* 11. 12 *Geo.* 2. *c.* 21. *s.* 29 *and* 33. 28 *Geo.* 3. *c.* 38. *s.* 45. 33 *Geo.* 3. *c.* 52. *s.* 146. *Camden and others v. Anderson*, 6 *T. R.* 723, and 1 *Bos. and Pull.* 272.

On privateer valued at 1000*l.* for cruize of four months, *without further account*, and free from average. Crew mutinied, and benefit of cruize was lost; but ship was in safety at expiration of four months. Under writers not liable. *Fitzgerald v. Pale.* 4 *Bro. Parl. Cases*, 2*d edit.* 439.

Equitable construction as to *insurance* on merchandize, &c. from places in *Europe* or *America* belonging to *Spain* or *Portugal*. 19 *Geo.* 2. *c.* 37.

A. having insured 800*l.* on his own ship, and being indebted to B. deposits with him several securities, and makes an assignment of ship. Underwriters cannot depend on ground of A. having no interest. *Alston and others v. Campbell*, 4 *Bro. Parl. Cases*, 2*d edit.* 476.

Upon joint capture by army and navy, officers and crews before condemnation, having an *insurable* interest. *Le Cras v. Hughes, B. R. East.* 22 *Geo.* 3.

Insurances made by persons having no interest are void. *Kent v. Bird, Cowp.* 583. *Lowry and another v. Bourdieu, Dougl.* 451.

A natural born subject domiciled in a foreign country in amity with this, may lawfully exercise the privileges of the country where he is domiciled; and may effect an insurance on a ship from that country to another at war with this. *Bell v. Reid*, 1 *M.* & *S. Rep.* 726.

INSURERS,

Who may be? (6 *Geo.* 1. *c.* 18.) *ans.* Royal Exchange Company and the London Assurance Company. Policies, therefore, are now either underwritten by these companies, or individual underwriters; a policy subscribed by any society or partnership being absolutely void. *Park, 5th edit. p.* 5. 9. *Lees v. Smith*, 7 *Term Rep.* 338. *Brunton v. Taddy.* 1 *Taunt. Rep.* 6.

LICENCE.

Trading under *licence* with an alien enemy for specie or goods brought in his ships, incidentally legalizes insurance on *enemy's ship*, as well as goods of British subject. *Annesley on Insurance, p.* 44.

A licence to trade, which is to expire on a certain day, will protect the adventure beyond that day, if it be protracted by events which the licensed party cannot controul; and *that*, even though the cargo be not shipped till after the licence be expired. And where a homeward-bound cargo shipped without laches, after the licence expired, was through perils of the sea necessarily unladen in the course of the voyage, and destroyed by fire on shore; it was decided that the licence protected a cargo of the specified goods substituted for the cargo burnt. *Siffhon v. Glover*, 4 *Taunt.* 717.

If a vessel bring from an hostile country, under a licence, a cargo of enumerated goods, and other goods not licensed, the insurance on the licensed goods is not vitiated. *Pieschel v. Allnut*, 4 *Taunt.* 792. See further case on licence to export, 4 *B.* & *A.* 184.

LIEN.

Broker has a *lien* on policies, and though he parts with possession of policy, yet if it

returns into his hands *lien* revives. *Whitehead v. Vaughan, Trin. 25 Geo. 3. in B. R. Parker & al. v. Carter, C. P. Trin.* 1788.

In what case broker has not a *lien. Maans v. Henderson,* 1 *East,* 355.

LIVES, INSURANCE ON.

Definition. 1 *Postlethw. Dic. of Fr. p.* 150.

Advantages resulting from such insurance. 1 *Postlethw.* 150.

History of different societies. *Park, c.* xxii.

Antiquity of this practice uncertain. *Le Guidon, c.* 16. *art.* 5. *published in* 1661.

No insurance can be made, unless person effecting one has an interest in the life insured. 15 *Geo.* 3. *c.* 48. *s.* 1, 2, 3.

A person holding a note for money won at play, has not an insurable interest in the *life* of the maker of the note. *Dwyer v. Eddie, London Sitt. after Hil.* 1788. *Park c.* xxii.

But a creditor has an insurable interest in the life of his debtor. *Anderson v. Eddie, B. R. London Sitt. in Tr. T.* 1795.

All policies of a gambling nature, or in which there is no interest, are void. *Park, c.* xxii.

Policy may be bequeathed to persons not parties to the insurance, and executor may support an action. *Tidswell v. Angerstein, Peak. N. P. Cases,* 151.

Fraud affects a life policy the same as another. *Park, c.* xxii.

Loss must happen within time in policy. *Park, c.* xxii. *The case of Lockyer v. Offley,* 1 *T. R.* 252, *was here stated by Mr. Justice Willes. Patterson v. Black, Sittings at Guildhall, Hil. Vac.* 1780.

Full sum must be paid when loss happens. *Lex Merc. Red.* 4 *edit. p.* 294.

Doubts as to extension of 19 *Geo.* 2. *c.* 37 *s.* 2. to life policies removed. *Cox v. Liotard, Dougl. Lep. p.* 166. *note. Patteson v. Bankes, Cowp. Rep.* 540. *Mace v. Fadell, Cowp.* 232.

Above act held to extend to bonds for payment of annuity. *Ibid.*

Statute of *James* construed to extend to goods of third person. *Mace v. Cadell, Cowp.* 232.

Formerly a doubt, when a policy was to run from the date thereof till that day twelvemonth, and the person died on the day named; whether insurer was liable—held that he was. *Sir Robert Howard's case,* 2 *Salk.* 625. 1 *Ld. Raym.* 480. *S. C.* Vide *Pugh v. The Duke of Leeds, Cowp. Rep.* 714.

Day of date, &c. shall be either *exclusive or inclusive,* according to the context and subject matter. *Ibid.*

Usual, to prevent disputes, to insert in modern policies "the first and last days included." *Ibid.*

Where there is no warranty, underwriter runs the risk of its being a good life or not. *Stackpole v. Simon, Sittings at Guildhall, Hil. Vac.* 1799.

And where there is a warranty, it is sufficient that he is in a reasonable good state of health, for it never can mean that he is free from the *seeds* of disorder. *Ross v. Bradshaw,* 1 *Black. Rep.* 312. *Park,* 439.

If even insured laboured under particular *infirmity,* if it be proved that it did not contribute to his death. Warranty has been complied with, *ibid. Wallis v. Poole, Sitt. at Guildhall, after Easter Vac.* 1780. *Park,* 439.

When risk once begun, there is no apportionment or return of premium, although it should cease the day after its commencement. *Tyrie v. Fletcher, Cowp.* 669. *Bermon v. Woodbridge, Dougl.* 789.

Declaration of person, and apprehension that she could not live ten days longer, admissible evidence to show her own opinion, who best knew the ill state of her health at the time of effecting policy. *Aveson v. Ld. Kinnaird,* 6 *East,* 188.

LOSS.

What is considered as a total loss. 1 *T. R.* 130. *n.* (*a.*) *Park,* 98. 143.

In what case insured may call upon underwriter for a total loss. *Ibid. Hamilton v. Mendes,* 2 *Burr.* 1108. 1 *Black. Rep.* 276.

Proof of interest necessary for total loss on an open policy, *aliter* on a valued one. *See ante,* I. 4 *Park,* 103. 111.

Any thing that human prudence could not foresee, or human strength prevent, is a *loss* by peril of the sea, and entitles assured to recover. *Park,* 61. 1 *Show.* 323. 2 *Rolle's Abr.* 248. *p.* 10. *Camb.* 56.

Mistake of captain in missing a port, not deemed a *loss* by peril of the sea. *Gregson v. Gilbert, Pasch.* 23 *Geo.* 3. *Park,* 63.

A ship never heard of after her departure, *presumed* to be *lost* at sea. *Green v. Brown,* 3 *Stra.* 1199. *Newby v. Read, Sittings after Mich.* 3 *Geo.* 3.

Usage in respect of time for *presumption of loss. Salk.* 22.

In case of adjustment of such *supposed loss,* that the ship afterwards arrives, the underwriter may recover back the money paid by him. *Park,* 64.

Ship destroyed by species of worms, not a *loss* by peril of sea. *Rohl. v. Parr, Guildhall Sitt. after Hil.* 1796.

Where a ship arrived in port a mere wreck, and in attempting to remove her, sunk, although cargo saved and sold to a profitable market, assured recovered. *Shaw v. Felton,* 2 *East,* 109.

A ship under repair on a beach within tide away, bilged and damaged, is not a loss by perils of the sea. *Thompson v. Whitmore,* 3 *Taunt. Rep.* 227.

PARTIAL LOSS.

Mode by which *partial loss* may be adjusted. *Lewis v. Rucker,* 2 *Burr.* 1167, *et seq. Johnson v. Shedden,* 2 *East,* 581.

Proportion to be paid by underwriter. *Ib.*

General rules as to *partial loss. Ibid.*

Meaning of *partial loss* when applied to the ship. *Park,* 101. 3.

Ditto when to the cargo. 2 *Burr.* 1167.

Such loss does not fall on the underwriter under 3*l.* per cent. *Park*, 101. 3.

When goods are partially damaged, underwriter must pay according to *prime cost*, or value in policy, or invoice price. 2 *Burr.* 1167.

No regard to be paid to rise or fall of market, nor any regard to be paid to difference of exchange. *See Thellusson v. Bewick, Sitt. after Mich.* 34 *Geo.* 3. *Espinasse, p.* 77.

Rule to be adopted where there is property of various kinds. *Park*, 111.

Underwriters not answerable for *partial loss* to "corn, fish, salt, fruit, flour, or seed, &c." unless ship stranded. *Catillon v. The London Assurance Company*, 3 *Burr.* 1553.

Decision of courts with regard to partial loss on "corn, fruit, &c." *Mason v. Skurray, Sittings after Hil.* 1780. *Wilson v. Smith*, 3 *Burr*, 1550. *Cocking v. Fraser, B. R. East*, 25 *Geo.* 3. *Burnet v. Kensington*, 7 *T. R.* 210. *Dobson v. Bolton, See ante*, II. 5. *p.* 69. *Byfield v. Brown*, 2 *Stra.* 1065. *Cantillon v. The London Assurance Company, cited in* 3 *Burr.* 1553. *in Wilson v. Smith, and* 2 *Mag.* 385. 7 *Term Rep.* 216. *in n.*

Where there is a *bonâ fide* stranding, goods excepted in memorandum are subject to *partial loss. Page v. Thompson, ante*, II. 5.

MISREPRESENTATION. *See* FRAUD.

NEUTRALITY.

If warranty of *neutrality* be not complied with, contract void *ab initio. Park, c.* 10. *Skinn.* 327. 3 *Burr.* 1419. 1 *Black. Rep.* 427.

If ship *neutral* at commencement of risk, insurer takes upon him chance of peace, or war. *Doug.* 732. *Eden v. Parkinson.*

Condemnation of ship on ground of infraction of treaty, in not being properly documented, conclusive against warranty of *neutrality. Daring v. Royal Exchange Assurance Company*, 5 *East*, 99.

Warrant of *neutrality* not falsified by sentence of foreign court. *Pollard v. Bell*, 8 *Term Rep.* 434.

Condemnation of goods warranted *American*, though in a ship hired and loaded at London, and destined for the English islands, not conclusive evidence against warranty of *neutrality. Calvert v. Bovill*, 7 *T. Rep.* 523.

Condemnation of ship warranted *American*, for want of *role d'equipage* or list of crew, conclusive against warranty of *neutrality*, though really *American. Geyer v. Aguilar*, 7 *T. Rep.* 681.

Warranty of *neutrality* disproved, by master's forcibly rescuing ship to avoid search. *Garrels v. Kensington, ibid.* 230. (*see ante*).

PAROL EVIDENCE.

Where it may reasonably be admitted. *Nesbitt v. Kensington*, 4 *T. Rep.* 783.

PARTIAL LOSS. *See tit.* LOSS.

PERIL OF THE SEA. *See tit.* LOSS.

POLICY,

Its nature. 2 *B.* 1117.

Different kinds. 1 *Ven.* 317. *Motteux v. Lond. Ass. Co.* 1 *Atk.* 545. *Bates v. Graham, Salk.* 444.

For detention of which *trover* lies. *Park*, 4.

Name of person insured. *See Cox and another, Executors, v. Parry*, 1 *T. Rep.* in which it was held that the executors could not recover, because, amongst other grounds, the name of their testator was not inserted in he policy.

Name of person insured. 3 *Burr.* 155. *Park*, 19.

Name of ship and master. *Kewley and another v. Ryan*, 2 *H. B. Rep. p.* 343. *on ship or ships*, and *Henchman v. Offley, ib.* 345, *note* (*a*); and see Marshal on ship or ships.

What is considered a sufficient name. *Le Mesurier and another v. Vaughan*, 6 *East*, 382.

Name of shipping port. *Moll. b.* 2. *c.* 7. *s.* 14.

Name of port of destination. *Park*, 22.

Time when risk commences and when it ends. On the goods it usually begins from the lading on board the ship, and continues till they are safely on board the ship; from her beginning to lade at A. and continues till she arrive at the port of destination, and be there moored in safety 24 hours.

Time fixed for unloading, not fixed unless unreasonable delay. *Noble v. Kenoway, Dougl.* 492.

Stamp on policy. 44 *Geo.* 3. *c.* 98. *See* also 35 *Geo.* 3. *c.* 63. *s.* 1 to 16

Whether policy made on ship, goods, or merchandise. The only material difference between the memorandum of private underwriters, and those of the two insurance companys, consists in the omission of the words "*or the ship being stranded*," and that they insert *rum* among the articles upon which they will not be liable to any partial loss under 5 *per cent.* and omit *freight* out of the articles upon which there shall be no partial loss under 3 *per cent.* Vide the forms of the different policies in the schedule to the 35 *Geo.* 3. *c.* 63.

Perils must be stated against which the underwriter insures. 5 *Burr.* 2083.

Premium or consideration. *Airy and others, assignees of Milton v. Bland, Park, 6th Edit.* 27.

Exceptions in policy to perishable goods. *See* schedule to the 35 *Geo.* 3. *c.* 63.

"*On ship and outfit*" cannot be altered to "*ships and goods*" after ship sails. *Hill v. Patten*, 8 *East.* 373.

Construction of,

On ship, *generally, construed* to mean till ship was unladen. *Skinn.* 243.

But if the usual words "*till moored* 24 *hours in safety*," insurers not answerable unless loss happen within that time. *Lackyer and others v. Offley*, 1 *Term Rep.* 252.

Where ship arrived at wharf 12th January, but could not unload, being on outside

tier, with anchors out, &c. and so continued till the 19th, when some ice forced her adrift, and she was lost, held to be completely moored on the 12th. *Montgomery v. Egginton*, 3 *Term Rep.* 362.

On insurance "*at and from*" any place, ship is protected from her first arrival, &c. 1 *Atk.* 548. *Chitty v. Selvin*, 2 *Atk.* 539. *Camden v. Cowley*, 1 *Black. Rep.* 417. *Barras v. Lond. Ass. Co. Sittings after Hil.* 1782, *at Guildhall*, which doctrine was confirmed by a modern decision, *Leigh v. Mather*, *Park*, 38.

On policy from London to Madras and China, with liberty to touch, stay, and trade at any ports, &c. On ship's arrival at Madras she was employed to fetch rice from Bengal, and in second voyage was lost; *insured may recover*. *Gregory v. Christie*, *B. R. Trin.* 24 *Geo.* 3. *Farquharson v. Hunter*, *B. R. Hil.* 25 *Geo.* 3.

Parties made by their own agreement prevent latitude of construction. *Doug.* 27. *Eden v. Poole*, *Sitt. after Hil.* 1785. *Robertson v. Ewer*, 1 *Term Rep.* 127.

Loss must be a direct and immediate consequence, not a remote one. *Jones v. Schmoll*, 1 *Term Rep.* 130 *n.* (*a*) Policies must be construed by the same rule as other instruments, unless by usage of trade, &c. certain words have a peculiar sense, distinct from the ordinary and popular sense. *Robertson and another v. French*, 4 *East.* 130.

Assured cannot recover, unless ship is equipped with every thing necessary, and therefore cannot recover if no pilot on board. *Law v. Hollingworth*, 7 *T. Rep.* 160.

What is construed a sufficient covering. *Seller v. M'Vicar*, 1 *B. and P. New Rep. p.* 23. *Robertson and another v. French*, 4 *East.* 130.

Policy on foreign ships must be understood to except captures made by authority of British government. *Kelner v. Le Messurier*, 4 *East.* 396.

Where a mob seized a vessel with corn, and took it at their own price, and stranded her, assured could not recover as for a general average. N. B. There was no count for stranding. *Nesbitt v. Lushington*, 4 *Term Rep.* 783.

What is to be *construed* a commencement of the voyage. *Driscol v. Passmore*, 1 *Bos. and P.* 200.

Ship arriving at a port where an embargo is previously laid, and the day after extended to her, cannot be construed to have been moored in *safety* 24 hours. *Minet v. Anderson*, *Peak*, 211. *Sittings after Hil. Term*, 34 *Geo.* 3.

Corn, deemed a general term, and includes pease, beans, and other species of pulse. *M'Andrews v. Vaughan*, *Sitt. after Hil. Term*, 1793. *Mason v. Skurray*, *Sitt. after Hil.* 1780, *at Guildhall*. Rice is not corn, *Scott v. Bourdillon*, 2 *N. R.* 213.

Construction to be put on the words *unless stranded*. *Bowring v. Elmslie*, *Sitt. after Trin.* 1790.

PORT OF LONDON.

What is so considered. *Park*, *c.* 18.

PROCEEDINGS.

Mode of proceeding. 43 *Eliz. c.* 12. 13 & 14 *Car.* 2. *c.* 23. *Stra.* 166. 1 *Show.* 396. 2 *Sid.* 121. *Park's Introd.* See *De Ghetoff v. Lond. Ass. Co.* 3 *Bro. P. C.* 525.

Plaintiff, on request in writing, must (by 19 *Geo.* 2. *c.* 37. *s.* 6.) declare amount of all insurances on same ship. *Park*, *c.* 20.

Action against private underwriters *indebitatus assumpsit*, and may be brought in the broker's name. 3 *Black. Com.* 157.

The usual plea *non assumpsit*. *Ibid.*

Proofs necessary on trial. *Ibid.*

Consolidation. 1 *Tidd.* 557. *Perchard v. Whitmore*, 2 *Bos. and P.* 155. *n.* *Page v. Fry*, *ib.* 240.

Payment of money into court allowed by 19 *Geo.* 2. *c.* 37. *s.* 7.

In what case action for money had and received lies. 2 *Barn. B. R.* 103. 1 *Tidd.* 557. *Park's Introd.*

Declaration, requisites of. *Park*, *c.* 20.

Though declaration allege *total loss*, insured may recover for *partial one*. *Gardiner v. Crosedale*, 2 *Burr.* 904. 1 *Black. Rep.* 193.

Declaration on policy for foreign ship need not aver any interest in assured. *Nantes v. Thompson*, 2 *East.* 385.

Averment of interest relates to time of making policy. *Perchard v. Whitmore*, 2 *Bos. and P.* 155. *n.*

Where averment is good. *Page v. Fry*, *ibid.* 240. *Wolff and others v. Horncastle*, 1 *Bos. and P.* 316.

Where Dutch commissioners had an insurable interest in Dutch ships. *Craufurd v. Lucena*, *Park*, 406. *n.* (*a*) *Craufurd v. Hunter*, (*vide ante.*)

Expenses of salvage not necessary in declaration as special breach of policy. *Hardw.* 304.

Expenses of depositions taken abroad not allowed in taxation. *Taylor v. Roy. Ex. Ass. Co.* 8 *East.* 393.

Protest of captain delivered by broker to defendant, will not enable defendant to read it as evidence on his part. *Senat v. Porter*, 7 *T. R.* 158.

Of producing instruments at trial. *Gordon and others v. Secretan*, 8 *East.* 548.

Contribution of *average* may be recovered by a suit in equity or action at law. *Shepherd and others v. Wright*, *Show. Parl. Cas.* 18.

Insured cannot recover unless they make a full disclosure of circumstances. *Stewart v. Dunlop in Dom. Proc.* 1785. *Fitzherbert v. Mather*, 1 *T. R.* 12. *Park*, *c.* 10.

If ship be insured at and from A. to B. and there be any illegality in the transaction during her stay at A. assured cannot recover

for loss happening between A. and B. *Bird v. Appleton*, 8 *T. R.* 562.

PROHIBITED GOODS.

Insurance made to protect importation or exportation of *prohibited* commodities are void. 4 *&* 5 *W. & M. c.* 15. *sec.* 14, 15, 16. and 8 *&* 9 *W.* 3. *c.* 36. *sec.* 1. *Mir. c.* 1. *sec.* 3. 11 *Ed.* 3. *c.* 1. & 8 *Eliz. c.* 3. 12 *Car.* 2. *c.* 32. 7 *&* 8 *W.* 3. *c.* 28. 4 *Geo.* 1. *c.* 11. 12 *Geo.* 2. *c.* 21. *s.* 29. *and sec.* 33. 28 *Geo.* 3. *c.* 33. *sec.* 45, 46. 48. *Park*, 255.

What are deemed contraband or prohibited goods, see *Annesley, p.* 127. Penalty of 500*l.* on persons insuring to import prohibited goods by 4 *&* 5 *W. & M. c.* 15. *s.* 14, *&c.* and 8 *&* 9 *W.* 3. *c.* 36. *s.* 1.

QUARANTINE.

Ship ordered to perform *quarantine* after arrival at her moorings, but before she remained 24 hours, renders underwriter liable. *Waples v. Eames*, 2 *Stra.* 1243.

RE-ASSURANCE.

Action not maintainable for premiums on *re-assurance*. *Edgar and another, assignees of Carden v. Fowler*, 3 *East.* 222.

19 *Geo.* 2. *c.* 37. *s.* 4. renders *re-assurance* unlawful, unless underwriter should be insolvent, become bankrupt, or die.

Assured must state in policy it is a re-assurance. *Andre v. Fletcher*, 2 *T. R.* 161.

Usage of other countries in respect of re-assurance. *Annesley on Insurance, p.* 63.

RECAPTURE, *see* TIT. CAPTURE.

RESPONDENTIA, *see* TIT. BOTTOMRY.

RETURN OF PREMIUM.

If ship arrive before policy is made, and underwriter is acquainted therewith, but insured is not, the latter is entitled to return of premium. *Loccenius de Jure Marit.* 2. *c.* 5. *sec.* 8. 1 *Mag.* 90.

But if both parties be ignorant of the arrival, and the policy (as usual) is *lost or not lost*, underwriter should retain. *Dougl.* 268.

Clauses inserted in policy, stating that upon a certain event premium shall be returned, have a binding operation. *Ibid.*

If no risk run, consideration for premiums fails. 1 *Vesey*, 319.

In a policy where there was a clause that 8*l.* per cent. should be returned if ship sailed from the *West India Islands* with convoy, *and arrived*, held that arrival of ship, whether with or without convoy, entitled party to a return of premium. *Symond and another v. Boydell, Dougl.* 225. *Audley v. Duff*, 2 *Bos. & Pull.* 111.

Policy made here for a Russian house in ignorance of hostilities between the two countries, void in its inception, but agent of insurer entitled to return of premium. *Oom v. Bruce*, 12 *E. R.* 225.

SAILING, *Time of.*

May be extended without a new stamp 55 *Geo.* 3. *c.* 65. *s.* 13.

SALVAGE.

Definition. *Beawes Lex Merc.* 146. *Park*, 131. 1 *Ld. Raym.* 393. 2 *Salk.* 654.

Propriety of it. *Kaim's Princ. of Eq. Introd. p.* 6. *Leg. Rhod. S.* 2. *art.* 45, 46, 47. 13 *Geo.* 2. *c.* 4. *s.* 18. 29 *Geo.* 2. *c.* 34. *s.* 24. *See* 43 *Geo.* 3. *c.* 160. *s.* 39. *and* 45 *Geo.* 3. *c.* 72. *s.* 7. *Abbot, part* III. ch. x. 356. *Case of the Aquila*, 1 *Rob. A. R.* 37. *Wellwood's Sea Laws, tit.* 24. *Vrow Margaretha, Jacobs*, 4 *Rob. A. R.* 103.

Expenses of *salvage* not necessary in declaration as special breach of policy. *Hard.* 304.

On payment of *salvage*, right of original owner preserved to him for ever. 2 *Burr.* 694. 29 *Geo.* 2. *c.* 34. *See* 43 *Geo.* 3. *c.* 160. *s.* 39. *and* 45 *Geo.* 3. *c.* 72. *s.* 7.

In case of wreck or desertion at sea, no positive rate of *salvage* fixed. *Abbot, part* III. *ch.* x. 356.

Passenger not entitled to claim salvage.

But in case where master deserted vessel, and took part of the crew, a person on board as passenger, at the request of remaining crew, took the command and brought her into port in safety, held to be entitled to salvage. *Newman* v. *Walters*, 3 *Bos. & Pull.* 612.

Payment of salvage regulated by 12 *Anne, stat.* 2. *c.* 18. 4 *Geo.* 1. *c.* 12. 26 *Geo.* 2. *c.* 19. 48 *Geo.* 3. *c.* 130. 49 *Geo.* 3. *c.* 122.

Case where captain paying *salvors*, on his own application, constituted himself agent of the owners. *Sir F. Baring* v. *Day*, (*in Trover*), 8 *East*, 57.

Wearing apparel of master and seamen always exempt from salvage. *Park*, 140. Expenses of salvage borne by underwriters. *Hardw.* 304. Where salvage is high, insured may abandon. *Annesley, p.* 95.

SEA-WORTHINESS.

Determination in respect of. *Park, c.* 11.

If ship not *sea-worthy* at time of insurance, there is no *contract at all*. *See Park, c.* 11. 4 *East.* 590. But if she becomes otherwise one hour after the risk has attached, it is sufficient to charge the underwriter. 1 *Dow.* 344. *Scotch.*

If information as to *sea-worthiness* be called for, assured must disclose truly what he knows. 4 *East.* 590. As to tackling. *Wilkin* v. *Geddes.* 3 *Dow.* 57. *Scotch.*

SHIP

Need not be documented as belonging to any particular country, and if captured, owner of goods may recover. *Dawson* v. *Atty*, 7 *East.* 367.

Ship arriving at a port where an embargo is previously laid, and the day after extended to her, cannot be said to have been moored in safety 24 hours. *Minet* v. *Anderson, Peake*, 211. *Sit. after Hil.* 34 *Geo.* 3.

If ship does not carry her freight, insured cannot recover. *Seller* v. *M'Vicar* 1 *B & P. New. Rep.* 23.

STRANDING.

Custom of companies and underwriters in London as to *stranding*. *See Annesley, p.* 79. *Cantillon v. Lond. Ass. Co. cited in* 3 *Burr.* 1553.

Companies have left out words "or the ship be *stranded*," and are only liable in case of general average. *Ibid.*

On insurance upon fruit, and policy contain usual memorandum "corn, fruit, &c." and the ship be in fact *stranded*, underwriters liable for average loss. *Burnet v. Kensington*, 7 *T. R.* 210.

Where there is bonâ fide *stranding*, goods excepted in memorandum, are subject to partial loss. *Ibid.* and *Page v. Thompson, at Guildhall, Sitt. after Trin. T.* 1805, *in M. S.*

Ship running on some wooden piles to keep up shore, and remaining there till they were cut away, deemed *stranded*. *Dobson v. Bolton, Sitt. after East. T. Park*, 4. *edit.* 3, 4.

Ship laden with corn, striking on sand bank in the river Thames, plaintiff recovered for average loss. *Page v. Thompson, Guildhall, Sitt. after Tr. T.* 1805, *in M. S.*

Construction to put on the words *unless stranded*. *Bowring v. Elmslie, Sitt. after Trin.* 1790. *Park*, 115.

UNDERWRITER

Liable if ship not moored 24 hours. *Skinn.* 243. *Lockyer and others v. Offley*, 1 *T. R.* 252.

Underwriter presumed to be acquainted with practice of trade he insures. *Tierney v. Etherington, and Pelley v. Royal Ex. Co.* 1 *Burr.* 348.

Not liable for sailors' wages and provisions while ship detained to refit. *Robertson v. Ewer*, 1 *T. R.* 127.

Liable if goods damaged in lighter without negligence. *Hurry v. Royal Ex. Co.*, 2 *Band. P.* 430. *Rucker v. same, ibid.* 432. *n.*

Unforeseen separation from convoy renders underwriter liable. 3 *Lev.* 320. 2 *Salk.* 443. *Carth.* 216. 1 *Show.* 320. 4 *Mod.* 588. *c. Victoria v. Cleeve*, 2 *Stra.* 1250.

Provisions as to the underwriter becoming bankrupt, 19 *Geo.* 2. *c.* 37. *s.* 4.

Underwriter not liable for partial loss on corn, fish, &c. *Cited in* 3 *Burr.* 1553, *in Wilson v. Smith, and* 2 *Mag.* 385. 7 *T. R.* 216. *in n.*

On *French* property in time of *peace* not liable for loss by capture, by king's ships during hostilities, though they terminate prior to action. *Gamba and another v. Le Messurier*, 4 *East.* 407.

UNLOADING.

Where ship in *unloading* her cargo occupied many days in fishing, and was captured, insurer liable by usage of trade. *Noble and others v. Kennoway, Dougl.* 472.

Where ship arrive at wharf 12th January, but could not *unload*, being on the outside tier, with anchors out, &c. and continued so till the 19th, when some ice forced her adrift, and she was lost, held to be completely moored on the 12th. *Montgomery v. Egginton*, 8 *T. R.* 362.

VALUED POLICY.

Is not a *wager* policy. *Lewis v. Rucker*, 2 *Burr.* 1167.

In case of valued policy, assured must recover whole sum, because he could not have any claim for return of premium for short interest of ship arrived safe. *Ibid.*

On a policy on ship and goods *valued* at so much, on a voyage to *Africa* and the *West Indies*, insured are entitled to recover on a total loss which happened in the latest period of the voyage. *Shaw v. Felton*, 2 *East.* 100. 109.

WAGER POLICY.

Wager policies originally bad. *Park, c.* 14. *Assevedo v. Cambridge*, 10 *Mod.* 77. *Depaiba v. Ludlow, Com. Rep.* 360. *Goddart v. Garret*, 2 *Vern. Le Pyre v. Farr, ibid.* 716. Distinction between *interest* and *wager* policies. *Goss and another v. Withers*, 2 *Burr.* 683.

Wager policy, and those *interest* or *no interest*, prohibited by 19 *Geo.* 2. *c.* 37. *s.* 1.

Proviso in favour of *private ships of war, sec.* 2.

WARRANTY.

What is considered as such. 1 *T. Rep.* 345. *Park*, 318. *Blackhurst v. Cockell*, 3 *T. R.* 360. 1 *T. R.* 346. *Cowp.* 607.

Difference between warranty and representation. *Pawson v. Watson, Cowp.* 787. *Park*, 214. *Roccus, Not.* 51, 78. *Middlewood v. Blakes*, 7 *T. Rep.* 162.

Various kinds of warranties. *Hore v. Whitmore, Cowp.* 784. *Vezian v. Grant, cor. Buller J. East. Vac.* 1779.

If ship be *warranted* to sail on *particular day*, and do not, underwriter is not answerable. *Ibid.*

Detention of governments no excuse for breach of warranty. *Ibid.*

Ship touching at place of rendezvous for convoy, though detained there by an embargo, has complied with *warranty*. *Bond v. Nutt, Cowp.* 601. *Thelluson v. Ferguson, Doug.* 361.

If ship warranted to sail with convoy, *and do not*, underwriter not responsible. *Park, c.* 18.

Warranty to sail with convoy understood, to mean throughout voyage. 2 *Salk.* 443. *Gordon v. Morley*, 2 *Stra.* 1265. *Jeffrey v. Logendra*, 3 *Lev.* 320. *Lilly v. Ewer, Doug.* 72.

Where ship is prevented from joining convoy by tempestuous weather, yet endeavours to do so, deemed a satisfaction of *warranty* to sail with convoy. *Victoria v. Cleeve*, 2 *Stra.* 1250.

If *warranty* of neutrality be not complied with, contract void *ab initio*. 4 *Burr.* 1419. 1 *Black. Rep.* 427. *Barber v. Fletcher, Dougl.* (292) 305. *Doug.* 732. *Eden v. Parkinson.*

Sailing orders necessary to performance of warranty to depart with convoy, unless particular circumstances exempt insured from general rule. *Webb v. Thompson*, 1 *Bos. and Pull.* 5. *Anderson v. Pitcher*, 2 *B. and P.* 165.

Warranty that a ship is American property, means that she is entitled to privileges of the American flag, and if she has no *passport*, it is not complied with. *Rich v. Parker*, 7 *T. Rep.* 705.

Such passport must express place of habitation of commander by art. 25. of treaty between America and France. *Baring v. Christie*, 5 *East.* 398.

On a *warranty* with convoy from *Hull* to *Bilboa*, voyage from *Hull* to *Portsmouth*, and thence to Bilboa, considered distinct. *Rothwell v. Cooke*, 1 *Bos. and Pull.* 172.

Warranty of neutrality not falsified by sentence of foreign court. *Follard v Bell*, 8 *T. Rep.* 434.

Ship condemned on ground of infraction of treaty in not being properly documented, &c. conclusive against *warranty* of neutrality. *Baring v. The Roy. Ex. Ass. Co.* 5 *East.* 99.

Condemnation of goods *warranted* American, though in a ship hired and loaded at London, and destined for the English islands, not conclusive evidence against warranty of neutrality. *Calvert v. Bovill*, 7 *Term Rep.* 523.

Ship *warranted* American condemned for want of *role d'equipage*, or list of crew, conclusive against *warranty* of neutrality, though really American. *Geyer v. Aguilar*, 7 *T. Rep.* 681.

Warranty of neutrality disproved by master's forcibly rescuing ship to avoid search. *Garrels v. Kensington*, 7 *T. Rep.* 230.

For forfeiture of neutrality by act of assured or master, after commencement of voyage, a breach of *warranty*. *Garrels v. Kensington*, 7 *Term Rep.* 230.

A ship licensed to sail without convoy, provided she be armed with a certain force, must take that force on board before she break ground. *Hinkley v. Walton*, 3 *Taunt.* 131.

A licence to Gibraltar did not legalise a voyage to Palermo and Malta, touching at Gibraltar, but finding there neither licence nor convoy. *Ingham v. Agnew*, 15 *E. R.* 517. 4 *Taunt.* 178. *See further* SHIPPING.

INSUPER, is used by auditors in their accounts in the exchequer; as when so much is charged upon a person as due on his account, they say so much remains insuper to such an accountant.

INSURANCE-BROKERS, are persons who frequent Lloyd's coffee-house over the Royal-Exchange, London; they fill up the policies of insurance, to which they procure the signatures of the insurers or underwriters; they charge the merchant or ship-owner who employs them, a commission (from $\frac{1}{2}$ to $\frac{1}{4}$ per cent.) for effecting the insurance, and likewise receive a gratuity of 10 per cent. from the underwriter on the annual balance which may be in favour of the underwriter, exclusive of an allowance of 5 per cent. made to them on the premiums at the time of effecting the insurance; as for instance, if the premium of insurance be 10 guineas per cent. the insurance-broker only gives credit to the underwriter for 10*l.* per cent. and carries the difference to the credit of his commission account, or that of profit and loss.

INTAGLIO, an Italian word, signifying any thing that has figures engraved on it, so as to rise above the ground. It is usually applied to gems. The French used to be celebrated above all other people for manufacturing these, and other, trinkets, but the English now rival them.

INTENT, or INTENTION. The words of deeds shall be construed according to the intent of the parties, and not otherwise; but the intent shall be destroyed where it does not agree with the law. *Pl. C.* 160. *b.* 162. *b.*

INTEREST. In legal understanding an interest extends to estates, rights, and titles, that a man hath in, or out of lands, so as by grant of his whole interest in such land, a reversion therein, as well as possession in fee-simple, shall pass. *Co. Lit.* 345.

INTEREST *on Bankrupts' Debts.* The usual rule is, that all interest on debts carrying interest shall cease from the time of issuing the commission. *Atk.* 244. Yet, in case of a surplus left after payment of every debt, such interest shall again revive, and be chargeable on the bankrupt, or his representatives. 1 *Atk.* 244.

And in case of a surplus, the chancellor will not order it to be returned to the bankrupt till he has discharged the interest up to the time on all debts bearing interest, and satisfied all other equitable claims upon the fund. 2 *Ves. Jun.* 303.

Bills and notes in which interest is not named, carry interest only between the protest and the date of the commission. 2 *Black. N.* by *Chris.* 488.

INTEREST *of money*, is a sum paid or allowed for the loan or use of some other sum lent for a certain time, according to some fixed rate or proportion. The sum lent, on which the interest is reckoned, is called the principal; and in any case where there is hazard of the loss or diminution of the principal, a proportionately greater interest is usually paid. The current rate of interest is generally considered as the barometer of public credit; and its lowness is a sign almost infallible of the flourishing condition of a state; it proves the increase of industry, and the free circulation of wealth, little inferior to a demonstration. In order to prevent individuals from taking unjust advantages of the necessities of

others, it has been found necessary, in most countries, to establish by law a fixed rate of interest for the use of money: this however must, in a great measure, depend on the current rate of interest in the country; for if it is attempted to reduce by law the common rate of interest below the lowest ordinary market rate, the restriction will be sure to be evaded. This was the case in France in 1766, when, although the legal rate of interest was reduced from five to four per cent. money continued to be lent at five per cent.

The first act of parliament for regulating the interest for money lent in England was 37 Hen. 8. c. 9. by which interest was fixed at 10 per cent.; before that time interest had usually been taken at higher rates. In 1552 an act was passed against usury, or taking any interest whatever for money lent: the impolicy and oppression of this measure soon became evident; and in 1571, the statute of Henry VIII. which fixed interest at 10 per cent. was revived. As the increase of commerce brought wealth into the country, the rate of interest lowered; and in 1625 it was, by 21 James 1. c. 17, reduced to eight per cent. The first positive law made in Scotland for fixing the rate of interest was in 1587, when an act was passed, by which the rate of interest was not for the future to exceed 10 per cent. In France, in 1601, Henry IV. issued an edict for reducing the public or national interest of money in that kingdom to six and a quarter per cent. In 1651, the interest of money in several parts beyond sea being lower than the legal interest in England, the Rump-parliament reduced the legal rate from eight to six per cent.; and upon the Restoration it was confirmed by 12 Cha. 2. c. 13. The last act of parliament for regulating the interest of money was 12 Anne, st. 2. c. 16. by which it was fixed at five per cent. per annum, the present legal rate. But although this is the utmost interest which can be taken for money lent in Great Britain, yet if a contract which carries interest was made in a foreign country, our courts will direct the payment of interest according to the laws of the country in which the contract was made: thus American, Turkish, and Indian interest have been allowed, to the amount of even 12 per cent. 2 *Black. Com.* 463.

The various rates which have been paid in Great Britain at different periods, as the current interest for money, are as follow:

		Per cent. per ann.		
In 1255	- -	£50	0	0
1263, 2*d.* a week for 1*l.* or		43	6	8
1270 to 1307	-	45	0	0
1422 to 1470	..	15	0	0
1545 restricted to		10	0	0
1553 to 1558	-	12	0	0
1571 restricted to		10	0	0
1524 to 1604, about		9	16	0
1625 reduced to	-	8	0	0
1645 to 1660	-	6	0	0
1660 reduced to	-	6	0	0
1660 to 1690	-	7	6	6
1690 to 1697	-	7	10	0
1697 to 1706	-	6	0	0
1714 reduced to	-	5	0	0

In the United States of America, the lawful interest of money is 6 per cent. in most of the States; in a few it is 7 per cent.; in one it is 5 per cent. In Greece, the mean rate of interest is 20 per cent. and in the other parts of Turkey nearly the same; in Persia 25 per cent.; and in the Mogul Empire 30 per cent. In these countries there is no fixed rate of interest, and the usual high rate arises chiefly from the insecurity of lending. In Sydney and the other English settlements in New South Wales, the rate of interest is fixed by an ordinance, dated 14th June, 1804, at 8 per cent. per annum.

Interest is distinguished into *Simple* and *Compound.*

INTEREST, *Simple*, is that which is reckoned on the principal only, at a certain rate for a year, and at a proportionably greater or less sum for a greater or less time; thus, if 5*l.* is the rate of interest of 100*l.* for a year, 10*l.* is the interest for two years, 15*l.* for three years, &c. In most computations of interest the work is much shortened if the interest of 1*l.* for a given term is known, as the interest of any other sum for the same term will then be found by only multiplying by the given sum. The interest of 1*l.* for a year must be in the same proportion as the interest of 100*l.* to its principal; therefore, at 5 per cent. as 100 : 5 :: 1 : $\frac{1}{100}$=.05; and thus:—

The interest of one pound for one year,

l.			*l.*
at 3 per cent. is		-	.03
3½	-	-	.035
4	-	-	.04
4½	-	-	.045
5	-	-	.05
5½	-	-	.055
6	-	-	.06

The Interest of One Pound for any Number of Years.

Yrs.	3 per Cent.	3½ per Cent.	4 per Cent.	4½ per Cent.	5 per Cent.
10	.3	.35	.4	.45	.5
20	.6	.7	.8	.9	1.0
30	.9	1.05	1.2	1.35	1.5
40	1.2	1.4	1.4	1.8	2.0
50	1.5	1.75	2.0	2.25	2.5
60	1.8	2.1	2.4	2.7	3.0
70	2.1	2.45	2.8	3.15	3.5
80	2.4	2.8	3.2	3.6	4.0
90	2.7	3.15	3.6	4.05	4.5
100	3.0	3.5	4.0	4.5	5.0

Although the law forbids any person lending money to take more than 5*l.* for the interest of 100*l.* for a year; yet, by allowing the proportionate part of 5*l.* to be taken for part of a year, it permits any one who lends money for a less term than a year, to receive more than he ought if he were to make only 5 per cent. per annum of his money; for, if he lends 100*l.* for six months, he receives 102*l.* 10*s.*, and this being lent again for the remaining six months, amounts to 105*l.* 1*s.* 3*d.* if the time is less than six months the difference must be still greater. The letter of the law is however the rule in practice, and therefore the 365th part of the yearly interest is always considered as the proper interest for a day, and its multiples as the interest for any number of days.

The Interest of One Pound for One Day,

	£	£
At 3 per cent. is	-	.00008219
3½	-	.00009589
4	-	.00010959
4½	-	.00012329
5	-	.00013699
5½	-	.00015068
6	-	.00016438

As tables of Simple Interest are chiefly referred to, in order to find the interest or discount on bills of exchange, and as by far the greater number of bills which are discounted have less than 100 days to run, the following table will answer most useful purposes; but those who have constant occasion to make such computations, on a more extensive scale, must seek assistance from the various tables which have been computed in various works published specially for the purpose. *See also* DISCOUNT.

TABLE

Showing the Simple Interest of One Pound, for any Number of Days, not exceeding 100, at 5 per cent.

Days.	Amount.	Days.	Amount.
1	.0001369	16	.0021917
2	.0002739	17	.0023287
3	.0004109	18	.0024657
4	.0005479	19	.0026027
5	.0006849	20	.0027397
6	.0008219	21	.0028767
7	.0009589	22	.0030137
8	.0010958	23	.0031506
9	.0012328	24	.0032876
10	.0013698	25	.0034246
11	.0015068	26	.0035616
12	.0016438	27	.0036986
13	.0017808	28	.0038356
14	.0019178	29	.0039726
15	.0020547	30	.0041095

Table continued.

Days.	Amount.	Days.	Amount.
31	.0042465	66	.0090411
32	.0043835	67	.0091780
33	.0045205	68	.0093150
34	.0046575	69	.0094520
35	.0047945	70	.0095890
36	.0049315	71	.0097260
37	.0050684	72	.0098630
38	.0052054	73	.0100000
39	.0053424	74	.0101369
40	.0054794	75	.0102739
41	.0056164	76	.0104109
42	.0057534	77	.0105479
43	.0058904	78	.0106849
44	.0060274	79	.0108219
45	.0061643	80	.0109589
46	.0063013	81	.0110958
47	.0064383	82	.0112328
48	.0065753	83	.0113698
49	.0067123	84	.0115068
50	.0068493	85	.0116438
51	.0069863	86	.0117808
52	.0071232	87	.0119178
53	.0072602	88	.0120547
54	.0073972	89	.0121917
55	.0075312	90	.0123287
56	.0076712	91	.0124657
57	.0078082	92	.0126027
58	.0079452	93	.0127397
59	.0080821	94	.0128767
60	.0082191	95	.0130137
61	.0083561	96	.0131506
62	.0084931	97	.0132876
63	.0086301	98	.0134246
64	.0087671	99	.0135616
65	.0089041	100	.0136986

The interest of any sum for any number of days contained in the table, is found by only multiplying the figures corresponding with the number of days by the sum: thus, if the interest of 150*l.* for 61 days is required, the interest of one pound for 61 days is, by the table, .0083561, which multiplied by 150, gives 1*l.* 5*s.* 0¾*d.* If the given sum contains shillings and pence, they must be reduced to the decimal of a pound. The interest for any greater number of days than are contained in the table, is easily found by means of it: thus, if it is required to find the interest of 100*l.* for 165 days, the interest for 100 days by the table is 1.36986, and for 65 days .89041, which two sums added together, make 2.26027, or 2*l.* 5*s.* 2*d.* But, although it is most convenient in common practice to make use of tables for finding the interest for days, the interest of any sum for any number of days may be correctly and expeditiously obtained without the use of any table, by the following rule:

"Multiply the given sum by the number of days, and divide by 7300."

Example 1. What is the interest of 356*l.* for 112 days?

356 multiplied by 112, and divided by 7300, gives 5.4619, or 5*l.* 9*s.* $2\frac{3}{4}$*d.*

Example 2. What is the interest of 137*l.* 18*s.* for 97 days?

137.9 multiplied by 97, and divided by 7300, gives 1.8323, or 1*l.* 16*s.* $7\frac{3}{4}$*d.*

The amount of a given sum in any time may be found by multiplying the principal, time, and rate together; and adding the product to the principal.

Example 1. What sum will 37*l.* 10*s.* amount to in 3 years and 146 days, at 4 per cent. per annum?

37.5 multiplied by 3.4, and the product multiplied by .04, gives 5.1; which added to 37.5, makes 42.6, or 42*l.* 12*s.*

Example 2. What sum will one penny amount to in 1806 years, at 5 per cent. per annum?

.004166 multiplied by 1806, and the product multiplied by .05, gives .37625, which, added to the principal, makes .380416, or 7*s.* $7\frac{1}{4}$*d.*

This example sets the difference between simple and compound interest in a most striking point of view; it appears that one penny put out to interest, at the birth of Christ, would (at 5 per cent. simple interest) have amounted at the present time to 7*s.* $7\frac{1}{4}$*d.* but at compound interest, it would have increased in the same period to a greater sum than would be contained in six hundred millions of globes, each equal to the earth in magnitude, and all solid gold.

INTEREST, *Compound*, is that which is reckoned on the principal and its interest put together, as the interest becomes due, so as to form a new capital from each period at which the interest is payable: it is sometimes called interest upon interest. It is not lawful to lend money at compound interest; but in the granting or purchasing of annuities, leases or reversions, it is usual to allow the purchaser compound interest for his money; and the difference from simple interest is so great, in all cases in which the period of time is considerable, that almost all computations relating to annual payments of money for a number of years, are made at compound interest, unless it is otherwise agreed.

Let r = the amount of 1*l.* in one year, viz. principal and interest,
n = the number of years in which
p = the principal increases to
a = the amount:

then $1 : r :: r : r^2$ the amount of 1*l.* in 2 years
$1 : r :: r^2 : r^3$ the amount of 1*l.* in 3 years
$1 : r :: r^3 : r^4$ the amount of 1*l.* in 4 years
&c.

therefore r^n, or r raised to the power whose exponent is the number of years, will be the amount of 1*l.* in those years; and as

$1l. : r^n :: p : a$ the amount of a given principal in the same time. Thus,

If Principal, Time, and Rate, are given, to find the Amount?

Theo. 1. $p \times r^n = a.$

If Amount, Time, and Rate, are given, to find the Principal?

Theo. 2 $\frac{a}{r^n} = p.$

If Principal, Amount, and Time, are given, to find the Rate?

Theo. 3. $\sqrt[n]{\frac{a}{p}} = r.$

If Principal, Amount, and Rate, are given, to find the Time?

Theo. 4. $\frac{a}{p} = r^n$, therefore $\frac{a}{p}$ being divided by r till nothing remains, the number of divisions will $= n$.

But for greater convenience in practice, these theorems may be expressed in logarithms, as follow:

1. $\log. p + \overline{n \times \log. r} = \log. a.$
2. $\log. a - \overline{n \times \log. r} = \log. p.$
3. $\frac{\log. a. - \log. p}{n} = \log. r.$
4. $\frac{\log. a - \log. p}{\log. r} = n.$

On these principles all tables of Compound Interest are formed, of which the following are the most useful.

TABLE I.

Shewing the Sum to which 1*l.* Principal will increase at 5 per cent. Compound Interest, in any number of years not exceeding a hundred.

Years.	Amount.	Years.	Amount.
1	1.05	15	2.078928
2	1.1025	16	2.182874
3	1.157625	17	2.292018
4	1.215506	18	2.406619
5	1.276281	19	2.526950
6	1.340095	20	2.623297
7	1.407100	21	2.785962
8	1.477455	22	2.925260
9	1.551328	23	3.071523
10	1.628894	24	3.225099
11	1.710339	25	3.386354
12	1.795856	26	3.555672
13	1.885649	27	3.733456
14	1.979931	28	3.920129

Table continued.

Years.	Amount.	Years.	Amount.
29	4.116135	65	23.839900
30	4.321942	66	25.031895
31	4.538039	67	26.283490
32	4.764941	68	27.597664
33	5.003188	69	28.977548
34	5.253347	70	30.426425
35	5.516015	71	31.947746
36	5.791816	72	33.545134
37	6.081406	73	35.222390
38	6.385477	74	36.983510
39	6.704751	75	38.832685
40	7.039988	76	40.774320
41	7.391988	77	42.813036
42	7.761587	78	44.953688
43	8.149666	79	47.201372
44	8.557150	80	49.561441
45	8.985007	81	52.039513
46	9.434258	82	54.641488
47	9.905971	83	57.373563
48	10.401269	84	60.242241
49	10.921333	85	63.254353
50	11.467399	86	66.417071
51	12.040769	87	69.737924
52	12.642808	88	73.224820
53	13.274948	89	76.886061
54	13.938696	90	80.730365
55	14.635630	91	84.766883
56	15.367412	92	89.005227
57	16.135783	93	93.455488
58	16.942572	94	98.128263
59	17.789700	95	103.034676
60	18.679185	96	108.186410
61	19.613145	97	113.595730
62	20.593802	98	119.275517
63	21.623492	99	125.239293
64	22.704667	100	131.501257

In order to find what any sum will amount to in a given number of years, it is only necessary to multiply the number in the table opposite to the term of years by the sum, and the product will be the answer.

Example. To what sum will 50*l.* increase in 69 years, at 5 per cent. compound interest?

The number in the table corresponding with 69 years is 28.977548, which multiplied by 50, gives 1448.8774, or 1448*l.* 17*s.* 6*d.*

The number of years in which a given sum will increase to another given sum in consequence of being improved at interest, is found by dividing the latter sum by the former, and the sum in the table which is nearest to the quotient will show the term required.

Example. In what time will 100*l.* increase to 500*l.* if improved at 5 per cent.?

Divide 500 by 100, and the number in the table nearest to 5 the quotient, is 5 003188, which shows that 33 years is the answer.

TABLE II.

Showing the present value of 1*l.* to be received at the end of any number of years, not exceeding 100: discounting at 5 per cent. Compound Interest.

Yrs.	Value.	Yrs.	Value.	Yrs.	Value.
1	.952381	35	.181290	69	.034509
2	.907029	36	.172657	70	.032866
3	.863838	37	.164436	71	.031301
4	.822702	38	.156605	72	.029811
5	.783526	39	.149148	73	.028391
6	.746215	40	.142046	74	.027039
7	.710681	41	.135282	75	.025752
8	.676839	42	.128840	76	.024525
9	.644609	43	.122704	77	.023357
10	.613913	44	.116861	78	.022245
11	.584679	45	.111297	79	.021186
12	.556837	46	.105997	80	.020177
13	.530321	47	.100949	81	.019216
14	.505068	48	.096142	82	.018301
15	.481017	49	.091564	83	.017430
16	.458112	50	.087204	84	.016600
17	.436297	51	.083051	85	.015809
18	.415521	52	.079096	86	.015056
19	.395734	53	.075330	87	.014339
20	.376889	54	.075743	88	.013657
21	.358942	55	.068326	89	.013006
22	.341850	56	.065073	90	.012387
23	.325571	57	.061974	91	.011797
24	.310068	58	.059023	92	.011235
25	.295303	59	.056212	93	.010700
26	.281241	60	.053536	94	.010191
27	.267848	61	.050986	95	.009705
28	.255094	62	.048558	96	.009243
29	.242946	63	.046246	97	.008803
30	.231377	64	.044044	98	.008384
31	.220359	65	.041946	99	.007985
32	.209866	66	.039949	100	.007604
33	.199873	67	.038047		
34	.190355	68	.036235		

In order to find the present worth of any sum which is to be received at the end of a certain number of years, multiply the number in the table opposite to the term of years by the sum, and the product will be the answer.

Example. What is the present value of 500*l.* to be received at the expiration of 14 years?

The number in the table corresponding with 14 years, is .505068, which multiplied by 500, gives 252.534, or 252*l.* 10*s.* 8*d.*

For the present value or amount of annual payments, as Annuities, Pensions, Leases, &c. at Compound Interest, *see* ANNUITIES.

INVENTORY, is a catalogue or particular enumeration of goods, debts, and effects.

Executors and administrators, in conjunction with at least two debtors or legatees, or, in their absence, any two other persons

next of kin, or other honest persons, shall make a true inventory of all the goods, whether moveable or immoveable, belonging to the deceased; such inventory is to be copied, whereof one part shall be taken before the bishop, and delivered to him, by the executors and administrators, upon oath, and the other shall remain with the executors.

In a distress for rent, an inventory also is to be made of the goods distrained, a copy of which is to be delivered to the tenant, who not replevying within a certain time, the goods contained in such inventory are to be sold. *See* BROKER.

INVOICE, is an account of goods or merchandise shipped by merchants for their correspondents abroad, in which the peculiar marks of each package, with other particulars, are set forth. The usual forms of invoices are as follow:

Invoice of ten Bags of Hops shipped on board the Draper, Robert Walker, Master, bound for Dublin, for account and risk of Hugh Hamill, Esq. merchant there.

No. 1. a 10.

Ten bags Hops.	Cwt.	qrs.	lbs.
No. 1 -	3	0	0
2 -	2	2	7
3 -	2	3	5
4 -	2	3	8
5 -	2	2	6
6 -	2	1	14
7 -	2	2	6
8 -	2	3	4
9 -	2	3	8
10 -	2	2	12
Cwt.	26	3	15

at 5*l.* ℔ cwt. - £134 3 5

CHARGES.

	£.	s.	d.			
Straining, mailing, cords, and cartage, -	1	8	6			
Shipping charges, cocket, and fees, -	1	12	3			
Lighterage, and bills of lading, -	0	15	6			
Insurance on 130*l.* at 50*s.* ℔ cent. *part* policy and stamp -	3	8	10			
				7	5	1
				141	13	6
Commission on £141. 13*s.* 6*d.* at 2 ℔ cent.				2	16	3
Errors excepted -				£144	10	2

London, 2d January, 1818.

Wilkinson, Brown, & Co.

Invoice of 150 Kegs Butter, shipped at Rotterdam for London.

Weight -	8328 lbs.	
Tare -	1350	
Net	6978 lbs. at 11½ stivers ℔ lb. -	f. 4012 7

CHARGES.

Duty outwards and cockets - -	f. 150 0	
Heading and cooperage - - -	82 10	
Shipping - - - -	7 10	
Brokerage of bills, stamps, bills of lading, and postage	10 0	
Commission, 2 ℔ cent. - - -	85 5	
		335 5
		f. 4347 12

Exchange at 11 guilders ℔ £ sterling, is £395. 4*s.* 9*d.* British.
For the net English weight, 68 cwt. 0 qrs. 25 lbs. or 116*s.* ℔ cwt.

Invoice 200 Boxes Edam Cheese, shipped at Rotterdam for London.

48 in a box 9600 pieces.

Weight 31716 lbs. at 28 florins ℔ 100 lbs. - - -		f. 8880 10
Discount 1 ℔ cent.		88 16
		f. 8791 14

CHARGES.

For the boxes - - -	f. 700 0	
Duty outwards and cockets - -	90 0	
Sledging and shipping - - -	40 0	
Brokerage of bills, stamps, bills of lading, and postage	22 0	
Commission, 2 ℔ cent. - - -	192 17	
		1044 17
		f. 9836 11

Exchange at 11 guilders ℔ £ sterling, is £894. 4*s*. 8*d*. British.
For the net English weight, 310 cwt. 0 qrs. 9 lbs. or 57*s*. 8*d*. ℔ cwt.

Invoice 20 Puncheons Geneva, shipped at Rotterdam for London.

20 Puncheons, gauging 1290 Virtels, at £12 Flemish ℔ 30 Virtels	f. 3096 0
¼ augmentation	774 0
	3870 0
Discount 1 ℔ cent	38 14
	3831 6

CHARGES.

Extra iron hoops - - -	f. 32 0	
Shipping and cockets - - - -	20 0	
Brokerage - - - -	5 0	
Brokerage of bills, stamps, bills of lading, and postage	10 0	
Commission, 2 ℔ cent. - - -	77 19	
		144 19
		f. 3976 5

Exchange at 11 guilders ℔ £ sterling, is £361. 9*s*. 6*d*. British.
For 2494 English Gallons, or 2*s*. 11*d*. ℔ gallon.

Invoice 50 Casks (Crop) Madder, shipped at Rotterdam for London.

Weight Gross.	39820 lbs.
Tare -	2500

Net 37320 lbs. at 56 florins ℔ 100 lbs. -		f. 20899 4
Discount 1 ℔ cent.		209 0
		f. 20690 4

CHARGES.

Duty outwards and cockets - -	f. 220 0	
For the casks - - - -	150 0	
Sledging - - -	50 0	
Brokerage - - -	70 0	
Brokerage of bills, stamps, bills of lading, and postages	50 0	
Commission, 2 ℔ cent. - - -	424 14	
		969 14
		f. 21659 18

Exchange at 11 guilders ℔ £ sterling, is £1969. 1*s*. 0*d*. British.
For the net English weight, 364 cwt. 3 qrs. 13 lbs. or 108*s*. ℔ cwt.
Duty on Umbro Madder, 6 stivers ℔ 100 lbs. wt.
Ditto on Gamene, 4 ditto

Invoice of 19 Sacks Clover Seed, shipped at Rotterdam for London.

Weight, 6164 lbs. at 50 florins ℔ 100 lbs. - -		f. 3082	0
Discount, 1 ℔ cent.		30	17
		3051	3
CHARGES.			
For the bales - - -	f. 57 0		
Duty outwards and cockets - -	30 0		
Filling, sledging, and shipping - -	14 5		
Brokerage - - - -	15 8		
Brokerage of bills, stamps, bills of lading, and postages	8 0		
Commission, 2 ℔ cent. - - -	63 10		
		188	3
		f. 3239	6

Exchange at 11 guilders ℔ £ sterling, is £294. 9*s*. 8*d*. British.
For the net English Weight, 60 cwt. 1 qr. 2 lbs. or 97*s*. 9*d*. ℔ cwt.

INVOICE-BOOK, in merchants' accounts, the book in which the original invoices are entered. *See* BOOK-KEEPING.

JOBBER, is one who buys or sells cattle for others. *See* stat. 22 & 23 Car. 2.

JOBBER, *Stock*, one who trafficks in the public funds, by buying or selling stock when he finds it advantageous to his own interest so to do.

IODINE, an interesting simple substance, discovered by Courtois, a saltpetre manufacturer of Paris, in 1811. It may be obtained from a variety of sea weeds and funguses; and in great abundance, from *kelp*. It has been called Iodine (from ἰς and ειδος) from the beautiful violet colour it assumes when in a state of vapour. It is solid at the common temperature; of a bluish colour; its lustre is metallic. It is soft and friable; of specific gravity 4.946. its taste is acid. The crystals of iodine melt at 220°, and at a higher degree of heat are converted into violet-coloured fumes, which condense into brilliant plates, and acute octoëdrons. United with oxygen, it forms an acid, termed oxiodic acid, which acts rapidly on gold. Combined with chlorine, it forms crystals of a deep orange colour, which are very deliquescent, and easily fusible. With hydrogen, it forms an acid, termed hydriodic acid. It is slightly soluble in water, and highly so in ether and alcohol.

The compounds of iodine, with some of the metals, particularly mercury and lead, form very beautifully coloured compounds; which might be advantageously employed as pigments, and for calico printing.

JOINER. The business of a joiner is generally connected with that of a carpenter, he is employed in making gates, doors, laying floors, dividing the house into the several partitions, preparing the ceiling for the plasterer to nail on his laths, &c. &c.

JOINT COMMISSION. *See* BANKRUPT.

JOLLY-BOAT. *See* BOAT.

JONK, JONQUE, or JUNK, is a kind of small ship, very common in the East Indies and China: these vessels are about the bigness of our fly-boats, and differ in the form of their building, according to the different methods of naval architecture used by the nations to which they belong. Their sails are frequently made of mats, and their anchors of wood.

JOURNAL, in merchants' accounts, a book into which every particular article is posted out of the waste-book. *See* BOOK-KEEPING.

JOURNAL, *in sea affairs*, a register kept on board ship, wherein notice is taken of every thing that happens to the ship from day to day, and from hour to hour, with regard to the winds, courses steered, leeway, soundings, &c. in order to adjust the reckoning and determine the place where the ship is.

JOURNEYMAN, is a person who wrought with another by the day, though now by the statute made 5 Eliz. c. 4. it is extended to those likewise, who covenant to work with another in his trade or occupation by the year. By stat. 21 Henry 8. c. 5. journeymen are not to be restrained by oath or bond from setting up their trade. *See titles* LABOURERS, MASTERS and SERVANTS, MANUFACTURERS, COMBINATIONS, and PIECE-WORK.

IPECACUANHA, (Ger. *Amerikanische brechwurzel*, Du. *Braakwortel*, *Roodenloopwortel*. Da. *Brækrod*. Sw. *Kräkrot*. Fr. *Ipecacuanha*. It. *Ipecoacanna*. Sp. *Ipecacuana*, *Raiz de oro*. Port. *Cipo de camaras*, *Ipecacuanha*, *Raiz de ouro*. Lat. *Ipecacuannæ radix*,) a drug brought to us from South America, of which there are two sorts, Peruvian and Brazilian; the grey, or Peruvian, is that most esteemed, and of which we shall here take notice: it is a small wrinkled root, bent and contorted into different figures, brought over in short pieces, and deep circular fissures, quite down to a small white fibre or nerve, which runs into the middle of each piece. The cortical part is compact, brittle, and looks smooth and resinous upon breaking: it has very little smell, and a bitterish subacrid taste.

The plant which yields ipecacuanha is usually found in the vicinity of Rio de Janiero, in Brazil. It is of moderate height; some of the stalks generally creep along the ground; the leaves are like those of wall pellitory; the flowers are white and cinque-foliated, and produce a sort of brown berry, which, when ripe, turns to a deep red, and is generally about the size of a cherry. The berry contains a whitish, slimy pulp, and two small but hard yellowish grains, resembling a lentil in figure. The roots of ipecacuanha ought to be chosen new, plump, and unmixed with suckers or filaments. It is much used as a medicine.

IRIDIUM, a metal discovered in the ore of platina, by Mr. Tennant. It is very similar in its appearance to platina; brittle, and very infusible. It forms always with the other metals; is soluble in the muriatic acid; of specific gravity 18.68. It adds much to the hardness of other metals when formed into alloys with them. A great proportion of it may be added to gold without sensibly altering the colour of the latter metal. Its oxides are of a deep blue, and dark red colour.

IRON, (Ger. *Eisen*. Du. *Yzer*. Da. and Sw. *Jern*. Fr. *Fer*. It. *Ferro*. Sp. *Hierro*. Port. *Ferro*. Rus. *Scheleso*. Pol. *Żelazo*. Lat. *Ferrum, Mars,*) the most universal, the hardest, and the most durable of any of the imperfect metals. The two last-mentioned qualities belong to that part of the subject hereafter to be discussed, viz. the use of the article in manufactures and commerce. Its *universality* is a consideration which first demands a few brief observations, if it were only as a reasonable gratification of curiosity. It has been ascertained by frequently repeated experiments, at different periods, and by different persons, that iron enters into nearly all substances with which we are acquainted; as well vegetable, as animal. It circulates in the blood of men; it pervades the juices of vegetables, and is found in all the minerals, earths, and stones that have been within the reach of chemical analysis. Any detail of the experiments by which the correctness of these discoveries has been ascertained, equally exceeds our purpose, as our limits; but the results have been too long, and too well, established to render it necessary. Suffice it to say, that, by reducing those substances to ashes, which least promised to supply any proof of the incorporation of iron, the question has been placed beyond controversy. That it enters into all the varieties of natural substances in different degrees respectively, needs not to be dwelt upon; but some recent experiments have led to a persuasion that those vegetables which have astringent qualities, probably derive them from their superior abundance of this metal in their composition, and the rose has been particularly specified as affording an instance.

Iron is a production of the earth, common to many countries, but the best sorts, besides our own, are from Germany and Sweden, of which the last mentioned is the most valuable. In mass, iron is of a light, livid, grey colour; but it is found more frequently intermixed with other fossil productions, than in a pure state; and therefore partakes, in different degrees, of the hues of those with which it is intermixed.

The iron produced in Great Britain is obtained from three different kinds of ores, viz.

1. The *Lancashire ore*, so called from the county where it abounds; this is very heavy, of a fibrous texture; a dark purple colour, inclining to black, and lodged in veins like other metals.

2. The *bog ore*, which resembles a deep yellow clay, and has probably been deposited by some ferruginous rivulets; this ore is found in strata from 12 to 20 inches thick, and of various breadths.

3. *Iron stones* of an irregular shape, which frequently lie in beds of great extent, and, like other stony masses, are sometimes intersected with seams or veins of pit-coal. Of this kind there appear inexhaustible mines in Derbyshire.

Iron is prepared or manufactured in the following manner:

After the ore is dug out of the earth, it is crushed in a mill, and washed in a stream, in order to separate the grosser particles of earth. It is afterwards melted in furnaces heated with coke, charcoal, peat, or turf; near the bottom of which by means of a tap-hole, the liquid metal is discharged into furrows made in a bed of sand. The larger mass which settles in the main furrow is called by the workman a *sow*, and the smaller ones *pigs* of iron.

Stoves, grates, &c. are formed by casting ladles full of the rough metal in proper moulds made of sifted sand. In this state it is called *cast iron;* but if cooled too hastily, it becomes brittle, and is apt to crack like unannealed glass.

Although cast iron is so hard as to resist the file, it is nevertheless not malleable, but with a view to improve it, the raw iron is now melted down a second time in another furnace, where a strong blast of air is impelled on the surface of the metal; by this process, its fusion is considerably facilitated, and the iron concretes into a mass called a *loop*, that is conveyed beneath a large hammer, raised by the motion of a water-wheel. The metal is there beaten into a thick square form, again heated, so as nearly to melt it, and then forged. By repeating this process, the iron is rendered perfectly malleable, and at length formed into bars for sale.

Cast-iron has, nevertheless, been lately reduced to a state of malleability, by passing it through rollers instead of forging it.

This valuable improvement was first introduced in 1783.

By the above process, raw, or cast, iron is said to be freed from those impurities which are not discharged by the common method, and the iron so worked is equal, in some cases superior, to the best Swedish iron; it may also be procured at a cheaper rate, and a great saving may accrue to the nation.

When wrought iron, in bars, is laid in beds of charcoal, and exposed to a strong heat, it is divested of its oxygen, and becomes *steel*. *Cast-steel* may be formed by fusing iron in an intense heat with carbonate of lime. When the bars of iron are very thick, the carbon does not penetrate through the whole of the piece, the surface only is affected, and becomes hard, brittle, and susceptible of a high polish; this is called *case-hardening*.

Various compositions have been contrived for preventing iron from rust; but it appears that none is more effectual than common oil, although its use upon many occasions is at once troublesome and disagreeable.

Another mode which has been recommended for this purpose is to heat the iron to such a degree, that it cannot be touched without burning the hand, afterwards to varnish it with new white wax, and expose it to the fire till the wax is completely imbibed by the metal, which should next be rubbed over with a piece of serge.

According to others, this metal may be perfectly secured from rust by plunging it while red hot into linseed oil, which is suffered to drop off until it becomes dry, and then wiping the iron with a clean cloth. By this mode a black crust or varnish is formed, which renders it impervious to moisture. Again, others pour melted lead into the oil before it is applied to the *heated* iron; both these preparations require considerable skill and precaution.

Besides the uses of iron when manufactured into instruments; it is chemically employed in a variety of the arts. Sulphate of iron is used by hatters and dyers, when precipitated by gallic acid, for forming a black dye; it is also used for making ink; in the manufacture of Prussian blue; in preparing leather; and in forming *colcothan* for painters. The sulphate of iron is also used for making a shamoy-yellow colour in dying cotton; for this purpose a solution of iron in any acid is precipitated with alkali on the substance to be dyed.

IRONMONGER. This business is carried on by persons who deal only in iron and steel unwrought; but most of them sell iron and brass wrought up into innumerable articles, tools, and necessary implements; and some deal in both.

The *Ironmongers' Company* have a hall in Fenchurch-street, London: their charter was granted in 1462. The Livery fine is 30*l.* 12*s.*; and they hold quarterly meetings at the option of the master.

IRON-MOULDS, are spots on linen, occasioned by its exposure to damp situations, also by ink accidentally dropped on the cloth.

These may be removed by moistening the stained part, sprinkling it with a small quantity of the essential salt of lemons; after which the linen is to be rubbed over a pewter plate, and the blot washed out with warm water.

A less expensive method, however, consists in wetting the spot, applying to it a few drops of spirit of salt, or lemon-juice, then rubbing it between the fingers for a minute or longer, while it is carefully held over a hot smoothing-iron or a basin filled with boiling water, the steam of which considerably facilitates the removal of the stains; but if spirit of salt be used, the linen or calico, or whatever be the article, must be instantly plunged into water after the application, or a hole will be burnt in it.

IRON-SICK, in the sea-language, is said of a ship or boat, when her bolts or nails are so eaten with rust, and so worn away, that they occasion hollows in the plank, whereby the vessel is rendered leaky.

IRON-WOOD, (Ger. *Eisenhobz.* Du. *Yserhout.* Da. *Iernträee.* Sw. *Iernträ.* Fr. *Bois de fer.* It. *Legno di ferro.* Sp. *Palo hierro.* Port. *Pào ferro s. barbuzano.* Lat. *Sideroxylon, Lignum ferreum.*) a species of wood of a reddish cast, so called on account of its corroding as that metal does, and its being remarkably hard and ponderous, even more so than ebony. The tree which produces it grows principally in the West India islands, and is likewise very common in South America, and in some parts of Asia, especially about Siam. Iron-wood is frequently employed in the manufacture of works of taste, and in the formation of such articles as are required to possess durability. It will not float in water, but sinks like metals.

ISERINE an ore of Titanium, found near the source of the Iser, on the borders of Bohemia, in small, obtuse, angular grains of an iron black, inclining to brown, much resembling iron-sand; and in pebbles of a rough, glimmering surface; of a conchoidal fracture; and shining internally with a semi-metallic lustre.

ISINGLASS, (Ger. *Hausenblase, Hausblase.* Du. *Huisenblaas.* Da. *Hausblaas, Carlock.* Sw. *Husblås.* Fr. *Colle de posson, Carlock.* It. *Cola di pesce.* Sp. *Col-pez.* Port. *Cola de peixe.* Rus. *Klei rübiii, Karluk.* Pol. *Klei rybii, Karluk.* Lat. *Ichthyocolla,*) is made from certain fish found in the Danube, and the rivers of Muscovy. Willoughby and others inform us, that it is made of the sound of the beluga (sturgeon); and Neumann that it is made of the huso germanorum, and other fish.

Mr. Jackson remarks that the sounds of cod, properly prepared, afford this substance; and that the lakes of America abound with fish from which the very finest sort may be obtained. The sounds or air-bladders of fresh-water fish, in general, are preferred for this purpose as being the most transparent, flexible, delicate substances. These constitute the finest sorts of isinglass; those called book and ordinary staple, are made of the intestines, and probably of the peritonæum, of the fish. The beluga yields the greatest quantity, as being the largest and most plentiful fish in the Muscovy rivers; but the sounds of all fresh-water fish yield more or less fine isinglass, particularly the smaller sorts found in abundance in the Caspian sea, and several hundred miles beyond Astracan, in the Wolga, Yack, Don, and even as far as Siberia. Isinglass receives its different shapes in the following manner:

The parts of which it is composed, particularly the sounds, are taken from the fish while sweet and fresh, slit open, washed from their slimy *sordes*, divested of a very thin membrane which envelopes the sound, and then exposed to stiffen a little in the air. In this state they are formed into rolls about the thickness of a finger, and in length according to the intended size of the staple; a thin membrane is generally selected for the centre of the roll, round which the rest are folded alternately, and about half an inch of each extremity of the roll is turned inwards. The due dimensions being thus obtained, the two ends of what is called short staple are pinned together with a small wooden peg; the middle of the roll is then pressed a little downwards, which gives it the resemblance of a heart, and thus it is laid on boards, or hung up in the air to dry. The sounds which compose the long staple are larger than the former; but the workman lengthens this sort at pleasure, by interfolding the ends of one or more pieces of the sound with each other. The extremities are fastened with a peg like the former; but the middle part of the roll is bent more considerably downwards; and in order to preserve the shape of the three obtuse angles thus formed, a piece of round stick, about a quarter of an inch in diameter, is fastened in each angle with small wooden pegs, in the same manner as the ends. In this state it is permitted to dry long enough to retain its form, when the pegs and sticks are taken out, and the drying completed: lastly, the pieces of isinglass are strung up in rows, by running pack-thread through the peg-holes, for convenience of package and exportation. The membranes of the book sort, being thick and refractory, will not admit a similar formation with the preceding; the pieces, therefore, after their sides are folded inwardly, are bent in the centre, in such a manner that the opposite sides resemble the cover of a book, whence its name; a peg being run across the middle, fastens the sides together, and thus it is dried like the former. This sort is interleaved, and the pegs run across the ends, the better to prevent its unfolding. That called cake isinglass is formed of the bits and fragments of the staple sorts, put into a flat metallic pan, with a very little water, and heated just enough to make the parts cohere like a pancake, when it is dried. Isinglass is best made in summer. The principal consumption of isinglass is in fining liquors of the fermented kind, and in making mock-pearls, stiffening linens, silks, gauzes, &c. Isinglass boiled in milk forms a mild, nutritious jelly, and is thus sometimes employed medicinally. This, when flavoured by the art of the cook, is the *blanc mange* of our tables. A solution of isinglass in water, with a very small proportion of some balsam, spread on black silk, is the court plaster of the shops.

JUJUBES, (Ger. *Jujuben, Rothe, Brustbeeren.* Du. *Roode borstebessen, Hamoten, Joben.* Da. *Brystbær.* Sw. *Brostbär.* Fr. *Jujubes, Gingeoles.* It. *Giuggiole.* Sp. *Azufayfas.* Port. *Anafegas, Macãa d'anafega.* Pol. *Jujubowe jagody.* Lat. *Zizyphæ, Jujubæ,*) are the fruit of a tree (*Zizypha*) which grows commonly in Languedoc, Provence, the islands of Hieres, in several parts of Italy, and likewise in India and Persia. This tree is not quite so large as the plum-tree; its roots are usually closely entangled together; the bark is rugged like that of the vine; the branches are thorny; the leaves green, small, pliant, and somewhat indented; the flowers white; and the fruit, which is at first green, of the size and shape of an olive, grows yellow as it approaches to maturity, and contains a little nut that is also like that of the olive. Those jujubes which are fresh, large, fleshy, or plump, and remarkably dry, are esteemed the best. Jujubes do not keep well, more especially when they happen not to have been well dried at first, or to be left for any time in a damp situation. They are chiefly used in medicine, nearly for the same purposes as the common fig.

JUNIPER-BERRIES. (Ger. *Wacholderbeeren.* Du. *Dambesien, Geneverbessen.* Da. *Enebær.* Sw. *Enbär.* Fr. *Bais de genièvre.* It. *Coccole di ginipro.* Sp. *Bayas de enebro.* Port. *Bagas de zimbro.* Rus. *Moshshuchii.* Pol. *Jalowice jagody.* Lat. *Juniperi baccæ.*) There are twelve species of the tree from which these berries are gathered. The most remarkable are the common juniper, which is found in many parts of Britain upon dry, barren commons, where it seldom rises above the height of a low shrub, which grows naturally only in dry, chalky, or sandy land. Of this species there is a variety called Swedish juniper, which grows ten or twelve feet high, very branchy the whole length

The Spanish juniper rising from ten to fif-

teen feet high, closely branched from bottom to top; and the blue-berried Spanish juniper upwards of twenty feet high.

The propagation of all the junipers is by seed.

Juniper-berries have a strong, not disagreeable smell; and a warm, pungent, sweet taste, which, if they are long chewed, or previously bruised, is followed by a bitterish one. The pungent seems to reside in the bark, the sweet in the juice, the aromatic flavour in oily vesicles spread through the substance of the pulp, distinguishable even by the eye, and the bitter in the seeds.

These berries are chiefly used in the distilleries of Holland, and Great Britain, to give flavour to the geneva of the former, and the gin of the latter. For this purpose the essential oil of the juniper is, or *ought to be* used. This oil when mixed with that of nuts, makes an excellent varnish for pictures, wood-work, and preserving iron from rust. *See* DISTILLATION.

JUNK, *among shipwrights*, is made from old cables, which, for this purpose, are cut, with a hatchet, untwisted, and pulled out into loose hemp; it is used for caulking of ships.

JURY-MAST, among mariners, is what is set up instead of a mast carried away in a storm, or lost through some other casualty. The derivation of the term has puzzled all the antiquaries.

IVORY, (Ger. *Elfenbien*. Du. *Yvoor*. Da. *Elfenbeen*. Sw. *Elfenben*. Fr. *Ivoire, Yvoire*. It. *Avorio, Avolio*. Sp. *Marfil*. Port. *Marfim*. Rus. *Kost slonowja*. Pol. *Sloniowa Kose*. Lat. *Ebur*,) a hard, solid, and firm substance, of a white colour, and capable of a very good polish. It is the tusk of the elephant, and is hollow from the base to a certain height, the cavity being filled up with a compact medullary substance, seeming to have a great number of glands in it. The Ceylon ivory, and that of the island of Achem, do not become yellow in the wearing, as all other ivory does; for which reason the teeth of these places bear a larger price than those of the coast of Guinea.

Ivory is usually brought to us from the coasts of Africa, where elephants abound, especially in the vicinity of Rio Fresca, the river Gambia in Senegal, and along the Ivory coast. The parts of Asia whence ivory is procured, are the island of Ceylon, the kingdoms of Achem and Pegu, and from Siam and Areca. The elephants' teeth of the East are not more than three or four feet in length; but those of Africa, especially such as we procure from Bombaza, and Mozambique, are seldom less than ten feet long, and are so heavy, that two men can with difficulty carry one of them. Ivory, among the wholesale dealers in this article, is divided into elephants' teeth, properly so called, and schrivelli, or schrivellos, which last consist of the smallest teeth, and fragments.

The grand consumption of this commodity is for making ornamental articles, mathematical instruments, cases, boxes, balls, combs, dice, and a variety of toys.

To soften ivory and other bones, lay them twelve hours in aqua-fortis, and then three days in the juice of beets, and they will become so soft that they may be worked into any form. To harden them again, lay them in strong vinegar. Dioscorides says, that by boiling ivory for the space of six hours with the root of mandragoras, it will become so soft that it may be managed as one pleases.

To remove spots, the ivory should be laid in unslaked lime, and a small quantity of water poured on it, lest the heat should be too intense, and the ivory scale, or become brittle: others discharge the stains by steeping it for some time in strong lime-water.

To dye Ivory.

Green.—This colour is imparted to ivory by a solution of copper or verdigris in aqua-fortis, or by grinding together two parts of verdigris and one of sal ammoniac.

Purple.—Take four ounces of aqua-regia and one of sal-ammoniac.

Yellow.—Ivory, bone, horn, &c. may be stained *yellow*, by previously boiling them in a solution of one pound of alum in two quarts of water, then immersing them for half an hour in a liquor prepared by boiling half a pound of turmeric in a gallon of water, until it be reduced to three quarts, and afterwards plunging the coloured substance into alum water.

Blue.—All bony matters may be stained blue by first tinging them with green, and then dipping them into a hot and strong solution of pearl-ashes.

IVORY-BLACK, (Ger. *Elfenbienschwarz*. Du. *Fluweelzwart*. Da. *Elfenbeen sværte*. Sw. *Elfenben svärta*. Fr. *Noir d'ivoire*. It. *Nero d'avorio*. Sp. *Negro de Marfil*. Port. *Negro de Marfim*,) is the coal of ivory, or bone, formed by great heat, while deprived of all access of air. It is now, however, very well known that very little, if any, of what is called ivory-black is made in this manner, except some of the finest sorts used by miniature painters; a great deal of what is sold under this name is the charcoal of the hard woods reduced to powder. *See* BLACK, *Ivory*.

JURY, twelve men, who are sworn well and truly to try the matter in issue between the parties, and to give a true verdict according to the evidence.

The trial by jury is one of the most valuable privileges of Englishmen; it is contemporary with the very foundation of the state, and acknowledged by *Magna Charta*.

Juries are of two kinds, the *Grand*, and the *Petit Jury*; the first finds the accusation

only, and whether there be sufficient evidence to put the party upon his trial; the second deliberates upon the merits, as proved in evidence on both sides, and deliver the verdict accordingly.

Juries may be further divided into *Common* and *Special*; the former decide upon causes of usual occurrence, and the latter is impanelled for the decision of points of great commercial interest and superior intricacy and importance.

The Grand Jury may consist of an indefinite number, but no more should be sworn than twenty-three.

The following are the qualifications of urymen:

The sheriffs in London shall not return any person to try any issue in the King's Bench, Common Pleas, or Exchequer, or at any session of peace to be held in the city, who shall not be an housekeeper within the said city, and have lands, tenements, or personal estate to the value of 100*l.*; and no juror shall be impanelled for the trial of any capital offence, who would not have been qualified to serve as a juror in civil cases.

Leaseholders in Middlesex, where the improved rents or value shall amount to 5*l.* per annum over and above the ground-rent or reservations, shall be liable to serve on juries.

Jurymen in the country possessed of 10*l.* and in Wales 6*l.* are qualified, and shall be compelled to serve on juries.

Trials of felons, in towns corporate, shall be by men worth 40*l.* in goods, although they have no freehold.

No qualification of jurors is required on the coroner's inquest, but they must be of the neighbouring towns.

Persons under twenty-one years, or upwards of seventy, such as are sick continually, and such as are so at the time of the summons, shall not be put upon juries.

Serjeants at law, counsellors, attorneys, and officers of the courts, peers of the realm, clergymen, dissenting teachers, quakers, apothecaries, and butchers, are not liable to be summoned as jurymen.

If the jury are uncertain with respect to the law, they may give a special verdict, which is finding the particular facts subject to the opinion of the court, as to the application of the law.

JUSTIFYING BAIL is effected by the bail swearing that they are each worth the sum for which they offer themselves, in open court.

JUTE, a strong vegetable fibre found in India, and applicable to a variety of purposes in manufacture.

K, The tenth letter of our alphabet, as a numeral denotes 250; and with a dash over it, thus, $\overline{K}$, stands for 250,000.

KALEIDOSCOPE, a word derived from the Greek language, and signifying "to see a beautiful form." This instrument, in its simplest form, consists of two reflecting planes made either of new plate glass, or speculum metal, ground perfectly flat, and highly polished. The plates may be of any length, but that which is most convenient will be found to be from 5 to 10 or 12 inches. Their breadth should be about 8 or 9-tenths of an inch, when the length is 6 inches, but the breadth should increase with the length in order to have the aperture of the same angular magnitude. Two of the edges of these reflectors, after they are carefully ground to a straight line by the finest emery, and freed from all roughness and imperfection, are placed together by a particular contrivance in such a manner, that their inclination, or the angle which they form, is exactly an even aliquot part of a circle, or a 4th, 6th, 8th, 10th, 12th, 14th, 16th, 18th, 20th, &c. part of 360°. When the plates are thus fixed in a brass tube, and the eye placed at one end of them, it will perceive a circular field of view, composed of as many luminous sectors, as the number of times that the angle formed by the reflectors is contained in 360°. These sectors, excepting the one seen by direct vision and constituting the angular aperture of the plates, are a series of images of this aperture formed by successive reflections between the inclined reflectors. The images formed by one reflection from each of the plates lie on each side of the direct aperture, and are inverted images of that aperture; the next two images, formed by two reflections, are images not inverted, and so on throughout the whole series, every two direct images being separated by an inverted one.

The tube which contains the reflecting plates moves in another tube; and upon the outer end of this last tube, is placed a brass cell, or cap for receiving a series of object plates containing fragments of differently coloured glass, and other substances placed at random. When one of these object plates is pushed into the cell, the cell is placed upon the end of the outer tube, and the inner tube pushed as far as it will go. The instrument being held in one hand, the cell containing the objects, is moved round with the other, and the eye of the observer being placed at the narrow end of the tube, he

will observe the irregular masses of colour arranged in an infinite variety of forms, mathematically symmetrical, and highly pleasing to the eye.

In the preceding form of this instrument, the object must be placed close to the end of the reflectors; for if it is removed from this position the symmetry is destroyed. This instrument is useful in the arts, especially to calico printers. It has become an article of export in a small degree.

KALI, *glass-wort*, a kind of plant that grows on sea-coasts, which is burnt to procure mineral alkali. Its ashes, commonly called pot-ashes, made into a ley, and boiled with oil, make the best sort of soap. From the same ashes called *pulverine*, is extracted an alkaline salt, which, mixed with sand, makes crystal glass. In Languedoc they procure ashes thus: when the plant has grown up, they cut it down, leaving it to dry; it is afterwards calcined in pits like lime-kilns, closely covered with earth, that no air may come at the fire. Thus it is not only reduced into ashes, but made into a very hard stone, resembling rock-salt, which they are obliged to break with large hammers to get it out. *See* ASHES.

KAOLIN, the name of an earth which is used as one of the two ingredients in oriental porcelain.

KAY, Key, or Quay, a wharf or building of stone by the water-side in a seaport, for lading and unlading goods.

In all the maritime ports of Great Britain, quays have been constructed to a considerable extent, and furnished with capacious magazines for the reception of goods. Dwelling-houses have also been generally erected for greater convenience in superintending the whole, and a constant residence of certain persons on or near quays has become necessary to check the depredations committed by various descriptions of *river pirates*, who avail themselves of the opportunity afforded by the night, to defraud the revenue, as well as to rob the owners of merchandise, to a very considerable amount.

The following are the quays belonging to the city of London, viz. Chester's, Brewer's, Galley, Wool-dock, Custom-house, Porter's, Sabb's dock, Wiggen's, Young's, Ralph's, Dice, Smart's, Hammond's, Lyon's, Botolph-wharf, Gaunt's, Cocke's, Frechewharf, and Billingsgate and Bridge-house, for landing fish and provisions.

KECKLE, or Keckling, in the sea language, is the winding of old ropes about cables, to prevent them from gailing.

KEDGE, or Kedger, a small anchor generally used in rivers.

KEDGING, in the sea language, is when the ship is brought up or down a narrow river by means of the tide, the wind being contrary.

KEEL, the lowest piece of timber in a ship, running her whole length, from the lower part of her stern to the lower part of her stern-post. Into it all the lower futtocks are fastened; and under part of it a false keel is often used.

Dr. Franklin speaks in terms of commendation of a moveable keel, for the purpose of navigating a boat with the greater facility in shoal water. The keels of boats, it is well known, very frequently prevent them from running quick on shore; this inconvenience is proposed to be remedied by forming the keel of two longitudinal pieces of timber, which rest upon hinges. To the bottom of each piece of timber two chains are affixed, the ends of which being retained within the boat, the keel, or rather the two half-keels, can immediately be drawn up close to the sides of the boat, and lowered again at pleasure.

KEEL-BOAT, the name of a flat-bottomed vessel used for conveying coals from the shore to the ship.

KEELSON, or Kelson, a principal timber in a ship, laid withinside across all the floor-timbers; and being adjusted to the keel with suitable scarfs, it serves to strengthen the bottom of the ship.

KEER, or Ceer, a weight used in some cities of the late territories of the Great Mogul, particularly at Agabar and Ziamger; in the first of which places it weighs thirty-six small weights of one pound and a quarter, marc; and in the other thirty-six of one pound and a half.

KEG or Cag, a small barrel, or cask, containing from four to five gallons of sturgeon. A keg of spirits contains half an anchor, or five gallons.

KELP, in the glass trade, a term used for a sort of potash made use of in many of the glass-works, particularly for the green glass. It is the calcined ashes of a plant called by the same name; and in some places "sea-tags," or "laces," a sort of thick-leaved fucus or sea-wrack. This plant is thrown on the rocks and shores in great quantities, and in the summer months is raked together and dried as hay in the sun and wind, and afterwards burned to the ashes called kelp.

The preparation of kelp is carried on to a wonderful extent in Scotland and Ireland. *See* Scotland, *article* EUROPE.

KEN, a sort of an ell, used at Siam, nearly three feet; two kens making one voua, equal to a French toise, less one inch; the ken likewise makes two socks, the sock two keubs, the keub twelve nious, and eight grains of unhusked rice to a niou, equal to nine French lines.

KENKS, or Kinks, in the sea-language, doublings in a rope or cable, when handed in and out, so that it does not run easy; or when any rope makes turns or twists, and does not run free in the block.

KEPATH, a small weight used by the Arabians; it is half a danck or dank, that is

the grain; twelve kepaths make the dirhem dragme of Arabia.

KERMES, (Ger. *Scharlachbeeren*. Du. *Grein, Scharlakenbessen*. Da. *Kermesbær*. Sw. *Kermesbär*. It. *Grana, Chermes, Cremese, Cocchi*. Sp. *Grana Kermes, Grana de la coscoja*. Port. *Grãa Alquermes, Kermes*. Rus. *Berri*. Pol. *Szarlatne jagody*. Lat. *Grana chermes,*) an insect of the genus called, in natural history, coccus. The rostrum proceeds from the breast; the belly is bristly behind, the wings of the male are erect; and the female has no wings. The species are twenty-two, denominated principally from the plants they frequent.

The *coccus illicis*, or that forming the kermes, inhabits the *quercus coccifera* (a species of oak) of the southern parts of Europe. Both ancients and moderns seem to have had very confused notions concerning the origin and nature of the kermes; some considering it as a fruit, without a just knowledge of the tree that produced it; others taking it for an excrescence formed by the puncture of a particular fly, the same as the common gall observed upon oaks; but it was finally discovered that the kermes is in reality nothing else but the body of an insect transformed into the resemblance of a grain, berry, or husk, according to the course of nature. The progress of this transformation must be considered at three different seasons. In the first stage, at the beginning of March, an animalcule, no larger than a grain of millet, scarcely able to crawl, is perceived sticking to the branches of the tree, where it fixes itself, and soon becomes immoveable: at this period it grows most, and appears to swell and thrive with the sustenance it draws in by degrees. At the second stage, in April, its growth is completed, its shape is now round, and about the size of a pea: it has acquired more strength, the down which covered it is changed into dust; and it seems nothing but a husk or capsule, full of reddish juice, not unlike discoloured blood. Its third state is towards the end of May, when the husk appears replete with small eggs, less than the seed of a poppy. These are properly ranged under the belly of the insect, progressively placed in the nest of down that covers its body, which it withdraws in proportion to the number of eggs. After this work is performed it soon dies, though it still adheres to its position, rendering a further service to its progeny, and shielding them from the inclemency of the weather, or the hostile attacks of an enemy. In good seasons they multiply exceedingly, laying from 1800 to 2000 eggs, which produce the same number of animalcules. In France, the poor people who gather the kermes, let their nails grow, in order to pick them off the trees with greater facility.

The kermes is found in abundance in Provence, Languedoc, Spain, and Portugal, large quantities are also brought from the Levant. That of Languedoc is esteemed the best of any; the Spanish and Portuguese is very small, nor does it afford a good colour. Kermes is principally employed in dyeing, on account of its imparting a fine scarlet or crimson colour; but it is likewise used in pharmacy as an astringent medicine. If the living insect be bruised, it gives out a red colour. Its smell is somewhat pleasant; its taste a little bitter, rough, and pungent. When dry, it communicates this smell and taste to water, and also to alcohol, to both of which it gives a deep red colour. This colour is retained by the extracts made from these infusions. To dye spun wool with kermes, it is first boiled half an hour in water with bran; then two hours in a fresh bath, with one-fifth of Roman alum, and one-tenth of tartar, to which *sour water* is commonly added; after which it is taken out, tied up in a linen bag, and carried to a cool place, where it is left some days. To obtain a full colour, as much kermes as equals three-fourths, or even the whole of the weight of the wool, is put into a warm bath, and the wool is put in at the first boiling. As cloth is more dense than wool, either spun or in the fleece, it requires one-fourth less of the salts in the boiling, and of kermes in the bath. Less proportions of kermes will produce lighter and paler colours. If we want a succession of shades, we must, as usual, begin with the deepest. By using kermes and tartar, without alum, but with as much solution of tin as is required for a scarlet, with cochineal, Hellot obtained a very lively cinnamon colour in a single bath. Cloth steeped in a solution of sulphat of potash, took with kermes a pretty fine and permanent agate grey: in a solution of sulphat of iron and tartar, a fine grey: in a solution of tartar and sulphat of copper, an orange colour: and the same with nitrat of copper. Solution of bismuth added drop by drop to a kermes bath, produced a violet. All acids convert it to a cinnamon colour, which inclines more or less to red, according as the acids are weak, and their quantity small. Alkalies render its colour dull and rosy. The colour that kermes imparts to wool is less bright than the scarlet made with cochineal.

KERMES MINERAL, a compound of sulphuret of antimony and potash. It is principally employed for medicinal purposes.

KERSEY, (Ger. and Da. *Kirsey*. Du. *Kaarsai*. Sw. *Kersing*. Fr. *Carisée, Creseau*. It. *Carisea, Calisello*. Sp. *Carsaia*. Port. *Carisea*. Rus. *Karassea,*) a species of coarse woollen stuff, usually woven in ribs.

Kerseys are manufactured in large quantities at Leeds, Halifax, and other parts of Yorkshire, as also at Exeter. These articles are exported to the continent of Europe, principally from the port of Hull. Several attempts have been made abroad to rival

the English in this branch of manufacture, especially at Hall in Germany, and in some parts of the Low Countries, but they have all proved abortive. Long wools are those mostly used in the manufacture of kerseys.

KERSEYMERE, a species of thin woollen stuff, generally woven plain, and made from the finest wools. It is manufactured principally in the west of England, and is almost exclusively employed in the formation of breeches, pantaloons, waistcoats, ladies' habits, pelisses, &c.

KETCH, in naval architecture, a vessel with two masts, usually applied to one carrying bombs, or rather mortars.

KETCHUP. *See* CATSUP.

KETTLES, (Ger. *Kessel.* Du. *Ketels.* Da. *Kedler, Kiedler.* Sw. *Kittlar.* Fr. *Chaudières, Chaudrons.* It. *Caldaje, Caldari, Caldaroni.* Sp. *Calderas, Calderos.* Port. *Caldeiras.* Rus. *Kottli.* Pol. *Kociel,*) vessels made of tin, copper, or iron, for boiling water and other liquids in; and of which there are various kinds, some being employed merely for domestic purposes, and others in almost every branch of manufacture. Kettles of all descriptions are manufactured at Sheffield, Birmingham, Wolverhampton, &c. &c.

KEUB. *See* KEN.

KEVEL, in shipbuilding, a piece of plank laid against the quickwork on the quarter-deck, in the shape of a semicircle; about which the running rigging is belaid.

KEY. *See* KAY.

KEY, (Ger. *Schlussel.* Du. *Sleutels.* Da. *Nogler.* Sw. *Nycklar.* Fr. *Clés, Clefs.* It. *Chiavi.* Sp. *Llaves.* Port. *Chaves.* Rus. *Kljutschi.* Pol. *Kluczy,*) a well-known instrument formed with openings correspondent to the wards of a lock.

KEYAGE, the money or toll paid for loading or unloading goods, &c. at a key or wharf.

KHALLAH GILLEE, a species of prohibited Bengal muslin.

KHATOVAT, a long measure used in Arabia; it is the geometrical pace of the Europeans: it contains three akdams, or feet, and 12,000 khatovats make the paresang.

KIDDER, signifies one that badges or carries corn, dead victual, or other merchandise up and down to sell. 5 Eliz. c. 12. They are also called *kiddiers.* 13 Eliz. c. 25.

KIDNAPPING, is the forcibly taking and carrying away a man, woman, or child from their own country, and sending them to another. This is an offence at common law, and punishable by fine, imprisonment, and pillory. If any captain of a merchant vessel shall, during his being abroad, force any person on shore, and wilfully leave such person behind, or refuse to bring home all such men as he carried out, if able and desirous to return, he shall suffer three months' imprisonment. Exclusive of the above punishment for this as a criminal offence, the party may recover upon an action for compensation in damages for the civil injury. 11 & 12 Will. 3. c. 7. In common parlance, the term is applied to the offence of *child-stealing* generally; what is declared by stat. 54 Geo. 3. c. 101. to be an offence punishable as grand larceny. *See* 3 *Dict. Pract. Expos.* 1.

KID-SKINS are the skins of the young goat, which are chiefly used in the manufacture of women's fine gloves, such as the French gloves, Limerick gloves, &c. We usually import them from France, Spain, and Italy, undressed, and afterwards prepare them for use.

KIFFEKIL, or Keffekil. This mineral is dug up near Konie in Natolia, and is employed in forming the bowls of Turkish tobacco-pipes. The sale of it supports a monastery of dervises, established near the place where it is dug. It is found in large fissures, six feet wide, in grey calcareous earth.

KILDERKIN, a liquid measure, generally applied to beer, containing two firkins or eighteen gallons. Two kilderkins make a barrel.

KINO. It was first brought from Gambia, but what is now imported chiefly comes from Jamaica, and is an extract of the seaside grape, *coccolobo uvifera:* the finest, however, is drawn from different species of *eucalyptus,* particularly the *resinifera,* or brown gum-tree of Botany Bay. Wool and cotton boiled in a solution of kino, and then dipped in a bath of sulphat of iron, appeared of a bottle-green, which was changed by washing and drying to a blackish-brown, that proved very durable.

KINTAL. *See* QUINTAL.

KISTE, a liquid measure of Arabia, equal to a pint of our measure.

KNEE, in a ship, a crooked piece of timber, bent like a knee, used to bind the beams and futtocks together, by being bolted fast into them both. These are used about all the decks.

KNEES, *Carling,* in a ship, those timbers which extend from the sides to the hatchway, and bear up the deck on both sides.

KNIVES, (Ger. *Messer.* Du. *Messen.* Da. *Knive.* Sw. *Knifvar.* Fr. *Couteaux.* It. *Coltelli.* Sp. *Cuchillos.* Port. *Facas.* Rus. *Noshi.* Pol. *Noze,*) are well-known utensils made of iron and steel, and employed to cut with; they are principally manufactured at London, Salisbury, Sheffield, and Birmingham. Knives are made for a variety of purposes, as their different denominations imply; such as, table-knives, oyster-knives, pruning-knives, pen-knives, &c. They are said to be of such recent invention as the middle of the 16th century. However that be, they are now an article of extensive exportation to all parts of the world. The German fairs are plentifully supplied with

them, and they travel to both the Indies in immense quantities.

KNITTING-NEEDLES, (Ger. *Stricknadeln.* Du. *Breinaalden.* Da. *Knyttestikker, Striknaale.* Sw. *Knytnalar.* Fr. *Aiguilles, Broches à tricoter.* It. *Aghio, Ferri da calze.* Sp. *Agujas para hazer medias de punto.* Port. *Agulhas de facer meias.* Rus. *Igolki,*) pieces of iron or steel wire, about eight inches in length, rounded and highly polished. They are not perforated at either end like common needles, nor are their extremities remarkably sharp-pointed. Knitting-needles are principally employed by females in making thread and worsted stockings.

KNOTS *of the Log-line,* are the divisions made thereon, which are usually seven fathoms, or forty-two feet; but ought to be fifty-one feet: and then, as many knots as the log-line runs out in half a minute, so many miles does the ship sail in an hour, supposing she goes at an equal rate, and allowing for yaws, lee-way, &c. *See* LOG.

KRUSKA, a Russian liquid measure of $93\frac{7}{8}$ cubic inches.

KUPFERNICKEL, is a sulphuret of nickel, and is generally compounded of nickel, arsenic, and sulphuret of iron. It is supposed to be employed by the French manufacturers in colouring porcelain or enamels.

KUTERA, a gum somewhat resembling tragacanth, but not of so glutinous a nature, lately imported from Hindostan. In water it slowly softens to a pulp: but if first powdered, and then boiled a quarter of an hour, it dissolves completely, a tea-spoonful giving to three pints of water a thin syrupy consistence. The natives of India mix it with other gums to make varnishes, and use it much in some diseases of horses. *Trans. of Soc. of Arts.*

L, The eleventh letter of our alphabet, as a numeral denotes 50; and with a dash over it thus, $\bar{L}$, stands for 50,000. L is likewise the initial of the Latin word *librum*, signifying a pound, and is thus written £, to denote the amount of twenty shillings. ℔ denotes a pound weight.

LABDANUM, or Ladanum. *See* GUM.

LABORATORY, a building containing apparatus and all the conveniencies necessary for conducting chemical researches and experiments.

The following is a list of the necessary implements for a perfect establishment of this kind:

A gasometer, with the connecting tubes, blow-pipe, &c.;

A bladder, or silk-bag, with stop-cock, fitting the above;

A pneumatic water-trough;

A copper still with worm-tube, the still fitting into the top of Black's furnace;

A blow-pipe, with spoon, &c.;

Lamps — an Argand, and others of common construction, for oil and alcohol;

An apparatus for drying precipitates by steam;

Scales and weights;

Large and small iron stands for retorts, &c.

Mortars—one of hard steel, one of bell-metal, and one or two of Wedgwood-ware;

A silver crucible and spatula;

A platina crucible and spatula;

A jointed iron tube for conveying gases.

The following Articles in Glass.

Retorts of different sizes, plain and stoppered, and long-necked for gases;

Receivers to fit the above, plain and stoppered, with or without an adapter;

Plain jars for gases, different sizes;

Lipped jars for mixtures, precipitates, &c.;

A graduated eudiometer jar;

Bell receivers, two or three sizes;

Proof bottles;

Capsules, or small evaporating cups, and watch-glasses;

Florence flasks;

Matrasses;

Funnels;

Wine-glasses;

Common decanters;

A bottle for specific gravity of fluids;

Phials of all sizes, plain and with ground stoppers;

Plain glass tubes, of various thickness and bore, out of which may easily be made,

Syphon tubes, bent tubes for gases, capillary tubes for dropping liquids, &c.;

A gas saturating apparatus;

A Woulfe's apparatus;

A tube of safety, separate;

A barometer;

Thermometers.

The following in Earthen-ware.

Crucibles, Hessian, common, and black-lead, of different sizes and shapes, with stands and covers;

Retorts;

Retort stands;

Cupels;

Wedgwood evaporating dishes;

White basons with lips;

Tubes, straight and bent;

Porcelain spoons;

Porcelain rods;
Several stone jars, with tin covers.

The following Sundries.

Wire, different sizes and kinds;
Gold, silver, and brass leaf, and tinfoil;
Wooden tripod stands;
Steel spatula and pallet knives;
Iron ladles;
Diamond for scratching glass;
Files;
Hammers;
A vice and anvil;
Pincers;
Shears and scissers;
A magnet;
Sieves;
Filtering paper;
Corks;
Bladders, spirit-varnish, sponge, tow, linen, flannel;
Windsor and common bricks;
Lutes of various kinds;
A mercurial pneumatic trough;
A mercurial gasometer;
A burning lens;
An electric apparatus;
A Galvanic apparatus;
A detonating jar;
A glass or silver alembic.

LABOURERS are generally understood to be persons hired by the day, or other short period of time, to work in inferior capacities.

The mode of hiring, hours of labour, punishment, &c. of servants and labourers, in some particular trades are specially provided for by particular statutes respecting those trades; but by 20 Geo. 2. c. 19. *all* complaints between masters and labourers of *all* descriptions, where the sum in dispute does not exceed *5l.* are cognizable before justices of the peace, who shall make order therein. And by a subsequent statute, 6 Geo. 3. c. 25. *all* labourers who shall have contracted for any certain time, and who shall be guilty of any misdemeanour, or not fulfil his contract, is punishable before the like authority by imprisonment not exceeding three months nor less than one. *Lowther* v. *Earl of Radnor*, 8 *East. Rep.* 113.

See the different modes of proceeding under these two statutes, *Dick. Pract. Expos.* 843.

LABRADOR is an extensive country in North America. It is bounded N. by Hudson's Strait, on the S. by Lower Canada, on the W. by Hudson's Bay, and on the E. by the Gulf of St. Lawrence; and is a portion of that continent over which Great Britain has made a claim of sovereignty. We know little of the extent, or productions, of the interior; for the soil is generally so sterile, the winters so cold, and the whole appearance of the country so desolate, that we have little communication with it, except with the Esquimaux, a people who live on the coast, and with whom the Canadians keep up a regular intercourse for the purpose of trading for furs, which abound in this country, and are eminently fine and valuable. The animals common among them are bears, both black and white; reindeer, wolves, and wolverines; foxes of various sorts; martens, lynxes, and racoons; otters, beavers, and minks; hares, rabbits, and moles: the skins of all which find their way to Britain through the traffic of the Canadian merchants. The colder the climate, the better is the fur of the animals with the longest hair and the roughest coats, wherefore the bear-skins of Labrador are pre-eminently beautiful. The shores abound in seals, and the Canadians have a seal fishery on the southern part of the coast, where a great portion of the traffic is carried on.

LABRADOR STONE, a beautiful stone brought from the coast of Labrador. Its colour is commonly of a light, or of a deep grey, frequently blackish; but when held in certain positions to the light, it exhibits varieties of beautiful internal colours, chiefly consisting of shades of blue and green, seldom yellow, in some parts of a copper red, and violet. These colours have, for the most part, a flaky or spotted appearance, but sometimes they lie in stripes. This stone is found of an angular form, in pieces of considerable magnitude; its specific gravity is 2.755; its fracture is laminated; the broken parts are rhomboidal and semi-transparent. In other respects this stone agrees with the feldt-spar, but is softer.

LAC, or GUM-LAC, (GER. *Lack, Gummilack.* DU. *Lak, Gomlak.* DA. *Lack, Gummilak.* SW. *Lack, Gummilak.* FR. *Lacque, Gomme lacque.* IT. *Lacca Gommalacca.* SP. *Goma laca.* PORT. *Laca.* RUS. *Laka, Gummilak.* POL. *Laka, Gumalaka.* LAT. *Gummi laccæ,*) is the product of the *coccus lacca,* an insect, which deposits its eggs on the branches of a tree called Bihar, in Assam, a country bordering on Thibet, and elsewhere in India. It appears designed for defending the eggs from injury, and affording food for the maggot in a more advanced state. It is formed into cells finished with as much art and regularity as a honeycomb, but differently arranged; these the inhabitants collect twice a year, in the months of February and August. To purify it, it is broken into small pieces, and put into a canvas bag of about four feet long, and not above six inches in circumference. Two of these bags are in constant use, and each of them held by two men. The bag is placed over the fire and frequently turned, till the lac is liquid enough to pass through its pores; when it is taken off the fire, and twisted in different directions by the men who hold it.

Lac possesses the properties of a resin, and is the basis of many varnishes, and of the finest kinds of sealing-wax. It is used

in painting, and imparts a fine red colour to silk and cotton, when these have been previously immersed in a weak decoction of the bark, known amongst dyers by the name of *lead*.

In India lac is fashioned into rings, beads, and other trinkets: wool tinged with it is employed as a fucus by the ladies; and the resinous part, melted and mixed with about thrice its weight of finely powdered sand, forms polishing stones. The lapidaries mix powder of corundum with it in a similar manner.

LAC, *White*, or Laccic Acid. About the year 1786, Dr. Anderson, of Madras, was made acquainted with a substance formed as a kind of nidus or nest by the female of an insect of the genus coccus, of which the natives of India are very fond. This substance, which has a considerable resemblance to bees' wax, he named white lac. It is of a grey colour, opaque, rough, and in roundish pieces, weighing from three to fifteen grains; and on pressing it between the fingers, particularly when fresh gathered, a reddish fluid is squeezed out. When purified by fusion and straining through cloth, it adheres so firmly to wood, paper, tin, and other substances, as to answer the purpose of a strong cement. It does not afford a good varnish.

LACE, (Ger. *Spitzen*. Du. *Kanten*. Da. *Kniplinger*. Sw. *Spetsar, Knytringar*. Fr. *Dentelle*. It. *Merletti, Pizzi*. Sp. *Encajes*. Port. *Rendas*. Rus. *Krushewo*. Pol. *Koronki*,) is a texture composed of many threads of gold, silver, silk, or thread, which are interwoven and worked on a cushion from bobbins, according to the patterns designed. Thread lace is of various kinds, denominated either from the place where it is manufactured, or from the particular method of working. Such are Point, Brussels, or Flanders lace manufactured in the Netherlands, and Blond, or bone lace, which is manufactured in Buckinghamshire. An inferior kind of lace is made at Nottingham, which is manufactured on a loom similar to that on which hosiery is made; this is called *British Lace*.

The following are the regulations of the legislature relative to gold and silver lace.

No metal inferior to silver shall be spun upon silk, under a penalty of *5l.* per oz. Silver wire for making silver thread shall contain at least 11oz. 15 dwts. in the pound troy; and all silver used in the wire-drawers' trade shall have 11 oz. 8 dwts. of fine silver for every pound troy; and shall not have less than 4 dwts. 4 grs. of fine gold, without alloy, laid on each pound of silver, on penalty of *5l.* per oz.

Persons colouring gilt-wire with verdigris, or any forced colour, are liable to a penalty of *2s. 6d.* per oz.

For gold and silver prepared as above, and wrought into plate, there shall be allowed 6 oz. of plate, to 4 oz. of silk, except large twists, &c. and round brocade, in which there shall be allowed 6 oz. of plate to 5 of silk.

Selling gold or silver lace, mixed with any other metal, incurs a penalty of *2s. 6d.* per oz. and *5s.* per oz. for selling by any other than troy-weight.

No gold or silver thread, lace, fringe, or other work made thereof, or thread, &c. made of copper or other inferior metal, or gold or silver wire, or plate, shall be imported, on pain of being forfeited and burned.

Thread Lace of foreign manufacture is prohibited, except in certain specified quantities and of particular value, by stat. 46 Geo. 3. c. 81. and may be only imported into the port of London under very peculiar circumstances. Dealers in lace, whether *foreign*, or *British*, must take out an annual licence from the excise office, under a penalty of *50l.* for dealing in the former, and *5l.* in the latter; and must moreover place upon their shop, "Dealer in *foreign*, (*or British, as the case may be*) lace," under similar penalties.

LACES, (Ger. *Schnüren, Litzen*. Du. *Snoeren, Lissen*. Da. *Snorer, Lisser*. Sw. *Snörar, Lits*. Fr. *Cordons*. It. *Cordoni*. Sp. *Cordones, Torzal*. Port. *Cordões, Torçal*. Rus. *Snurki*. Pol. *Sznurki*,) a species of cord made of silk, thread, cotton, &c. principally used by women in adjusting different parts of their apparel; they are chiefly manufactured at Manchester, and in its vicinity.

LACK, or Lake, a word used in the East Indies to denote the sum of 100,000 rupees, which, supposing them standards, or siccas, at *2s. 6d.* amounts to 12,500*l.* sterling.

LACKER, or Lacque, is a species of varnish applied to brass, tin, and other metals, to improve their colour, and prevent them from tarnishing. The best lacker is prepared from rectified spirit of wine and seed-lac, in the proportion of three ounces of the latter to one pint of the former. This mixture is digested for some time in a moderate heat, when the liquor is strained and left to subside. In this state it is ready to receive the shade required, by adding gamboge, annotto, or other tinging ingredients.

LACMUS, or Litmus, (Ger. *Lackmus*. Du. *Lackmoes, Lacknoes*. Da. *Lackmus, Lakmos*. Sw. *Lakmus*. Fr. *Tournesol en pierre, en pâte, ou en pain, Orseille de Hollande*. It. *Tornasole*. Sp. *Tornasol de Hollanda, en pastas*. Port. *Tornesol de Holanda, ou em pastas*. Rus. *Lakmus*. Pol. *Lakmus, Blekitna farba*. Lat. *Laccas musica*,) a plant which yields a yellow dye-stuff; it is a species of moss usually found in the cavities of rocks, and in the hollows of sterile mountains; great quantities grow in Auvergne, in France, but it is generally brought to us from Holland, Genoa, the islands of Candia, and Teneriffe

LADANUM. *See* LABDANUM.

LADING, *Bill of*, is an acknowledgment signed by the master of a ship, and delivered to a merchant, proprietor, or factor of the goods. It contains an account of the articles received on board, and a promise to deliver them in good condition, at a certain port or place therein mentioned, for a specified sum. *See title* BILL OF LADING.

LADY-DAY, properly the day of the annunciation of "Our Lady," or the Virgin Mary, one of the festivals in the calendar. It is the 25th day of March, and one of, what are denominated, the quarter days; when rents are usually paid by tenants, for the occupation of lands and tenements, when notices to quit are given and received, when tenants quit farms, when dividends are paid upon stock at the Bank of England, and various other periodical occurrences take place among the agricultural, the commercial, and the monied classes of mankind in this country.

LAKES, certain colours made by combining the colouring matter of cochineal, or of certain vegetables, with pure alumine, or with oxide of tin, zinc, &c.

For the preparation of *Florentine lake*, the sediment of cochineal that remains in the bottom of the kettle in which carmine is made, may be boiled with about four quarts of water, and the red liquor left after the preparation of the carmine, mixed with it, and the whole precipitated with the solution of tin. The red precipitate must be frequently washed over with water. Exclusively of this, two ounces of fresh cochineal, and one of crystals of tartar, are to be boiled with a sufficient quantity of water, poured off clear, and precipitated with the solution of tin, and the precipitate washed. At the same time two pounds of alum are also to be dissolved in water, precipitated with a lixivium of potash, and the white earth repeatedly washed with boiling water. Finally, both precipitates are to be mixed together in their liquid state, put upon a filter and dried. For the preparation of a cheaper sort, instead of cochineal, one pound of Brazil wood may be employed in the preceding manner.

For the following process for making a lake from *madder*, the Society of Arts voted Sir H. Englefield their gold medal. Inclose two ounces troy of the finest Dutch madder in a bag of fine and strong calico, large enough to hold three or four times as much. Put it into a large marble or porcelain mortar, and pour on it a pint of clear soft water cold. Press the bag in every direction, and pound and rub it about with a pestle, as much as can be done without tearing it, and when the water is loaded with colour, pour it off. Repeat this process till the water comes off but slightly tinged, for which about five pints will be sufficient. Heat all the liquor in an earthen or silver vessel, till it is near boiling, and then pour it into a large basin, into which a troy ounce of alum dissolved in a pint of boiling soft water has been previously put: stir the mixture together, and while stirring, pour in gently about 1½oz. of a saturated solution of subcarbonat of potash. Let it stand till cold to settle; pour off the clear yellow liquor; add to the precipitate a quart of boiling soft water, stirring it well; and when cold separate by filtration the lake, which should weigh half an ounce. Fresh madder root is equal, if not superior, to the dry.

Carmine is the finest of lakes. We shall not here say more upon this article, having already treated of it at sufficient length under its proper head.

LAMB-SKINS, (Ger. *Lammsfelle*. Du. *Lamsvellen*. Da. *Lammeskind*. Sw. *Lammskinn*. Fr. *Peaux d'agneaux*. It. *Pelli Agnelline*. Sp. *Pieles de Corderos*. Port. *Pelle de Cordeiros*. Lat. *Agnorum Pelles*,) afford excellent leather for the formation of gloves, breeches, and even shoes, being usually pliant, and consequently capable of being worked into particular forms with great facility. Lamb-skins are, however, principally employed in their natural state, that is, with the wool on, in trimming gloves, covering muffs, and adorning different articles of dress. The skins whose wool is short and curly, are used in trimming gloves; those with thin, soft wool, are made into muffs; and such as are covered with close coarse wool resembling hair, are employed as furs. The price of lamb-skins varies according to the fineness, the brilliancy, and the colour of the wool. Black lamb-skins are more generally esteemed than those of any other colour. Our English lamb-skins are seldom to be met with perfectly black; but since the introduction of the Merino breed of sheep into this country, the white fleeces are, in point of quality, arrived at a pitch of perfection, which justly entitles them to be ranked with some of the best fleeces in Spain. In Piedmont, Lombardy, Tuscany, and other parts of Italy, the lamb-skins called *Turins* are to be met with. The fleeces of these are black, short, soft, and glossy. It is usual with the Italians to salt their lamb-skins for exportation, but this is highly improper, as such a process materially injures the fleeces; they ought invariably to be exported dry. The lamb-skins of Spain are black as well as white, and the fleeces are usually short and fine. Vast quantities of these skins are sent into France and Germany. In the latter country the peasantry use them as clothing, even in the fleece, and the women make them into under-petticoats, turning the woolly side inwards. The French lamb-skins are much of the same quality as the English, yet are frequently sold both in France and Germany as Spanish skins. The German and Russian lamb-skins differ very little from

the French; but the skins brought from Astracan, Tartary, and Persia are held in the highest estimation throughout Europe. The fleeces of Astracan are smooth, glossy, and black. They are used in the Levant for trimming caps, turbans, and other articles of dress. Those of Persia are close and curly, and are most valuable when of a greyish colour. The Poles purchase vast quantities of the Persian lamb-skins, which they employ in the manner of furs. The Persian skins of that description are called *slink lamb-skins*. This designation is given to them from the circumstance of their being cut out of the womb of the dam, before the natural period of gestation has elapsed. This cruel operation, which, of course, causes the death of the ewe, is said to be the chief cause of the repute which Persian lamb-skins have so long enjoyed; it is not, however, invariably practised by the sheep owners of Persia, who have another equally efficacious, and certainly less barbarous, mode of rendering their lamb-skins superior in quality to those of other nations. As soon as the lambs are yeaned, the shepherd wraps each of them up in a sort of swaddling-coat, which, at first, is tightly laced round the body of the animal, but loosened in proportion as it increases in size. This method, it is said, causes the fleece to curl and undulate, and renders it glossy, smooth, and fine. The fleeces of the Crim Tartarian lambs differ from the Persian, in being longer, not all curly, but merely undulated. The intrinsic value of these skins is very great, for they are extremely durable; their price is the same as that of the Persian skins, namely from 12 to 15 piastres. The lamb-skins of Astracan, Persia, and Crim Tartary are carried in immense quantities to the fairs of Leipsic and Frankfort, principally by the Jews who deal in furs. These are generally dry (being very rarely salted) when exposed to sale. Great discoveries have recently been made respecting the perfection to which the fleeces of the sheep in the northern States of the American Union may, with care, be brought; and experiments are now making in various parts, as well with the wool of the sheep, as with the skins of the lambs. The finest fleeces in the world however are those of the Shetland sheep and lambs. The texture of the thread made from the wool of the sheep is finer than that of silk, and the lamb-skins are proportionably delicate.

LAMMAS, a festival in the Romish church, holden on the first day of August, and celebrated in memory of St. Peter's imprisonment. It is not certainly ascertained whence it derived its appellation, but probably from some typical ceremony in which a lamb was introduced; for it is on record that the tenants of the church of York were bound by tenure to bring a lamb alive on this day into the church during high-mass. It is one of what are denominated half-quarter days, when some servants hired at country statutes respectively enter upon, and quit, their services.

LAMP, (Ger. and Du. *Lampen*. Da. *Lamper*. Sw. *Lampor*. Fr. *Lampes*. It. *Lucerne*. Sp. *Lamparas*. Port. *Alampadas*, *Candeias*. Rus. *Lampadii*. Pol. *Lampy*,) an instrument used for the combustion of liquid inflammable bodies, for the purpose of producing artificial light.

The most simple lamp consists of a vessel of almost any shape, containing oil or alcohol, with a tube projecting a little above the surface of the liquid, and containing any fibrous substance capable of raising the liquid to the top of the tube by capillary attraction. The oil thus raised, and diffused through the fibrous substance, is so detached from the main body of the liquid as to admit of being heated to a temperature sufficient to volatilize the oil, the vapour of which, in a state of combustion, constitutes the flame of the lamp. In the management of the lamp of the most simple kind, so far as relates to the supply of oil, three things must be attended to. 1. The wick must be of such a substance as best to promote capillary attraction. 2. It should not be twisted too much; in which case, its capacity for the oil is too little, nor should it be so loose as to diminish materially its capillary attractive power. 3. The distance of the flame from the surface of the oil. If the flame be too near the surface, a lesser quantity of oil will acquire the heat necessary to raise it into vapour; since the heat communicates with the fluid. On the contrary, when the flame is too high above the oil, the capillary attraction, which decreases in proportion to the distance, is insufficient to supply the necessary quantity of oil. Cotton is the substance best adapted for forming the wick.

In the common lamp a portion of the oil is decomposed, and escapes in vapour without combustion; the disagreeable smell of this, and the quantity of smoke produced, formerly prevented lamps being generally used for domestic purposes, but this inconvenience has been remedied by the invention of the *Argand lamp*, the peculiar qualities of which may be thus explained.—In the common lamp, the combustible vapour occupying a considerable area, the oxygen of the atmosphere cannot combine with the vapour in the middle part of the ascending column; combustion consequently only takes place on the surface; the rest of the vapour is dissipated in the atmosphere; this is obviated in the Argand lamp by directing a column of air through the centre of the flame, which is raised from a circular instead of a solid wick, that surrounds the space through which the air ascends. The effect of this has been increased by placing a cylinder of glass, forming a bulb at the lower extremity, around the flame; by this con-

trivance, the ascending air is turned out of its direct course, and thrown on the centre of the flame.

An improvement in the method of raising the oil in the lamp was made by Mr. King, of Holborn, on the principle of the water-engine erected at Chremnitz, in Hungary. Some inconveniencies of this lamp, arising from the air in the upper part of the reservoir becoming dilated, forcing the oil over the sides of the vessel, have been removed by an invention of Mr. Peter Kier, of Kentish Town. The oil in this lamp is raised by the pressure of a denser liquid, not so liable to variety of expansion as air. The liquid used is a strong saline solution.

Some improvements have been made in this species of lamp by Mr. Baker, by which the necessary quantity of oil is raised by the heat produced by combustion. His lamp consists of a column of brass, or other metal, well closed every where excepting a small aperture at the bottom, in the middle of a little gullet or canal, in the upper part of which the wick is placed. Here the oil cannot get out, excepting as it is consumed by burning. This lamp has some inconveniencies, such as the air getting in by starts; and when the air in the cavities becomes too much rarefied, it drives out so much oil as sometimes to extinguish the lamp.

Safety-lamp.—Various attempts have been made, at different times, to construct a lamp, which might burn without danger in the explosive atmosphere, or inflammable gas, of coal mines. The first endeavour of this kind was by M. de Humboldt, in 1796; but his lamp being founded on the principle of entire insulation from the air, could only burn for a short time, till the air contained in it was exhausted. A lamp upon a similar plan, with respect to insulation, was contrived by Dr. Clanny, in 1813, but he supplied his light with air from the mine through water by bellows, and it went out in explosive atmospheres; besides which, it was necessary that it should be worked by the hand, or by machinery. It is obvious that neither of those lamps was adapted for the desired purpose. The great object was to find a means of obtaining light, which at the same time that it enabled the miner to work with security in the explosive atmosphere, (or *fire-damp*, as it is termed by the miners,) should likewise consume the fire-damp. This very desirable object was accomplished by Sir Humphrey Davy in the year 1815. We shall first give a description of the construction of his lamp, and then make some observations on the principles of its action. It consists of a cylindrical vessel for containing oil, made of copper rivetted together, or of massy cast-brass, or cast-iron, with a common tube for a cotton wick of the usual size; around this tube is a screw, adapted for receiving another screw attached to the interior part of a cylinder of wire-gauze. The gauze cylinder may be composed of iron or copper wire; the wire should not be less than one-sixtieth of an inch in thickness, and it should be wove so as to contain 840 apertures in each square inch, which will be twenty-eight and thirty wires warp and woof. The upper part of this cylinder is received into another, (made in the same way,) for about two inches, which should fit closely, and extend about three inches above it, so as to form a second top. The upper extremities of the cylinders are closed with wire-gauze of the same dimensions as those of the sides; so that the only way by which the air can be admitted to the flame, is through the meshes of the gauze. The lamp is supplied with oil through a tube which enters on the side near the superior part of the oil vessel, and extends almost to the bottom; so that on removing the screw by which it is closed, to replenish it, no gas can be admitted to the flame. A small tube, just large enough to admit a wire, passes through the oil vessel from beneath to within the gauze cylinder; a piece of wire bent at the extremities is inserted through this, for the purpose of trimming the snuff of the lamp. The wire-gauze is surrounded by three pillars of strong wire passing from the oil vessel to above the cylinder, to prevent the latter being broken off by accident; and a ring is attached to the upper part of these wires, by which the lamp is usually suspended.

Sir Humphrey Davy, in his researches on the nature of flame, and the different degrees of heat which different substances require for their ignition, found that the fire-damp was not exploded or fired by red-hot charcoal or red-hot iron; it required iron to be white hot, and itself in brilliant combustion for its inflammation. He also found that it produced in burning comparatively a small degree of heat;—he likewise ascertained that carbonic acid and azote, formed by the combustion of the gas, and the transmission of the explosive mixture through small tubes, which he first employed, (these were afterwards changed for the wire-gauze,) lowered the temperature of the mixture so much, that it was no longer sufficient for its continuous inflammation. These facts led to an immediate result—the possibility of constructing a lamp, in which the cooling powers of the azote or carbonic acid, formed by combustion, and the cooling powers of the apertures, through which the air entered or made its exit, should prevent the communication of explosion. After trying various modes for its construction, he finally adopted that of which we have given a description.

The fire-damp of coal-mines consists of hydrogen gas mixed with a small proportion of carbon, and sometimes carbonic acid and azote. The presence of atmospheric air, or oxygen, is necessary for its combustion, and this takes place in different modes, according

to the different proportions in which they are combined. Sir Humphrey Davy found that when one part of fire-damp was mixed with one of air, they burnt by the approach of a lighted taper, but did not explode; two of air, and three of air, to one of gas produced similar results. When four of air and one of gas were exposed to a lighted candle, the mixture being in the quantity of six or seven cubical inches in a narrow-necked bottle, a flame descended through the mixture, but there was no noise: one part of gas inflamed with six parts of air in a similar bottle, produced a slight whistling sound: one part of gas with eight parts of air, rather a louder sound: one part with 10, 11, 12, 13, and 14 parts, still inflamed, but the violence of combustion diminished. In one part of gas and 15 parts of air, the candle burnt without explosion, with a greatly enlarged flame.

The next thing he endeavoured to ascertain, was the degree of heat required to explode the fire-damp mixed with its proper proportion of air. Well burned charcoal, ignited to the strongest red heat, did not explode any mixture of air and of the fire-damp: an iron rod at the highest degree of red heat, and at the common degree of white heat, did not inflame explosive mixtures of the fire-damp; but when in brilliant combustion, it produced the effect. When there is not a certain proportion of atmospheric air mixed with the fire-damp, the lamp becomes extinct; and this will take place although the mixture be fit for respiration. To remedy this inconvenience, Sir H. Davy added a coil of platina wire round the wick of the lamp, which becomes ignited in atmospheres containing but small proportions of atmospheric air, and the glow of the metal will continue to guide the miner; and by placing the lamp in different parts of the gallery, the relative brightness of the wire will show the state of the atmosphere in those parts. The ignition of the platinum takes place feebly in a mixture consisting of two parts of air and one of fire-damp, and brilliantly in a mixture consisting of three of air and one of gas. By increasing the proportion of air, it soon lights the flame in the cylinder, which, by the addition of more atmospheric air, rekindles the flame of the wick. This phenomenon, although it may take place in experiments with gases in a room, we have been informed has not succeeded in mines. The greater degree of coldness of the situation, and the draughts of cold gas about the mines, soon extinguishes the platinum wire, when that alone is ignited. We should mention this fact, that the atmosphere in which the platinum wire will continue ignited may be breathed with safety for a considerable time.

The use of having the cylinder double at the top, is to prevent the danger of explosion on that part of the cylinder becoming red or white hot, which it does under certain circumstances. When a current of explosive atmosphere is poured on a lamp, the heat of the wire becomes greater than in ordinary circumstances. This is to be remedied by increasing the cooling surfaces, or by diminishing the current of the air. For the former purpose a cylinder of twilled gauze is used. The common wire-gauze with a double cylinder, or with a reflector, answers the same purpose.

The discoveries of Sir H. Davy respecting the nature of ignition, and the circumstances under which fine platina wire will continue in that state, has lately been applied to the construction of a lamp which burns without flame, which may be of considerable use for a variety of purposes. It consists of a common spirit lamp, with a cotton wick of the usual size, round which a coil of about 12 turns of platina wire, the 100th part of an inch in diameter, is placed, so that about seven turns of the wire are around the cotton, and five above it. The cotton is to be lighted, and suffered to burn for a minute, when it is to be extinguished; the platina wire immediately becomes red-hot, and continues to burn, by the vapour of the spirit, as long as any remains in the lamp. The ignited wire affords sufficient light to distinguish the hour on a watch by, and will light a brimstone match when applied to it.

The ancients are said to have been possessed of the means of making lamps which would burn perpetually without attention, and many such have been said to have been found in sepulchres, which had not been opened for fifteen or sixteen centuries; but it has been thought by some that they took fire at the instant of the admission of the air. Dr. Plott was of opinion, that the making of perpetual lamps was practicable; and himself made some proposal for the execution of a lamp of this kind. Asbestos, he considered would serve for the wick, and that the *naphtha*, or liquid bitumen, which spontaneously and constantly springs from various parts of the earth, might serve for fuel.

Lamps which take fire on the admission of the air, are made by inclosing a piece of phosphorus in a vessel exhausted of air, on the admission of which, combustion of that substance takes place.

LAMP-BLACK. (Ger. *Kienruss.* Du. *Zwartzel.* Da. *Könrög.* Sw. *Kimrök.* Fr. *Noir de fumée.* It. *Nero di fumo, Negro-fumo.* Sp. *Negro de humo.* Port. *Ferrugem da chamminé.* Rus. *Sasha.* Pol. *Sadz.* Lat. *Fuligo.*) Under the word BLACK, *Lamp*, we gave an account of this article, to which we shall only here add, that there are two kinds of it in common use; the best is that procured either from the burnings of the wood of the pine and other resinous trees, or by the methods pointed out in the article to which we refer; the inferior kind is a

heavy black prepared from bones by calcining them in close vessels.

LANCETS, (Ger. *Lanzetten*. Du. *Laatyzers*. Da. *Lanzetter*. Sw. *Lansetter*. Fr. *Lancettes*. It. *Lancette*. Sp. *Lancetas*. Port. *Lancetas*. Lat. *Scalpella*,) highly polished and sharply pointed chirurgical instruments made of steel. There are usually three or four lancet-blades set in a single handle, in order that the operator may have a ready choice of instruments upon any sudden emergency. Lancets are made in the highest perfection at London, whence several celebrated practitioners in various parts of Europe procure their instruments.

LAND, in the sea-language, makes part of several compound terms: thus *land-laid*, or to lay the land, is just to lose sight of it.

Land-locked, is when the land lies all round the ship, so that no point of the compass is open to the sea: if a ship be at anchor in such a place, she is said to ride land-locked, and is therefore concluded to ride safe from the violence of the winds and tides.

Land-mark, any mountain, rock, steeple, tree, &c. that may serve to make the land known at sea.

Land is shut in, a term used to signify that another point of land hinders the sight of that the ship came from.

Land-to, or the ship lies land-to, that is, she is so far from shore that it can only be just discerned.

Land-turn, is a wind that in almost all hot countries blows at certain times from the shore in the night.

To *set the land*, that is, to see by the compass how it bears.

LANDED, *Goods until safely*. *See* INSURANCE.

LANDLORD and TENANT. If a landlord give a legal notice to his tenant to quit the premises at the expiration of the time for which they are holden, and such tenant hold over, he will subject himself to an action of debt, for double the value of the rent, and if he hold over after his own notice he will also be liable.

Where a tenant, whose lease is expired, is permitted to continue in possession, pending a treaty for renewal of his lease, he does not thereby become a yearly tenant, unless rent has been received; but is so much a tenant at will, that he may be turned out without notice.

Where, at the end of the year, a landlord accepts one tenant in the room of another, such acceptance dispenses with notice to quit.

Where executions are levied, the landlord is entitled to a year's rent if due: he cannot, however, in this case distrain, but must give notice to the sheriff.

An under-tenant cannot discharge himself of the rent due from him to his immediate landlord, by a voluntary payment of rent to the superior; but he may do it under the coercion of a threatened distress, and in that mode only.

If a lessor covenant to repair, and does not, the lessee may do so; and to an action of debt for rent he may plead the lessor's covenant to repair, and that he laid out the rent in pursuance of such covenant.

Notice by the Landlord to his Tenant.

Sir,

I hereby give you notice to quit the premises which you hold of me, situate as ——, in the county of ——, on or before the —— next

Your's, &c.

(the date) (the landlord.)

To ——, (the tenant in possession.)

Notice to quit by the Tenant.

Sir,

I hereby give you notice, that on the —— day of ——, I shall quit possession of the messuage or tenement, and premises which I now hold of you, situate at ——, in the parish of ——, in the county of ——, dated this —— day of ——.

Your's, &c.

To —— (landlord) —— (tenant.)

Notice to the Tenant either to quit the Premises, or pay double Rent.

Sir,

I hereby give you notice to quit and yield up, on or before the —— day of —— next, possession of the messuage, with its appurtenances, lands, tenements, and hereditaments, which you now hold of me, situate at ——, in the parish of ——, and county of ——; or in failure thereof, I shall require and insist upon double the value of the said premises, according to the statute in such case made and provided.

To —— (tenant.) —— (landlord.)

Such, and the like, are the usual notices to be given on common occasions, and those are all which it has been thought convenient to give. *See* BROKER.

LAND-MARK. *See* LAND.

LAND-SURVEYOR, a person who is employed in measuring land, and in laying it out in gardens, fields, plantations, streets, lots, &c. *See* SURVEYING.

LAND-TAX, an ancient branch of the public revenue, the origin of which may be traced to the fines or commutations for military service, levied during the feudal system under the name of scutages. These are supposed to have been at first mere arbitrary compositions, as the king and the persons liable could agree; but the practice having been much abused, it was declared by Magna Charta, and afterwards repeatedly confirmed by acts of parliament, that no scutage should be imposed without the consent of the great men and commons, in parliament assembled. This tax was sometimes exacted under the name of hydage, or carrucage; but taxes on land came afterwards to be generally denominated subsidies, or assessments. During the commonwealth, taxes on land were

evied by monthly assessments; and commissioners were appointed in each county for rating the individuals. These assessments varied according to the exigencies of the times, from 35,000*l.* to 120,000*l.* a month; the assessments in Scotland were commonly 6000*l.* but sometimes 10,000*l.* a month; in Ireland 9000*l.* a month. This mode of raising money was found so productive, that with some little variations it has, under the denomination of land-tax, ever since formed an important branch of the revenue.

The land-tax, till lately, differed from all the other branches of the public revenue, (except part of the duties on malt), in being imposed annually, whereas other taxes have been granted either for a term of years, or, more commonly of late years, for ever; but though granted for only one year at a time, it has been regularly continued from year to year since the Revolution, having never been wholly taken off: but it has varied with respect to the rate at which it has been imposed, having been usually reduced during peace, and increased again in time of war, to answer, in part, the increased expenditure. In 1693 it was first raised to four shillings in the pound, upon a valuation returned in the preceding year, and according to which it has continued to be raised to the present time.

The sums to be raised at 4*s.* in the pound were stated, in the annual act, at 1,989,673*l.* 7*s.* 10¼*d.* for England, and 47,954*l.* 1*s.* 2*d.* for Scotland, making together 2,037,627*l.* 9*s.* 0¼*d.*; and upon credit of this assessment 2,000,000*l.* were annually borrowed of the Bank, in anticipation of the tax, for which sum exchequer-bills were given them, which were to be discharged out of the produce of the tax as it came in; but the full amount of the assessment was seldom, if ever, collected, so that the net payments into the exchequer always fell short of the sum borrowed on the credit thereof, exclusive of interest on the bills, and the deficiency was made good out of the supplies for the next year.

In 1798, the current value of the public funds having been unusually depressed for some time past, and apprehensions being entertained that the further increase of the funded debt would be attended with peculiar inconvenience, unless some mode was discovered of counteracting its effects, a project was adopted of offering the land-tax for redemption, by sale. With this view an act was passed, making the land-tax a perpetual tax, from 25th March, 1799; and being thus converted into a permanent annuity, it was offered for sale to the proprietors of the lands upon which it was charged; or if they declined it, to any other person who chose to become a purchaser. In the first case it was considered as a redemption of the tax, the estate becoming in future wholly freed from it; in the latter case the purchaser became entitled to receive the land-tax regularly from the receiver-general, half-yearly, on the 16th of March and 20th of September in every year. The consideration to be given in either case was not to be in money, but stock, either in the three per cent. consols, or three per cent. reduced, to be transferred to the commissioners for the reduction of the national debt. The quantity of stock to be transferred for redemption of the tax by persons interested in the land on which it was charged, was so much capital as yielded an annuity or dividend exceeding the amount of the tax to be redeemed by one-tenth part thereof; and the stock to be transferred for purchase of the tax by persons not interested in the land, was so much capital as yielded an annuity or dividend exceeding the tax to be purchased by one-fifth part thereof. Thus the amount of three per cent. stock to be transferred for 10*l.* per annum tax was 366*l.* 13*s.* 4*d.* for redemption, or 400*l.* for purchase.

This scheme was adopted with the view of facilitating the raising of money on loan, by absorbing a large quantity of floating stock, and thus raising the current price; while at the same time it would be attended with an increase of value. This at least was the avowed object of the measure, which it was estimated would be the means of redeeming or taking out of the market about 80,000,000*l.* of stock; the advantages offered by it were, however, by no means such as to induce a general approval of it. The period first limited was several times extended, but the plan still succeeded imperfectly. Almost every session of parliament, produced some new attempt to accomplish the object, by facilitating the means of carrying it into execution. At length the 53 Geo. 3. c. 123. was supposed to have brought the system to perfection by altering, amending, extending, or repealing, all the objectionable clauses in the previous acts. This statute invested the commissioners for the affairs of taxes with all the powers that had been previously given to special commissioners for the sale and redemption of the land-tax, and constituted two a sufficient number to act; the preference previously given to certain bodies and persons in possession was revoked, and the opportunity of purchasing was laid open, with no other preference to any but by priority of contract. The consideration was allowed to be paid by half-yearly instalments in sixteen years, with various other indulgences. The commissioners were also directed to circulate printed forms of notices of the various modes of redemption, and printed forms of declaration for persons who were desirous of redeeming. Many facilities were also given to incumbents, as well as patrons, of ecclesiastical preferments, to become purchasers of

Lastly came 54 Geo. 3. c. 173. which ordains a special commission for the sale and redemption of land-tax in the case of bodies

politic, for charitable or other public purposes, or of lands, tenements, &c. in which the crown has any interest. It gives power to exonerate small livings, and charities not exceeding 150*l.* per annum; encourages the purchase of land-tax, of livings in the patronage of corporate bodies, and makes further regulations with respect to the application of trust monies in their hands for that purpose. The laws relating to the receivers of the land and assessed taxes, are amended by 3 Geo. 4. c. 88. The provision for poundage is thereby done away with, and no salary to any receiver-general is to exceed 600*l.* per annum.

LAND-WAITER, an officer of the custom-house, whose duty it is, upon landing any merchandise, to taste, weigh, measure, or otherwise examine the various articles, &c. and to take an account of the same. They are likewise styled searchers, and are to attend, and join with, the patent-searchers in the execution of all cockets for the shipping of goods to be exported to foreign parts; and, in cases where drawbacks or bounties are to be paid to the merchant on the exportation of any goods, they, as well as the patent-searchers, are to certify the shipping thereof on the debentures.

LANTERNS, (Ger. *Lanternen.* Du. *Lantaarnen.* Da. *Laterner, Lögter.* Sw. *Laternor, Lycktor.* Fr. *Lanternes.* It. *Lanterne.* Sp. *Linternas.* Port. *Lanternas.* Rus. *Fonari,*) transparent cases for holding candles, &c. in. There are various sorts of lanterns, such as tin pierced in a variety of forms; tin and transparent horn; glass framed in lackered tin; and dark lanterns, the light within which may be concealed or displayed at pleasure by means of a moveable shade.

LAPIDARY, or Lapidist, is a person who deals in precious stones, gems, &c. There are various machines used in the cutting of precious stones, according to the quality; the diamond, which is extremely hard, is cut with diamond-dust tempered with olive-oil, on a wheel of soft steel, turned by a mill. The oriental ruby, sapphire, and topaz, are cut on a copper wheel with diamond-dust, tempered with olive-oil, and are polished on another copper wheel with tripoli (rotten-stone) and water. The hyacinth, emerald, amethyst, garnet, agate, and other stones, not of an equal degree of hardness with the others, are cut on a leaden wheel with emery and water, and polished on a tin wheel with tripoli. The turquois of the old and new rock, girasol, and opal are cut and polished on a wooden wheel with tripoli.

LAPIS CALAMINARIS. *See* CALAMINE.

LAPIS LAZULI, a sort of stone from which that celebrated colour, *ultramarine,* is made. It is found in many parts of the world, but that of Asia and Africa is much superior to that of Germany. It is to be chosen heavy, of a fine, close texture, and of a deep indigo blue colour, with a little white matter about it, and with as few of the ornamental gold-coloured veins in it as possible, and such as, when put into the fire, calcines without emitting any smell.

In a strong fire, lapis lazuli melts without any addition, into a fine white glass. *See* ULTRAMARINE.

LARBOARD, among seamen, the left-hand side of the ship, when you stand with your face towards the head.

LARCENY, in the law of England, is a *felonious* taking away of the personal goods of another. It is divided into *grand* larceny, and *petit* larceny: the former term applies where the goods taken are *above* the value of 12*d.*, the latter where they are *under* that value. *Grand* larceny incurs a forfeiture of life and lands, petit of personal property only, and the additional punishment of transportation, or whipping, and imprisonment. This is however only a *general* description of the offence and its punishments, for there are divers statutes, describing particular sorts of larceny, and annexing specific punishments to each description. 4 *Black. Com.* 228.

LARCH, a tree valuable for its timber, which has lately been cultivated with particular attention in this country.

Where durability and strength are required, the larch is of singular utility. Hence it is peculiarly calculated for masts of ships, or for strengthening the wooden frame-work of bridges, as it will support a much greater weight than the oak itself, and almost petrifies under water.

No wood affords such durable pipe-staves for casks, as the larch, while the flavour of the wine is at the same time preserved and improved.

The bark, and other parts of this tree, have been found by experiments to be proper substitutes for that of the oak in tanning.

LARD, *Hogs',* (Ger. *Schweinesmalz.* Du. *Reuzel.* Da. *Svineister.* Sw. *Svinister.* Fr. *Saindoux.* It. *Sugna di porco.* Sp. *Manteca de puerco.* Port. *Manteiga, Unto ou Banha de porco.* Rus. *Swinoe saloe.* Pol. *Sadlo swine.* Lat. *Auxungia porci,*) the fat of swine melted; it is chiefly used in pharmacy, in the composition of plasters, pills, &c. or for culinary purposes. Large quantities of this article are imported from Ireland, and sent from that country to different parts of the world, especially to Spain and Portugal, where it is used as a substitute for butter.

LARRES, money used in the Maldives, of which five are equal to a dollar, or 4*s.* 6*d.* sterling.

LAST, an uncertain quantity, varying with respect to particular articles. The following quantities of different articles make a last, viz.:

Fourteen barrels of pitch, tar, or ashes, 23 Hen. 8. c. 14.

Twelve dozen of hides or skins, 1 Jac. 1. c. 23.

Twelve barrels of cod-fish, potash, or meal, 5 Car. 2. c. 7.

Twenty cades, or one thousand herrings, every thousand ten hundred, and every hundred five score.

Ten quarters and a half of cole-seed.

Ten quarters of corn or rape-seed; in some parts of England twenty-one quarters of corn to the last.

Twelve sacks of wool.

Twenty dickers (every dicker twelve skins) of leather.

Eighteen barrels of unpacked herrings.

Ten thousand pilchards.

Twenty-four barrels (each barrel containing 100 lbs.) of gunpowder.

One thousand seven hundred pounds of feathers or flax.

Last, is sometimes used to signify the burden or lade of a ship.

LASTAGE, the sand or ballast laid at the bottom of a ship, or vessel, to keep her steady.

It is also the custom paid for freightage, on herrings, pitch, tar, ashes, &c.

LATCHES, or Laskets, in a ship, are small lines like loops, fastened, by sewing, into the bonnets and drablers, in order to lace the bonnets to the courses, or the drablers to the bonnets.

LATCHES, (*Door-latches*. Ger. *Thürklinkin*. Du. *Klinken*, *Deurklinken*. Da. *Dörklinker*. Sw. *Klinkor*. Fr. *Loquets*. It. *Saliscendi*. Sp. *Pasadores*. Port. *Linguetas*,) catches or doors made of iron, and usually japanned over, to keep them from rust. They are manufactured at Birmingham, Walsal, Wolverhampton, and in the vicinities of these towns.

LATH, (*Laths*. Ger. and Du. *Latten*. Da. *Legter*. Sw. *Läckter*. Fr. *Lattes*. It. *Correnti*. Sp. *Latas*, *Ripias*. Port. *Ripas*. Rus. *Slegü*. Pol. *Laty*,) in building, a long, thin, and narrow slip of wood, nailed to the rafters of a roof or ceiling, in order to sustain the covering. Laths are distinguished into three kinds, according to the different kinds of wood of which they are made, viz. heart-of-oak, sap, and deal laths; of which the two last are used for ceilings and partitions, and the first for tiling only. Laths are also distinguished according to their length, into five, four, and three-feet laths, though the statute allows but of two lengths, those of five and of three feet, each of which ought to be an inch and a half in breadth, and half an inch in thickness, but they are commonly less.

Laths are sold by the bundle, which is generally called a hundred, but seven score, or 140, are computed in the hundred for three-feet laths; six score, or 120, in such as are four feet; and for those which are denominated *five-feet*, the common hundred, or five-score.

LATH-BRICKS, a particular species of brick made in Staffordshire and other parts of Britain; they are twenty-two inches in length, and six in breadth, being used as a substitute for laths or spars, and supported by pillars on carts for the drying of malt.

LATHE, the tool of a turner, by which he turns about his work so as to shape it by the chisel. There are various kinds of lathes, and of late years many important improvements have been made in the construction of these useful machines. Some require the aid of one or two men to turn their wheels; but in that which is most commonly used, the wheel is turned by means of a treadle, which may readily be kept in motion by the person employed in turning the work. The piece to be turned should be rounded, either with a small hatchet or a plane, before it is put on the lathe. In fixing a lathe, great care should be taken that it be placed in a light situation near a window, and neither so low as to oblige the workman to stoop in order to see his work, nor so high that the chips should come into his eyes.

LATITUDE, the distance of any place from the equator, measured upon the meridian in degrees, minutes, and seconds: all places lying under the equator are said to have no latitude; and all others to have north, or south, latitude, according to their situation with respect to the equator. The complement of latitude is the difference between the latitude itself and 90°, or as much as the place itself is distant from the pole; and this complement is always equal to the elevation of the equator above the horizon of the place. The elevation of the pole of any place is equal to the latitude itself.

LATTEN, denotes iron plates tinned over, of which tea-cannisters, &c. are made.

There is likewise a species of latten composed of copper and calamine, the goodness of which depends, in a great measure, upon the quality of the calamine employed in its composition. This kind of latten is chiefly used by clock-makers, and vast quantities of it are made into latten-wire, which, being extremely flexible, is of considerable utility in various branches of the mechanical arts. Abundance of latten is made at Aix-la-Chapelle, and in different parts of Germany. It comes to us from the latter country in thin leaves scratched or streaked on one side, and quite black on the other. These leaves are sometimes made up in rolls, or doubled together, whence they are called roll-latten. The German latten is employed with success in the process of plating buttons.

LATTEN-BRASS, (Ger. *Messingbleck*, *Latun*. Du. *Mistingblek*, *Latoen*. Da. *Messingblik*. Sw. *Messingsbleck*. Fr. *Lame de laiton*. It. *Lamiera d'ottone*. Sp. *Laton en*

hojas on planchas. PORT. *Lata.* RUS. *Latun,*) plates of milled brass, reduced to different thicknesses, according to the uses it is intended for.

LATTIMO, a name for a fine milk-white sort of glass, made of crystal frit, calcined tin, and prepared manganese.

LAVA, the fused stony substance which issues from volcanoes. Of this there are many varieties, according to their component ingredients. The purposes to which it is applied are scarcely less diversified. The large masses have been used in the vicinity of the volcanoes for erecting the walls of buildings, and for pavements. Mill-stones are made of the lava of Mount Etna, which are exported to Calabria, Malta, and elsewhere. Cannon-balls are not unfrequently made of it, and of some small beautiful pieces snuff-boxes and other toys are manufactured.

LAVATORYS, or LAVADEROS, certain places in Chili and Peru, where gold is got from the earth by means of washing. Where gold is expected to be found, those employed dig deep into the earth, and so turn a stream upon the spot to facilitate this design. When they arrive at the earth they want, they turn off the stream and dig dry. They now place what earth they dig up in a bason, formed like a smith's bellows, into which a little rivulet runs with great rapidity, dissolving the earth, and carrying every thing away except the gold, which, by its weight, precipitates to the bottom, and mixes with a fine black sand.

LAUDANUM, in pharmacy, a name given to divers preparations of opium, chiefly in a liquid form. *See* OPIUM.

LAVENDER. (GER. DU. DA. and SW. *Lavendel.* FR. *Lavande.* IT. *Lavendola, Lavanda, Spigo.* SP. *Espliego, Alhucema, Lavandula.* PORT. *Alfazema, Lavanda.* RUS. *Lawendul.* POL. *Lawanda.* LAT. *Lavandula, Spica.*) The species of this plant are seven in number. The *spica,* or *spike lavender,* has a short shrubby stalk. The varieties of this are, common narrow-leaved lavender, with blue flowers, and with white flowers; broad-leaved lavender; dwarf lavender; all of them flowering in July. This species is the common lavender; but the narrow-leaved variety, with blue flowers, is the sort commonly cultivated for its flowers for medicine.

The water drawn from the flowers of lavender by distillation, is esteemed a fine perfume, and whether as a scent or a lavatory, is accounted an excellent remedy against slight pains of the head.

LAVENDER-THRIFT, or SEA-LAVENDER. This vegetable, which is a perennial plant, growing on the sea-shore, deserves the particular attention of tanners, on account of its red astringent root, called by the Russians *kermeek,* and from which they prepare that valuable kind of leather, distinguished for its strong, but by no means disagreeable odour, and on the continent termed *juften.* This root is said to be a complete substitute for oak-bark.

LAUNCH, in the sea language, signifies to put out: as, "launch the ship," that is, put her out of the dock; "launch aft," or "forward," speaking of things that are stowed in the hold, is put them more forward; "launch, ho!" is a term used when a yard is hoisted high enough, and signifies hoist no more.

LAUNDER, among miners, a place where they wash the powdered ore.

LAW. Laws of England are divided into *lex non scripta,* or the common law; and *lex scripta,* or statute law.

The *lex non scripta* is not so called from its being conveyed down from former ages by word of mouth, but because the original authority of these laws is not set down in writing, and they receive their force by long usage, and by their universal reception throughout the kingdom; and it is curious to observe, that these rude maxims of our ancestors, of which no person knows clearly the origin, exceed in clearness, brevity, and authority, all that the united wisdom of the most enlightened men have produced in later ages. 1 *Black. Com.* 63.

The common law is divided into,

1st. General custom, which is the universal rule of the whole kingdom, and is the law by which proceedings and determinations in the courts of justice are ordinarily directed. This for the most part settles the course of inheritance, the manner and form of acquiring and transferring property, the solemnities and obligations of contracts, the rules of expounding wills, deeds, and acts of parliament; the remedies of civil injuries, the different kinds of offences with the punishments allotted to each; the institution of four superior courts of record; and many other particulars which diffuse themselves as extensively as the distribution of common justice requires, all of which are not enacted by any particular statutes (though they are acknowledged by all) but depend entirely upon the common law.

2dly. Particular customs which concern the inhabitants of some particular district.

3dly. The third branch are those laws which are adopted by certain courts and jurisdictions, as the civil, and canon, laws.

The second division of the laws of England are the statutes made by the king, lords, and commons, assembled in parliament. The oldest statute extant is the celebrated Magna Charta, 9 Hen. III. though, doubtless, the records of many antecedent to that have been lost, and the maxims received as common law.

Statutes are general, or special; public, or private: general or public acts are those which concern the whole nation; of these the judges are obliged to take notice, though

they should not be formally pleaded by the party who claims an advantage under them. Special or private acts are such as operate on private persons and concerns, which must be formally set forth by the party, or the judges are not obliged to notice them.

In treating of the laws, the best mode, and that which has been adopted by Sir W. Blackstone in his excellent Commentaries, is to divide them, 1st, into the rights of persons, or the rights as to personal security, personal liberty, and private property. 2d, The rights of things, or the rights which a man may acquire in and to such external things as are unconnected with his person. 3d, Private wrongs, or such as are the infringement of the private rights of individuals: and 4th, Public wrongs, or such as are a violation of the public rights, and affect the whole community.

It is of course unnecessary, and perhaps in a work of this nature irrelevant, to recommend the study of the law; it is sufficient to add the words of the great judge Blackstone on this subject. "It is incumbent," says he, "upon every man to be acquainted with the laws, lest he incur the censure, as well as the inconvenience, of living in society without knowing the obligations it lays him under."

LAW OF MARQUE, (mentioned in stat. 27 Edw. 3. st. 2. c. 17.) from the German word *march*, i. e. *limes*, a bound or limit; because they that are driven to make use of this law, do take the shipping or goods of that people of whom they have received wrong, and cannot get ordinary justice, when they can take them within their own bounds or precincts. *See* LETTERS OF MARQUE.

LAW-MERCHANT, (*Lex Mercatoria*,) is also a part of the laws of this realm. The *lex mercatoria*, or the custom of merchants, like the *lex et consuetudo parliamenti*, describes only a great division of the law of England. The laws relating to bills of exchange, insurance, and all mercantile contracts, are as much the general law of the land, as the laws relating to marriage or murder. But the expression has frequently led merchants to suppose, that all their new fashions and devices immediately become the law of the land: a notion which, perhaps, has been too much encouraged by the courts. Merchants ought to take their law from the courts, and not the courts from merchants: and when the law is found inconvenient for the purposes of extended commerce, application ought to be made to parliament for redress. This is agreeable to the opinion of Mr. Justice Foster, who maintains, that "the custom of merchants is the general law of the kingdom, and therefore ought not to be left to a jury after it has been settled by judicial determinations." 2 *Bur.* 1226.

By the CIVIL LAW, absolutely taken, is generally understood the civil or municipal law of the Roman empire, as comprised in the institutes, the code, and the digest of the emperor Justinian, and the novel constitutions of himself and some of his successors.

This consists of, 1. The institutes, which contain the elements or first principles of the Roman law, in four books. 2. The digests, or pandects, in fifty books, containing the opinions and writings of eminent lawyers, digested in a systematical method. 3. A new code, or collection, of imperial constitutions, in twelve books; the lapse of a whole century having rendered the former code of Theodosius imperfect. 4. The novels or new constitutions, posterior in time to the other books, and amounting to a supplement to the code; containing new decrees of successive emperors, as new questions happened to arise. These form the body of the Roman law, or *corpus juris civilis*, as published about the time of Justinian; which, however, fell soon into neglect and oblivion, till about the year 1130, when a copy of the digests was found at Amalfi in Italy: which accident concurring with the policy of the Roman ecclesiastics, suddenly gave new vogue and authority to the civil law, introduced it into several nations, and occasioned that mighty inundation of voluminous comments, with which the system of law, more than any other, is now loaded. 1 *Black.* 81.

The CANON LAW is a body of Roman ecclesiastical law, relative to such matters as that church either has, or pretends to have, the proper jurisdiction over. This is compiled from the opinions of the ancient Latin fathers, the decrees of general councils, and the decretal epistles and bulls of the holy see. All which lay in the same disorder and confusion as the Roman civil law: till about the year 1151, one Gratian, an Italian monk, animated by the discovery of Justinian's pandects, reduced the ecclesiastical constitutions also into some method, in three books; which he entitled *concordia discordantium canonum*, but which are generally known by the name of *decretum Gratiani*.

LAW OF THE STAPLE, (mentioned in stat. 27 Edw. 3. st. 2. c. 22.) is the same with law-merchant.

LAWN, (GER. DU. SW. and FR. *Linon*. DA. *Sindal, Linon*. IT. *Linone, Rensa*. SP. *Cambray clarin*. PORT. *Cambraia transparente*,) a sort of clear or open worked cambric, which, till of late years, was exclusively manufactured in France and Flanders. At present, the lawn-manufacture is established in Scotland, and in the north of Ireland, where articles of this kind are brought to such a degree of perfection, as nearly to rival the productions of the French and Flemish manufactories. In the manufacture of lawns, finer flaxen thread is used than in that of cambric. In Picardy, the warp of lawn is framed at $16\frac{1}{4}$ yards, and is about $15\frac{1}{2}$ yards in length when completed. The

breadth of the lawn is about two-thirds. There are also some lawns made in France and Flanders, the length of which is 15½ yards, and their breadth three-fourths. The mode of manufacturing broad lawns is by no means different from that employed in making the narrow, except that the number of threads put in the warp is augmented in proportion to the breadth of the piece. Striped and spotted lawns are made precisely of the same dimensions as the plain ones, of which we have just been speaking; the only difference between the two processes is, that, in order to form the stripes and spots, thick cotton is interwoven in the warp. France carries on a most extensive trade in the article of lawns, which she exports in vast quantities to Spain, Germany, Holland, and (clandestinely) to Great Britain. The greater part of the lawns manufactured in the British dominions is consumed at home.

LAWNS, *Silesian.* (Ger. *Schleyer, Estopilles.* Sp. *Estopills.* Port. *Estopilhas.* Fr. *Estopilles.*) These lawns are made in Silesia, a province of the king of Prussia, on the same plan as those of France and Flanders; they are, however, not equal to the latter in point of fineness, though the pieces are much larger, each being 58 yards in length, when first manufactured, but cut into smaller pieces for the purpose of being exported. We import large quantities of Silesian lawns. The flax from which they are made is usually procured by the Silesians from Russia, which country, in return, annually buys up considerable quantities of the linen, lawn, &c. of Silesia.

LAZARETTO, is the name of institutions formed in various parts of Europe, for the purpose of preventing the introduction of pestilential diseases into those countries whose happy climates do not spontaneously generate destructive maladies. Italy and France have the finest establishments of this description; but the Lazaretto of Marseilles (a well-known French port, situated upon the Mediterranean) is certainly superior to all the others. This lazaretto, or pest-house, was originally established for the purpose of preventing the contagion of a dreadful endemic disease, which ravages the ports of the Levant and most parts of Barbary, from being introduced into France. This terrible malady, in the year 1720, eluded the vigilance of the governors of Marseilles, and entering France, afforded such a trmendous lesson to the administration, that hitherto no cares, no circumspection, have been spared or neglected to prevent the recurrence of the dreadful calamity. The Lazaretto is sufficiently distant from Marseilles, to render it entirely distinct from that town, and yet not so remote as to occasion attendance on it either difficult or incommodious. Its extent is equal to that of many large cities of France; it is surrounded by a double inclosure, the walls that constitute which being so high, and so distant one from the other, that the most nervous arm could not possibly fling a packet, however small, beyond the external wall. The police of the Lazaretto is superintended by the conservators of health, and executed under their auspices by a captain who resides within the institution, and who employs several inferior officers and servants to attend to the mooring of the shipping, landing of the goods and passengers, &c. Bales and packages of every sort are opened with the utmost caution under sheds, erected in the Lazaretto, which are open on every side, in order to the free circulation of the air. Here they are suffered to lie till they are supposed to be free from every particle of contagion. Within the Lazaretto there are apartments, both roomy and commodious, for the reception of the passengers, who continue there till the term of their quarantine is expired. There is no institution of this kind in England, or in any part of Great Britain; yet our quarantine regulations are just as well calculated to insure us from infection, as if every one of our ports had its Lazaretto. *See* QUARANTINE.

LAZZI. We derive many words of our language from our Saxon ancestors, as it is reasonable to suppose we must; but few, or none, applying to commercial subjects, as commerce was almost unknown to them. *Lazzi* (by corruption *lazy*) was the term by which they distinguished the inferior orders of society, who were indeed then chiefly in a state of slavery, and affixed to the lands where born. The next in order in the ascending scale were the freemen, whom they distinguished by the name of *Frilingi;* and the highest were styled *Edilhinghi,* by which were intended the nobles. It was not till long after the Norman conquest that a fourth order in the state, that of the merchants, arose; and it was still longer after that event, before they became of sufficient importance to claim much attention from the legislature, or to have its protection extended to their concerns. Till the time of king Edward III. the external commerce of the kingdom was in the hands of foreigners, and it was not even till an advanced period of that king's reign that any laws were enacted for its advancement and protection. *See title* SHIPPING AND TRADE.

LEA, a measure used in some parts of England to express a certain quantity of yarn; thus a lea of yarn at Kidderminster must contain 200 threads on reels that are four yards in circumference.

LEAD, (Ger. *Bley, Blei.* Du. *Lood, Loot.* Da. *Bly, Blye.* Sw. *Bly.* Fr. *Plomb.* It. *Piombo.* Sp. *Plomo.* Port. *Chumbo.* Rus. *Swinetz.* Pol. *Olow.* Lat. *Plumbum,*) one of the perfect metals. It is of a dull white, inclining to a blue colour; and although the least ductile and sonorous, it is

the heaviest of metallic bodies, excepting mercury, gold, and platina.

When the lead ore is dug out of the earth, it is crushed in a mill, and smelted in a manner similar to iron ore.

Lead is employed in making various vessels, as cisterns for water, large boilers for manufacturing chemical purposes, and is cast into sheets for covering buildings, making water-pipes, &c. Considerable quantities are likewise used in the casting of shot: it unites with almost every metal except iron and copper; but if both metals are exposed to the fire in a proper vessel, the latter will become scarified by the former, and melts with the calx into a dark coloured glass. On account of its vitrifying the imperfect metals, lead is often used in the purification of gold and silver, neither of which combine with it, but remain pure at the bottom of the vessel.

This metal is found abundantly in many parts of the world, more especially in England, Wales, Scotland, France, Germany, Russia, Sweden, Prussia, Poland, some parts of the East Indies, as well as in North and South America. The principal lead-mines of England and Wales are situated in the counties of Somerset, Derby, Devon, York, Northumberland, Cumberland, Montgomery, Caernarvon, Flint, Denbigh, Cardigan, and the Isle of Anglesea.

Lead is often used by unprincipled tradesmen for correcting the rancidity of damaged rape-seed oils, and those of almonds, and olives. A similar pernicious fraud is practised also with acid wines, which by dissolving a sufficient portion of lead, acquire a sweetish taste. In both instances the frauds may be detected by the following experiment:

Let a small quantity of the suspected liquor be mixed with orpiment, or liver of sulphur in lime-water: on shaking together the two fluids, and suffering them to subside, the liquor, if adulterated with lead, will acquire an orange-red colour; but if it be pure, it will assume only a pale yellowish shade.

LEAD, *Red*, or MINIUM, (GER. *Mennige*. DU. *Menie*. DA. *Minie*. SW. *Mözja*. FR. *Minium, Plomb rouge mat*. IT. *Minio*. SP. *Minium, Azarcon*. PORT. *Minio, Azarcăs*. RUS. *Surik*. POL. *Minia*. LAT. *Minium*,) is a calx of lead, of a lively red colour, which it acquires by slow calcination. The genuine quality of red lead may be ascertained by the brightness of its colour; and as it is frequently adulterated, the fraud may be easily detected by mixing equal quantities of minium, and charcoal, in a crucible, and placing the whole over a fire sufficiently intense to melt the lead. When it has continued for some time over the flame, it must be removed; and when cold struck against the ground. Thus the red lead will be reduced to its metallic state; and when freed from the charcoal, its diminished weight will show the proportion of adulterated matter. *See* MINIUM.

LEAD, *White*. *See* CERUSE.

LEAD, *Black*. The powder of this lead serves to cover razor-strops; and considerable quantities of it are used for imparting a bright gloss to cast-iron grates or stoves. It may also be advantageously employed to smooth the inner surface of wooden screws, packing-presses, and other wood-work, that is subject to frequent friction, for which purpose it is far superior to any greasy, soapy, or oily matter. Black lead is imported from Malaga in Spain, and also found in Cumberland, where it is protected by a particular statute. *See title* BLACK-LEAD PENCILS, *ante*. *Also* ANTI-ATTRITION.

LEAD, *Sugar or Salt of*, (GER. *Bley zucker*. DU. *Loodsuiker*. DA. *Blyesukker*. SW. *Blysocker*. FR. *Sucre de saturne*. IT. *Zuchero di saturno*. SP. *Azucar de saturno* PORT. *Assucar de saturno*. LAT. *Saccharum saturni*,) is made from *ceruse* or *white-lead*, which, being dissolved without difficulty in the acetous acid, affords a crystallizable salt, called *sugar of lead*, from its sweet taste.

Lead is used in the manufacturing of the finer kinds of glass, to make it bear changes of heat and cold better; also to give it a proper degree of weight, a susceptibility of being cut without breaking, and a capacity to take a higher polish. Its oxides are also used for dyeing and calico-printing; in the manufacturing of earthen-ware and porcelain; and in the preparation of various pigments. A native chromate of lead has been found in a gold-mine in Siberia, in prismatic crystals of a beautiful hyacinth red colour.

LEAGUE, a measure of length, containing more or less geometrical paces, according to the different usages and customs of countries. A league at sea, where it is chiefly used by us, (being a land measure mostly peculiar to the French and Germans,) contains 3000 geometrical paces, or three English miles. The French league sometimes contains the same measure, and in some parts of France it consists of 3500 paces: the mean or common league consists of 2400 paces, and the little league of 2000. The Spanish leagues are larger than the French, seventeen Spanish leagues making a degree, or twenty French leagues, or sixty-nine and a half English statute miles. The Dutch and German leagues contain each four geographical miles. The Persian leagues are pretty nearly of the same extent with the Spanish; that is, they are equal to four Italian miles, which is pretty near to what Herodotus calls the length of the Persian parasang, which contained thirty stadia, eight of which, according to Strabo, make a mile.

LEAK, among seamen, is a hole in the ship through which the water comes in. To spring a leak, is said of a ship that begins to leak; to stop a leak, is to fill it with a

plug wrapt in oakum and well tarred, or putting in a tarpaulin-clout, to keep the water out; or nailing a piece of sheet-lead upon the place.

LEAKAGE, in commerce, is an allowance of 12 per cent. in the customs, granted to importers of wine for the waste and damage the goods are supposed to have received in the passage; an allowance of two barrels in twenty-two is also made to the brewers of ale and beer, by the excise office, as leakage.

LEASE, a conveyance of lands, generally in consideration of rent, or other annual recompence made for life, for years, or at will, but always for a shorter term than the lessor has in the premises, otherwise it partakes more of the nature of an assignment.

By the common law, all persons seised of an estate might grant leases for any period less than their interest lasted; but statutes have been since made, some to enlarge and some to restrict it. They are divided into enabling and restricting statutes; by the enabling stat. 32 Henry VIII. c. 28., a tenant in tail may make leases to insure for twenty-one years, or three lives, to bind his issue in tail, but not those in remainder or reversion. Husbands seised in right of their wives may make leases for the same period, provided the wife join in it. All persons seised of an estate of fee-simple in right of their churches, except parsons or vicars, may bind their successors under certain restrictions. 1. The lease must be by indenture; 2. It must begin from the day of making; 3. All old leases must be surrendered, or be within a year of expiring; 4. It must be for three lives, or twenty-one years, not both; 5. It may be for a shorter term, but must not exceed twenty-one years; 6. It must be of lands and tenements most commonly let for twenty years past; 7. The most usual rent for that time must be reserved; 8. Such leases cannot be made without impeachment of waste. It was also specified that the lease must be of corporeal hereditaments, that the lessor might resort to them to distrain; but by stat. 5 Geo. III. c. 17., a lease of tithes or other incorporeal hereditaments may be granted, and the successor shall have his remedy by an action of debt.

From the disabling statutes, we find that all colleges, cathedrals, and other ecclesiastical or eleemosynary corporations, and all parsons and vicars are restrained from making leases unless under the following regulations: 1. They must not exceed three lives, or twenty-one years; 2. The accustomed rent must at least be reserved thereon; 3. Houses in corporations of market-towns may be let for forty years, provided they are not the mansion-houses of the lessors, or have not more than ten acres of ground belonging to them; and provided the lessee agrees to keep them in repair, and they may be aliened in fee-simple for lands of equal value in recompence; 4. If there is an old lease which has more than three years to run, no new lease shall be made; 5. No lease shall be made without impeachment of waste; 6. All bonds and covenants tending to frustrate the provisions of the statutes of 13 and 18 Eliz. shall be void.

Two observations seem to present themselves concerning these statutes: 1. That they do not enable any persons to make such leases as they are by common law restrained from making; therefore, a parson or vicar, though he is restrained from making longer leases than for twenty-one years or three lives, even with the consent of the patron or ordinary, yet is not enabled to make any lease at all, to bind his successor without such consent. 2. Though leases contrary to the acts are void, yet they are good against the lessor during his life, if he be a sole corporation: and if it be an aggregate corporation, as long as the head lives; for the act was intended for the benefit of the successor alone, and it is a maxim of law that no man shall take advantage of his own wrong. With regard to college leases, one-third of the old rent must be reserved in wheat or malt, reserving a quarter of wheat for every 6*s.* 8*d.* and a quarter of malt for every 5*s.*; or the lessees must pay for the same, at the price of the market nearest the respective colleges, on the market-day before the rent is due.

There are further restraining statutes which direct, that if any beneficed clergyman is absent from his benefice above eighty days in the year, all leases and agreements made by him of the profits of his cure shall be void, except in the case of licensed pluralists, who are allowed to demise the living to the curate, if he is not absent more than forty days in the year. See 13 Eliz. c. 20. 14 Eliz. c. 11. 18 Eliz. c. 11. and 43 Eliz. c. 9. See also 57 Geo. 3. c. 99. s. 32 & 33. respecting demises of houses wherein ecclesiastical persons are directed by the bishop to reside.

All leases, except such as do not exceed three years from the making, whereupon the reserved rent must be at least two-thirds of the improved value, must be in writing, though no particular form of words is necessary to constitute a good lease.

They must be made to natural-born subjects of this realm, or such as have been naturalized, or to denizens, for all leases made to aliens shall be void: and there is even a statute in force, 32 Henry VIII. c. 16., which imposes a penalty of 5*l.* on the lessor and lessee. It has, however, been held, that an alien merchant may take a house for his own residence, but it shall not go to his executors; the reasons for these laws are evident, to prevent foreigners getting too firmly settled in the kingdom.

LEASE and *Release* is a conveyance which since the stat. 27 Hen. VIII. c. 10

commonly called the statute of uses, has taken place of the deed of feoffment, as it supplies the need of livery and seisin. It is made thus: A lease or bargain and sale for one year, from the tenant to the lessee is first prepared, whereby the lessee becomes actually possessed of the lands, then by the above-mentioned statute the lessee is enabled to take a grant of the lands intended to be conveyed to him and his heirs for ever; accordingly a release is made, reciting the lease, and declaring the uses. In the lease, a pepper-corn is a good consideration to make the lessee capable of receiving a release. This mode of conveyance is now become the usual one. 2 *Black. Com.* 339.

LEASES, *value of.* The purchaser of a lease may be considered as the purchaser of an annuity equal to the rack-rent of the estate; and the same principles from which are deduced the present value of annuities to continue during any given term, will apply to the value of leases. The sum paid down for the grant of a lease is so much money paid in advance for the annual rents, as they may become due: or, it may be considered as a sum which, put out to interest, will enable the lessor to repay himself the rack-rent of the estate, or the yearly value of his interest therein, during the given term; therefore no more money should be demanded by the lessor, for the grant of the lease, than will enable him to do this at a given rate of interest. In order to find what this sum should be, it would be necessary to ascertain separately the present value of each annual rent, or the sum which, put out to interest at the given rate, will enable the landlord to repay himself the several yearly rents as they become due. Thus, if a person has 100*l.* due to him a twelvemonth hence, and he wishes to have the value of the same advanced immediately, the sum that ought to be given as an equivalent thereto, allowing 5 per cent. interest, is 95*l.* 4*s.* 9¼*d.*; for this is the sum which, put out to interest at the rate of 5 per cent. will, at the end of the year, amount to 100*l.* So also, if a person has 100*l.* due to him at the end of two years, and he wishes to have the value advanced immediately, the sum that ought to be given as an equivalent thereto, is 90*l.* 14*s.* 0¾*d.* for this is the sum which, put out at the same rate of interest, will, at the end of two years, amount to 100*l.* In the same manner, if a person has 100*l.* due to him at the end of three years, and he wishes to have the value of the same immediately, the sum that ought to be given as an equivalent thereto, is 86*l.* 7*s.* 8*d.* for this is the sum which, put out at the same rate of interest, will, at the end of three years, amount to 100*l.* And if these three values are added together, they amount to 272*l.* 6*s.* 6*d.* which is the sum that ought to be paid down for the lease of an estate for three years, of the annual rent of 100*l.* Had the rate of interest been 6 per cent. or any higher rate, the answer would have come out less than the value above given; or, had it been 4 per cent. or any lower rate, the answer would have come out more than such value: whence it is obvious, that, in purchases of this kind, we ought previously to determine the rate of interest at which we are disposed to lay out our money. The value of leases at 5 per cent. compound interest may be found from table 2, article ANNUITIES; but as most persons in purchasing leases expect to make somewhat more than 5 per cent. interest of their money, the following table is more applicable to this purpose.

TABLE,

Shewing the Number of Years' Purchase that ought to be given for a Lease, for any Number of Years not exceeding 100, at 6, 7, and 8 per Cent. Interest.

Yrs.	6 per Cent.	7 per Cent.	8 per Cent.
1	.9433	.9345	.9259
2	1.8333	1.8080	1.7832
3	2.6730	2.6243	2.5770
4	3.4651	3.3872	3.3121
5	4.2123	4.1001	3.9927
6	4.9173	4.7665	4.6228
7	5.5823	5.3892	5.2063
8	6.2097	5.9712	5.7466
9	6.8016	6.5152	6.2468
10	7.3600	7.0235	6.7100
11	7.8868	7.4986	7.1389
12	8.3838	7.9426	7.5360
13	8.8526	8.3576	7.9037
14	9.2949	8.7454	8.2442
15	9.7122	9.1079	8.5594
16	10.1058	9.4466	8.8511
17	10.4772	9.7632	9.1216
18	10.8276	10.0590	9.3718
19	11.1581	10.3355	9.6035
20	11.4699	10.5940	9.8181
21	11.7640	10.8355	10.0168
22	12.0415	11.0612	10.2007
23	12.3033	11.2721	10.3710
24	12.5503	11.4693	10.5287
25	12.7833	11.6535	10.6747
26	13.0031	11.8257	10.8099
27	13.2105	11.9867	10.9351
28	13.4061	12.1371	11.0510
29	13.5907	12.2776	11.1584
30	13.7648	12.4090	11.2577
31	13.9222	12.5318	11.3497
32	14.0840	12.6465	11.4349
33	14.2302	12.7537	11.5138
34	14.3681	12.8540	11.5869
35	14.4982	12.9476	11.6545
36	14.6209	13.0352	11.7171
37	14.7367	13.1170	11.7751
38	14.8460	13.1934	11.8288
39	14.9490	13.2649	11.8785
40	15.0462	13.3317	11.9246
41	15.1380	13.3941	11.9672

TABLE *continued.*

Yrs.	6 per Cent.	7 per Cent.	8 per Cent.
42	15.2245	13.4524	12.0066
43	15.3061	13.5069	12.0432
44	15.3831	13.5579	12.0770
45	15.4558	13.6055	12.1084
46	15.5248	13.6500	12.1374
47	15.5890	13.6216	12.1642
48	15.6500	13.7304	12.1891
49	15.7075	13.7667	12.2121
50	15.7618	13.8007	12.2334
51	15.8130	13.8324	12.2532
52	15.8613	13.8621	12.2715
53	15.9069	13.8898	12.2884
54	15.9499	13.9157	12.3041
55	15.9905	13.9399	12.3186
56	16.0288	13.9625	12.3320
57	16.0649	13.9837	12.3444
58	16.0989	14.0034	12.3560
59	16.1311	14.0219	12.3669
60	16.1614	14.0391	12.3765
61	16.1900	14.0553	12.3856
62	16.2170	14.0703	12.3941
63	16.2424	14.0844	12.4020
64	16.2664	14.0976	12.4092
65	16.2891	14.1099	12.4159
66	16.3104	14.1214	12.4222
67	16.3306	14.1321	12.4279
68	16.3496	14.1422	12.4333
69	16.3676	14.1516	12.4382
70	16.3845	14.1603	12.4428
71	16.4005	14.1685	12.4470
72	16.4155	14.1762	12.4509
73	16.4297	14.1834	12.4546
74	16.4431	14.1901	12.4579
75	16.4558	14.1963	12.4610
76	16.4677	14.2022	12.4639
77	16.4790	14.2076	12.4666
78	16.4896	14.2127	12.4691
79	16.4996	14.2175	12.4713
80	16.5091	14.2220	12.4735
81	16.5180	14.2261	12.4754
82	16.5264	14.2300	12.4772
83	16.5343	14.2337	12.4789
84	16.5418	14.2371	12.4805
85	16.5489	14.2402	12.4819
86	16.5556	14.2432	12.4833
87	16.5618	14.2460	12.4845
88	16.5678	14.2486	12.4856
89	16.5734	14.2510	12.4867
90	16.5787	14.2533	12.4877
91	16.5836	14.2554	12.4886
92	16.5883	14.2574	12.4894
93	16.5928	14.2592	12.4902
94	16.5969	14.2610	12.4909
95	16.6009	14.2626	12.4916
96	16.6046	14.2641	12.4922
97	16.6081	14.2655	12.4928
98	16.6114	14.2668	12.4933
99	16.6145	14.2806	12.4938
100	16.6175	14.2692	12.4943

In order to find the value of a lease, it is first necessary to ascertain the true rack-rent of the estate, or the annual value that it may be justly estimated to be worth; otherwise it will be impossible to determine, with any degree of accuracy, the real sum which ought to be given for the purchase of the same. On this point difficulties will sometimes arise; for, the value of an estate depending very often on some real or supposed advantages, or on some local or personal recommendations, will, in many instances, occasion a difference of opinion; and in most cases, be a matter of some uncertainty. However, when all these circumstances have been taken into consideration, some annual rent equivalent thereto must be assumed, and when this is settled, the value of the lease will be easily found; thus, if an estate is worth 150*l.* yearly rent, the value of a lease thereof for sixty-nine years, allowing the purchaser 6 per cent. interest for his money, is 16.3676 (the number in the table) multiplied by 150, 2455*l.* 2*s.* 9*d.* In many instances, the rent of the estate intended to be leased is charged with some annual expense, such as a reserved or quit rent, the payment of an annuity, taxes, and the like; in such cases the number of years purchase found in the table ought to be multiplied by the difference only between such annual expense and the whole estimated rent of the estate; thus if a person possesses an unexpired term of sixty years in a lease, for which he pays 100*l.* per annum rent, but which is now worth 150*l.* per annum, the gross sum which he ought to receive for the grant of such lease, will be equal to the present value of 50*l.* per annum, for the given term, or 16.1614 (the number in the table corresponding with 60 years, at 6 per cent.) multiplied by 50, which gives 808*l.* 1*s.* 4*d.*

In order to find the annual rent corresponding to any given sum paid for a lease, divide the sum paid by the number of years purchase that are found against the given term in the table, and the quotient will be the annual rent required. Example: A person has given 1000*l.* for the lease of an estate for sixteen years, what annual rent is equivalent thereto, in order to allow the purchaser 7 per cent. interest for his money? In the table against sixteen years, and under 7 per cent. we shall find the number of years purchase to be 9.4466; therefore 1000 divided by 9.4466 gives 105*l.* 17*s.* for the annual rent required.

The values in the table are calculated on the supposition, that the payments of the several rents of the estate are made yearly; if, however, the payments are made half-yearly or quarterly, and the purchaser can put out his money at the same rate, so as to receive his interest half-yearly or quarterly, which may commonly be done; the values will, in such cases, be somewhat more than those given in the table. The difference, however, is not very great, but if the exact value is required, it may in many cases be obtained by attending to the following remarks, viz.

that "the value of a lease the rent of which is payable half-yearly, is equal to half the value of the same lease payable yearly, calculated at half the given rate of interest, and to continue double the number of years; and that the value of a lease the rent of which is payable quarterly, is equal to one quarter the value of the same lease payable yearly, calculated at a quarter of the given rate of interest, and to continue four times the number of years."

It frequently happens, that a long lease is not to be entered on or enjoyed till after the expiration of a short lease, or till the end of a given number of years; in such cases, deduct the value of the short lease, or the value set against the given number of years in the table, from the value of the longer lease, and the difference will give the true present value of the longer lease. Example: What sum ought to be given for the remainder of the lease of an estate for 56 years, after the next seven years, allowing the purchaser 6 per cent. interest for his money, the clear rent being reckoned at 70*l.* per annum? In the table against 56 years, and under 6 per cent. we find 16.0288, and in the same column, against seven years we find 5.5823; the latter value subtracted from the former, leaves 10.4465, which multiplied by 70, gives 73.1255 or 731*l.* 5*s.* 1*d.* for the sum required.

Leases are frequently granted during a life, or for a specified term of years subject to termination, if a given life or lives should fail or become extinct within such term; sometimes they depend on the longest of two or three lives, with liberty on the failure of one or more of the lives to nominate others on payment of a fine.

The following ordinary form of a lease of a house in London, may be sufficient to convey a general understanding of the subject, and any attempt to do more in a work of this kind *must* be superfluous, and *might* be mischievous, for reasons repeatedly assigned in the course of the volume.

This indenture, made, &c. between A. B. of, &c. of the one part, and C. D. of, &c. of the other part, witnesseth, that for and in consideration of the yearly rent, and of the covenants, provisoes, and agreements hereinafter reserved, and contained, by and on the part and behalf of the said C. D., his executors, administrators, and assigns, to be paid, kept, observed, and performed, he the said A. B. hath demised and leased, and by these presents doth demise and lease, unto the said C. D., his executors, administrators, and assigns, all that messuage or tenement, and dwelling-house, situate and being —— street, in the parish of ——, in the city of London, together with — (here describe the particulars of the premises); and also all ways, paths, passages, lights, casements, rooms, vaults, cellars, yards, water-courses, profits, conveniences, hereditaments, and appurtenances whatsoever, to the said messuage or premises hereby demised belonging, or in anywise appertaining, or reputed or known to be part, parcel, or member thereof, all and singular; which said messuage and premises are now, or lately were, in the occupation of E. F., his assignee or assigns, to have and to hold the said messuage or tenement, and premises, with the appurtenances hereby demised, or so mentioned, to be unto the said C. D., his executors, administrators, and assigns, from the —— day of —— now last past, for and during the term of —— years thence next ensuing, and fully to be completed and ended; determinable nevertheless at the expiration of the first seven or fourteen years thereof, upon such conditions as are hereinafter mentioned; he the said C. D., his executors, administrators, and assigns, yielding and paying yearly, and every year, during the said term, unto the said A. B., his executors, administrators, and assigns, the yearly rent or sum of ——*l.* of lawful money of the United Kingdom of Great Britain and Ireland, the same to be paid by equal quarterly payments, on the respective days following: on the 25th day of March, the 24th day of June, the 29th day of September, and the 25th day of December, in every year, (save and except at all times during the said term, such proportionable part of the said yearly rent of ——*l.* as shall or may grow due during such time; or the messuage or tenement hereby demised shall, without the hinderance of the said C. D., his executors, &c. be and remain uninhabitable, by reason of accidental fire,) and to be clear of all and all manner of parliamentary, parochial, and other taxes, assessments, rates, and deductions whatsoever; the first quarterly payment thereof to commence and be made on the —— day of —— next ensuing the date of these presents: and the said C. D. doth hereby for himself and his executors, covenant, promise, and agree to, and with the said A. B., his executors, &c. that he the said C. D., his executors, &c. shall and will yearly, and every year, during the continuance of the said term hereby demised, (save and except as aforesaid), well and truly pay, or cause to be paid, unto the said A. B., his executors, &c. the said yearly sum or rent of ——*l.* of lawful money of the United Kingdom of Great Britain and Ireland, on the respective days, and in the manner the same is hereinbefore made payable; and also shall and will well and truly pay, or cause to be paid, all and all manner of taxes, assessments, rates, and impositions, whatsoever, parliamentary, parochial, or otherwise, (the land-tax only excepted,) which now are, or shall at any time during the continuance of the said term hereby demised, be assessed, rated, or imposed, on the said demised messuage or tenement, and premises, or any part thereof, or on the said yearly

rent hereby reserved, or any part thereof, or on the said C. D., his executors, &c. on account thereof; and also that he the said C. D., his executors, &c. shall and will, at his and their own proper costs and charges, cause to be well and sufficiently painted, all the outside wood and iron-work belonging to the said messuage or tenement, and premises hereby demised, every third year, during the continuance of the said term; and at his and their like proper costs and charges, shall and will, at all times during the continuance of the said term, keep in a good, sufficient, and tenantable state of repair, as well all and singular, the glass and other windows, wainscots, rooms, floors, partitions, ceilings, tilings, walls, rails, fences, pavements, grates, sinks, privies, drains, wells, and water-courses: as also all and every other the parts and appurtenances of the said messuage or tenement, and premises hereby demised (damage happening by casual fire only excepted): and further, that it shall be lawful for the said A. B., his executors, &c. either alone or with others, twice in every year, during the said term hereby granted, at such times of the year as to him or them shall seem meet, to enter, at seasonable times of the day, into and upon the said messuage or tenement, and premises hereby demised, and every part thereof, and there to view and examine the state and condition thereof; notice of such intention to view being at all times previously given unto the said C. D., his executors, &c. three days at least before the same shall take place; and in case any decay or want of reparation be found on such view, the said C. D., for himself, his executors, &c. doth hereby covenant, promise, and agree to, and with the said A. B. his executors, &c. to cause the same to be well and sufficiently repaired and amended within the space of six months, after notice thereof in writing shall have been given to him or them for that purpose; and the said C. D. doth hereby for himself, his executors, &c. promise, covenant, and agree to, and with the said A. B., his executors, &c. that he the said C. D., his executors, &c. at the end or earlier determination of the said term hereby granted, shall and will have, and yield up unto the said A. B., his executors, &c. all and singular, the said messuage or tenement, and premises, with their appurtenances, in such good, sufficient, and tenantable state of repair as aforesaid; together with all and every the doors, locks, keys, bolts, bars, chimney-pieces, dressers, shelves, water-pipes, and other things mentioned in an inventory or schedule (which schedule or inventory must be stamped) hereunder written, or hereunto annexed, in as good plight and condition as the same now are (reasonable use and wear thereof, and casualties happening by fire, only excepted). Provided always, and these presents are upon this express condition, that if the said yearly rent hereby reserved, or any part thereof, shall be in arrear and unpaid for the space of —— days next after any of the days whereon the same is hereinbefore covenanted to be paid as aforesaid (it being first lawfully demanded); or if the said C. D., his executors, &c. shall not well and truly observe and keep, according to their true intent and meaning, all and every the covenants, clauses, provisoes, and agreements, by him and them to be observed and kept; then and from thenceforth, in either of the said cases, it shall be lawful for the said A. B., his executors, &c. to re-enter into and upon the said hereby demised messuage or tenement, and premises, or any part thereof, in the name of the whole, wholly: and the same to have again, retain, re-possess, and enjoy, as his and theirs, and first and former estate; and the said C. D., his executors, &c. and all other tenant and occupiers of the said premises, thereout utterly to eject and remove; and that from and after such re-entry made, this lease, and every clause and thing herein contained, shall determine, cease, and be utterly void, to all intents and purposes, any thing herein contained to the contrary thereof notwithstanding; and the said A. B., for himself, his executors, &c. doth covenant, promise, and agree to, and with the said C. D., his executors, &c. by these presents, in manner following, that is to say, that he the said C. D., his executors, &c. paying the rent hereby reserved, in manner aforesaid, and performing the covenants and agreements herein contained, and by him and them to be kept, done, and performed, shall, and lawfully may, peaceably and quietly, have, hold, use, occupy, possess, and enjoy, the messuage or tenement, and all other the premises hereby demised, for and during the said term of —— years, hereby granted, without any lawful action, let, suit, or interruption whatsoever, of the said A. B., his executors, &c. or any other person or persons lawfully claiming, or to claim, by, from, or under him, them, or any of them (if under an original lease add), and that freed and discharged, or otherwise, by the said A. B., his executors, &c. saved harmless and indemnified from the rents and covenants reserved and contained in a certain indenture of lease, bearing date the —— day of ——, in the year of our Lord ——; whereby the said A. B. holdeth the said messuage or tenement, and premises hereby demised, from the date thereof, for the term of —— years, and from all claims and demands whatsoever, in respect thereof); and the said A. B. doth hereby further covenant, promise, and agree to, and with the said C. D., his executors, &c. that the said A. B. his executors, &c. shall and will, before the expiration of this present lease, on the request, and at the costs and charges of the said C. D., his exe-

cutors, &c. grant and execute unto him and them a new and fresh lease of the messuage or tenement, and all other the premises hereby demised, with their appurtenances, for the further term of —— years, to commence from the expiration of the term hereby granted; the same to be at the same yearly rent, payable in like manner, and under and subject to the like covenants, provisoes, and agreements (except a covenant for the renewal thereof, at the end of such further term), as are contained in these presents; such new lease, however, to be granted, and to be valid only on condition that the said C. D., his executors, &c. do execute a counterpart thereof, and also pay unto the said A. B., his executors, &c. the sum of —*l.* of lawful money, &c. at the time of executing the said lease, as and by way of premium for the renewal thereof; and also, that if the said C. D., his executors, &c. shall be desirous to quit the said messuage or tenement and premises hereby demised, at the expiration of the first seven, or the first fourteen years of the term of —— years hereby granted, and of such his or their desire, shall give notice in writing to the said A. B., his executors, &c. six calendar months before the expiration of the said first seven or fourteen years (as the case may be); then and in such case (all arrears of rent being duly paid, and the said messuage or tenement, and all other the premises hereby demised, being in such repair as they are hereinbefore covenanted to be maintained and left in) this lease, and every clause and thing herein contained, shall, at the expiration of such first seven or fourteen years of the said term of —— years, hereby granted (whichever be in the said notice expressed) determine, and be utterly void, to all intents and purposes, in like manner as if the whole term of —— years had been run out and expired; any thing in these presents contained to the contrary thereof notwithstanding. In witness whereof, the said parties have hereunto set their hands and seals, the day and year first above written.

Sealed and delivered, being first duly stamped, in the presence of ——

Covenant by the lessee not to use and assign the premises for any offensive trade.

And also that the said C. D., his executors, &c. shall not, nor will, at any time during the continuance of the said term hereby granted, use, or carry on, or suffer, or permit to be used or carried on in the said demised messuage or tenement, and premises, or assign over the present indenture of lease, or set over, let, or assign any part of the said messuage or tenement, and premises, to any person or persons using or carrying on the trade, business, or calling of a maker of —— or other chairs, baker, brewer, butcher, currier, distiller, dyer, founder, smith, soap-boiler, school-master, or school-mistress, sugar-baker, auctioneer, pewterer, tallow-chandler, or tallow-melter, working-brazier, tinman, tripe-boiler, pipe-maker, pipe-borer, plumber, or any other noxious or offensive trade, business, or calling whatsoever, without the consent in writing of the said A. B. his executors, &c. first had and obtained for that purpose; nor shall, nor will, without such consent as aforesaid, make, or cause to be made, any addition or alteration whatever, in, upon, or about the said messuage or tenement, and premises, or any part thereof.

LEATHER, (Ger. *Leder.* Du. *Leder, Leêr.* Da. *Læder.* Sw. *Läder.* Fr. *Cuir.* It. *Cuojo.* Sp. *Cuero.* Port. *Couro, Coiro.* Rus. *Kosha.* Pol. *Rzemien.* Lat. *Corium,*) the skins of various quadrupeds dressed in a particular manner for the use of manufacturers, whose business it is to make them up, according to their different employments. The butcher and others who flay them off the carcases, dispose of them raw or salted to the tanner and tawyer; they to the chamois, morocco, and other kinds of leather-dressers, who prepare them according to their respective arts, in order to vend them amongst the curriers, glovers, harness-makers, shoe-makers, book-binders, and all in any way concerned in this article. Leather has divers names according to the state in which it is, and according to the different sorts of skins whereof it is prepared, and its peculiar qualities, when so prepared. The three principal assortments of leather are tanned or tawed, oil, and alum leather; thus denominated from the different processes pursued in the preparation of the article. If we reflect on the number of skins of all sorts that this kingdom produces, the prodigious quantity of many kinds which are imported from Ireland, Spain, Portugal, South America, and from our own colonies in America and the West Indies, under the various denominations of hides, deer-skins, deer-pelts, &c. it will appear evident to us that leather is a staple commodity, and may very justly be ranked in the first class of our articles of trade. For the duties and drawbacks upon leather of every description, *see* DUTY. For account of the modes employed in preparing hides and skins, and producing leather, *see* CURRYING, TANNING, *and* TAWING.

LEATHER, *Water-proof.*—To effect this purpose with leather, the following are the ingredients.

Boiled linseed oil - -	1 lb.
Yellow wax - - -	2 oz.
Spirit of turpentine - -	2 oz.
Burgundy pitch - - -	1 oz.

Melt them over a slow fire; rub the leather with the mixture, as often as it becomes dry, till thoroughly saturated.

LEATHER, *Colouring of.* The follow-

ing colours may be imparted to leather, according to the various uses for which it is intended.

Blue.—This colour is given by immersing the piece of leather for twenty-four hours in urine and indigo, after which it is boiled in alum: or the same colour may be communicated by tempering the indigo with red wine, and steeping the skins in the mixture.

Red.—First wash the skins, and afterwards soak them for two hours in galls wrung out, and immersed in a liquor prepared by a solution of privet, alum, and verdigris in water; when they are steeped in a dye made of Brazil wood boiled with ley.

Purple.—Wet the skins with a solution of Roman alum in warm water, and when dry rub them by the hand with a decoction of logwood in cold water.

Light green.—Dip the leather in sap-green, diluted with boiled alum-water.

Dark green.—This cast is communicated to leather by means of steel-filings and sal ammoniac steeped in urine for a considerable time, and well rubbed into the skin, which must afterwards be dried in the shade.

Yellow.—Anoint the skin with a decoction of aloes and linseed-oil previously strained, or immerse it in a solution of dyers' green weed.

Light orange.—Dip the skins in fustic berries boiled in alum water; but if a deeper hue be required, turmeric should be substituted for the fustic berries.

LEATHER-CUTTERS. These tradesmen keep large shops, and deal in all kinds of leather for the use of persons in different branches, and purchase hides and skins, which they cut out into pieces of proper sizes for the use of shoemakers, saddlers, &c.

LEATHER-DRESSER. The business of this mechanic is the same with that of the currier, and consists entirely in preparing hides and skins, as they come from the tanyards. *See* CURRIERS *and* CURRYING.

LEATHER, *Morocco.* *See* MOROCCO.

LEDGER, is the principal book of accounts kept by merchants and tradesmen, wherein every person's account is placed by itself, after being extracted from the journal. *See* BOOK-KEEPING.

LEDGES, in a ship, are small pieces of timber lying athwart from the waste-trees to the roof-trees; they serve to bear up the gratings or nettings over the half-deck.

LEE, in the sea language, a word of various significations, though it is generally understood to mean the part opposite to the wind. Thus lee-shore, is that shore against which the wind blows. "Lee-latch," or "have a care of the lee-latch," is, take care that the ship do not go to the leeward, or too near the shore; "a-lee the helm," put it to the leeward side of the ship; "to lie by the lee," or, "to come up to the lee," is to bring the ship so, that all her sails may lie flat against her masts and shrouds, and that the wind may come right upon her broadside.

LEE-FANG, is a rope reeved into the cringles of the courses, to hale in the bottom of the sail, that the bonnets may be laced on, or the sail taken in.

LEE-WAY, is the angle that the rhumb line upon which the ship endeavours to sail makes upon the rhumb upon which she really sails.

LEES, the grossest part of wine, oil, &c. being the sediment found at the bottom of the vessel. An article for the dyers' use, and those who whiten pins, clock-faces, &c. is made of the lees of wine. *See* ARGOL.

LEETCH-LINES, small ropes made fast to the leetch of the topsails, to which they belong, and reeved into a block at the yard close by the topsail ties. They serve to hale in the leetch of the sail when the topsails are to be taken in.

LEGACY. A legacy is a bequest, or gift, of goods and chattels by testament; and the person to whom it was given, is stiled the legatee; which every person is capable of being, unless particularly disabled by the common law or statutes, as traitors, papists, and some others. This bequest transfers an inchoate property to the legatee; but the legacy is not perfect without the assent of the executor: for if I have a general or pecuniary legacy of 100*l.* or a specific one of a piece of plate, I cannot in either case take it without the consent of the executor (*Co. Litt.* 111. *Aleyn.* 59.) For in him all the chattels are vested; and it is his business first of all to see whether there is a sufficient fund left to pay the debts of the testator: the rule of equity being, that a man must be just, before he is permitted to be generous. (*Bract. l.* 2. *c.* 26.) And in case of a deficiency of assets, all the general legacies must abate proportionably, in order to pay the debts: but a specific legacy (of a piece of plate, a horse, or the like) is not to abate at all, or allow any thing by way of abatement, unless there be not sufficient without it. (2 *Vern.* 111.) Upon the same principle, if the legatees have been paid their legacies, they are afterwards bound to refund a rateable part, in case debts come in, more than sufficient to exhaust the *residuum* after the legacies paid. *Ibid.* 205.

If the legatee die before the testator, the legacy is a lost or lapsed legacy, and shall sink into the *residuum.* And if a contingent legacy be left to any one; as when he shall attain, or if he attain the age of twenty-one, and he die before that time, it is a lapsed legacy. (*Dyer* 59. 1 *Eq. Cas. Abr.* 295.) But a legacy to one, to be paid *when* he attains, or *at* the age of twenty-one years, is a vested legacy; an interest which commences *in præsenti,* although it be *solvendum in futuro.* And, if the legatee dies before that

age, his representatives shall receive it out of the testator's personal estate, at the same time that it would have become payable in case the legatee had lived. But if such legacies be charged upon a real estate, in both cases they shall lapse for the benefit of the heir (2 *P. Wms.* 601.); for, with regard to devises affecting lands, the ecclesiastical court hath no concurrent jurisdiction.

But where a legacy is given to another, in case the first legatee dies under twenty-one or a certain age, the legacy must be paid upon the death of the infant. And where it is not given over to another, if it bears interest, his representative shall be entitled to it immediately; but if the interest allowed by the testator is less than the interest allowed by a court of equity, the executor of the testator shall be entitled to the difference until the first legatee would have arrived at the age prescribed by the testator. 2 *P. Wms.* 478. 1 *Bro.* 105.

A bequest of a residue or fund to all the children of A., to be paid when they shall attain the age of twenty-one, must be divided among those only who are in existence, when the eldest attains that age. 3 *Bro.* 404.

Where a legacy was given to the eldest child of A. upon the death of B., A. had at the death of B. only illegitimate children, but had afterwards a legitimate child, it was held that neither could take, the first not legally answering the description, and the second not existing when the legacy was to vest. 6 *Ves. Jun.* 43.

It is generally true, that both portions created by deed or will, and legacies which are to be raised out of real property, and to be paid upon a future day, shall never be raised if the person to whom they are given dies before the day of payment. But legacies and portions in a will shall be raised, if the time of payment is postponed on account of the circumstances of the testator's estate, and not on account of the circumstances of the legatee; or where it is the apparent intention of the testator, notwithstanding the death of the legatee prior to the time specified.

In *Decks* v. *Strutt*, 5 *T. R.* 690, it was determined, that *no action can be maintained in a court of law to recover a legacy*, though it had before been decided, that an action of assumpsit might have been brought against an executor in his own right, if *in consideration of assets in his possession* he had promised to pay the legatee the legacy. *Cowp.* 284. 289.

But if the executor assents, an action at law may be maintained for a specific legacy, as for a lease or any other chattel. 3 *East*, 120.

All legacies are subjected to very heavy duties, by 55 Geo. 3. c. 184.; but the amounts are regulated by the relations which the legatees bear to the testators respectively, and are too numerous and intricate to claim insertion here. It is necessary, however, to observe, that independent of what is called "the legacy duty" itself, paying, administering, or in any manner satisfying any legacy, or personal estate, or receiving the same without taking and giving a legal receipt, and causing the same to be stamped, is a penalty of 10*l.* per cent. on the sum; but receipts may be stamped within 21 days after date, at the head or any other office, on payment of the duty only, or within 3 months, on payment of the duty, and 10*l.* per cent. penalty; but not afterwards, on any pretence whatever. 36 Geo. 3. c. 52. sec. 28, 29.

LEMNIAN EARTH, *terra Lemnia*, is a fat, viscid, slippy clay, of a pale red colour. It is brought to us in little cakes or troches, marked with different characters. It has its name from the island of Lemnos, where it is dug. This earth, when genuine, is a good medicine in various diseases.

LEMONS, (Ger. *Limonen.* Du. *Limoenen.* Da. *Limoner.* Sw. *Lemoner.* Fr. *Limons, Citrons.* It. *Limoni.* Sp. *Limones.* Port. *Limões.* Rus. *Limonii.* Pol. *Limonii.* Lat. *Citrea mala,*) the fruit of the lemon-tree, growing in great abundance in Spain and Portugal, whence we import them, packed in chests and boxes. The ports of Lisbon and Malaga are the principal shipping places of lemons; the shipping of fruit from these places commences about the middle of September, and continues until the February following, after which time the article becomes scarce and dear.

The lemon-tree is a native of Media and Assyria, and thrives extremely well in warm climates. Besides the two countries already mentioned, this tree is cultivated in Italy, Provence, Languedoc, and other parts of the south of France. The varieties of the lemon are numerous.

The lemons of the Bermuda islands are remarkably large, and their flavour is delicious. Formerly the English consumed great quantities, but for some years past they have rarely been met with in our markets. Sicily produces abundance which are exported to London, Hamburgh, Russia, Germany, and France. The island of Zante abounds in lemons of a very large size; the rind of this fruit is uncommonly smooth, and it contains excellent acid juice.—Lemons are invariably shipped whilst their colour is green, and they generally become quite yellow before they reach this country. If they were to be exported after arriving at a perfect state of maturity, they would rot, and be good for nothing before they could reach the place of their destination. It is usual with some lemon-merchants to take the fruit out of the papers in which it is packed for exportation, and to paper it afresh. This is, however, highly improper, as it has frequently caused every lemon, so treated, to be pinked, and has even been known to destroy whole boxes of fruit within a very short period.

LEMONS, *Pickled*, (Ger. *Pokellimonen.*

Du. *Pekellimoenen.* Da. *Salteae limoner.* Sw. *Insaltade lemoner.* Fr. *Citrons salés.* It. *Limoni insalati.* Sp. *Limones salados.* Port. *Limoes salgados.* Rus. *Limonii solemniie,*) are prepared with a sort of brine, in the same manner as our housewives pickle cabbages, cucumbers, and other vegetables. Pickled lemons are exported in abundance from several parts of Italy, Sicily, &c. principally to France, where they are esteemed a luxury.

LEMON-JUICE, (Ger. *Zitronensaft.* Du. *Limoensap.* Da. *Lemonsaft.* Sw. *Citronsaft.* Fr. *Jus de limon.* It. *Agro o Sugo di limone.* Sp. *Jugo de limon.* Port. *Sumo de limao.* Rus. *Limonnoi sok.* Pol. *Sok citrynowy,*) likewise denominated citric acid, is the liquor contained in the lemon. It is useful for many domestic purposes, especially as an ingredient in punch, and is of essential service in pharmacy, though not of great utility in any particular branch of manufacture. It may be preserved in bottles for a considerable time by covering it with a thin stratum of oil; thus secured, great quantities of the juice are exported from Italy to different parts of the world; from Turkey, likewise, where abundance of lemons are grown, several thousand barrels of juice are annually sent to Crimea, &c.

LEMON-PEEL, (Ger. *Zitronenshalen, Limonschellen.* Du. *Limoenschillen.* Da. *Citronskaller.* Sw. *Citronskal.* Fr. *Lames d'écorce de citron.* It. *Scorze de limone.* Sp. *Cortezas de cidra.* Port. *Corticas de cidrao.* Rus. *Citroniija korki.* Lat. *Cortex citri,*) the outward rind of lemons, is turned to many uses, and when well candied, constitutes a very good preserve.

In the island of Barbadoes, a most delicious *liqueur*, known under the name of *Eau de Barbade,* is extracted from the lemon-peel, which the inhabitants also have the art of preserving in a manner peculiar to themselves. Both the liqueur and the conserve are in high repute, especially in France.

LEMON, *essential salt of,* super-oxalat of potash. It is principally employed in extracting stains from linen, muslin, &c.

LENTISK, the tree which produces the resin called mastich. This tree flowers about the month of May, and its fruit arrives at maturity towards the middle of August. Every part of it is highly resinous. It grows in the south of France, in Italy, the islands of the Archipelago, especially in Chio, and in Turkey. In the isle of Chio the inhabitants, about the month of July, make incisions in the trunk and in the larger branches of the tree, whence a resinous gum, which they call mastich, flows in tolerably big tears. The best sort of the mastich, or, in other words, the purest kind, is paid by the islanders as a tribute to the Turkish emperor. The Turkish women chew mastich habitually, pretending that it improves their breath. In the East, we know, it is customary to use aromatic substances for the purpose of lessening any difficulty of breathing. This custom is in some sort necessary by reason of the heat of oriental climates, which perturbs the passions and inflames the organs of speech and respiration.

LEOPARD-SKINS. (Ger. *Leopardenfelle.* Du. *Luipaardvellen.* Da. *Leopardskind.* Sw. *Leopardskinn.* Fr. *Peaux de Leopard.* It. *Pelli di Leopardo.* Sp. *Pieles de Leopardo.* Port. *Pelle de Leopardo.*) The leopard is distinguished from the panther by its paler yellow colour, its smaller size, and the somewhat closer disposition of its spots. The leopard is a native of Senegal and Guinea, as well as of many other parts of Africa: it also occurs in Persia, India, China, and several other parts of Asia. A variety of this species, of a dusky black, marked with spots of a deeper or more glossy black, is found in Bengal. The black skins are the most esteemed. Leopard-skins are principally employed as furniture for war-horses, &c.

LEPIDOLITE, a stone first brought into notice by the name of lilalite, and considered as a species of gypsum, and afterwards classed as a zeolite by Born. It is of a violet colour, or purple, in the mass, separable into laminæ, which have the lustre of mother-of-pearl. Though soft enough to be scratched with the nail, it is susceptible of some polish.

LESSOR and LESSEE. *See* LEASE.

LETTER, in its primary sense, is a character either in print or writing, by which a sound is conveyed to express thoughts. But the sense in which we are concerned to consider it here, is that of a communication sent by one person to another, and more correctly denominated "*Epistle.*" Of these there are a great variety recognized by law or custom, and partaking in some degree of *public* instruments; such as letters of attorney; letters of credit among merchants; letters of licence to bankrupts; letters of marque to cruize against an enemy in time of war; letters missive in the court of chancery; letters patent from the crown, conferring some exclusive right to a subject; letters circular, &c. &c. Letters of an entirely private nature, are, in different views of them, especially under the cognizance of the law by divers statutes.

By the act of 9 Anne, c. 10. no persons whatsoever shall receive, take up, order, dispatch, convey, carry, re-carry, or deliver any letters, or packets of letters, or make any collection of letters, or employ any vessel or boat, or other conveyance by sea or land, either coastways within Great Britain, or to or from Ireland, or beyond the seas, on pain of forfeiting 5*l.* for every offence, and also 100*l.* for every week that the practice is continued.

This act renders carriers, masters of coaches, coachmen, watermen, bargemen, and masters of vessels, liable to the penalties, even if they carry letters without hire or reward.

By act of 42 Geo. 3. c. 81. no person whatsoever shall send, or cause to be sent, or tender or deliver in order to be sent, otherwise than by the post, or to the nearest post-town, to be forwarded by post, any letters or packets, on pain of forfeiting *5l.* for every offence.

These penalties may be recovered with costs by any person who will inform and sue for the same; one moiety to the king, and the other to the informer.

There is an exception as to letters which concern goods sent by common carriers, so as they are sent with and for the purpose of being delivered with the goods, without hire, reward, or advantage. Also as to letters sent by any private friend on his journey, or by any messenger on purpose.

Under this law, a person carrying a letter may inform against a person sending one.

By act of 55 Geo. 3. c. 33. owners, charterers, and consignees of vessels, may, under certain restrictions, send their letters on board their own ships from Great Britain to the Cape, the Mauritius, and the East Indies, free from sea postage, and may receive their letters by their own vessels from all places beyond the seas, free from sea postage. — Owners and shippers of goods may send letters, under certain restrictions, with their goods, on board any vessel, to the Cape, the Mauritius, and the East Indies, free from ship-letter postage; and owners and consignees of goods on board ships arriving from abroad, may receive letters free from sea postage by such ships.

Members of parliament, and certain public officers, are privileged to send and receive letters to a certain extent free of postage; but by 42 Geo. 3. c. 63. and several previous statutes, it is declared to be felony to counterfeit the hand-writing of any such member of parliament in the superscription of such letter to avoid payment of postage.

By 24 Geo. 3. c. 37. foreign prohibited goods sent in any letter to any person in this country, are to be taken out in presence of a justice and destroyed. *See further title* POST-OFFICE.

LETTER or Power of Attorney, is an instrument giving to a second person the authority to do any lawful act in the stead of the maker. Letters of attorney are sometimes revocable, and sometimes not; in the latter case the word irrevocable is inserted. The authority must be strictly pursued: and if the attorney does less than the power it shall be void; if more, it shall be good as far as the power goes, and void as to the rest; but these rules have many exceptions. *See* 1 *Inst.* 258.

General Power of Attorney to act in the Management of all his Estates, Property, and Effects, during the Residence of a Merchant abroad.

To all to whom these presents shall come, A. B. of, &c. sendeth greeting. Whereas the said A. B. is shortly going to the East Indies, and is therefore desirous of appointing a person, and of giving him sufficient powers and authorities to do and execute every act, deed, matter, and thing whatsoever, which shall be requisite and necessary to be done and executed with respect to the entire management of all the estates, monies, property, and effects of the said A. B. during his residence beyond the seas. Now therefore these presents witness, that the said A. B. hath made, constituted, and appointed, and in his place and stead put, and by these presents doth, &c. his brother, C.D. his true and lawful attorney, for him, and in his name, to enter into and upon, and to take possession of all and singular the honors, manors, messuages, farms, lands, tithes, and hereditaments, freehold, copyhold, and leasehold, whatsoever and wheresoever, to the said A. B. belonging, or in any wise appertaining, or wherein, or whereof the said A. B. hath any estate, or inheritance, and to make sale of, or convey in exchange for other freehold, copyhold, or leasehold estates any of the said freehold, copyhold, or leasehold estates of him the said A. B. and the money arising from such sales, or on account of any exchange to lay out and invest in other lands and hereditaments, or on government or real securities, or otherwise, as he shall think fit, and to sign, seal, and execute, and as the act and deed, and acts and deeds of the said A. B. to deliver any deed or deeds, conveyances, and assurances for conveying, either by way of absolute sale, or in exchange for other freehold, copyhold, or leasehold estates, such freehold, copyhold, or leasehold estates of the said A. B. which may be sold or exchanged, and to sign receipts for the consideration money on such sales or exchanges; and also to transpose or transfer any mortgages or other securities which he the said C. D. may take for any monies which from time to time may have arisen from such sale or sales, exchange or exchanges, and may have been placed out on such securities; and also to view, search, and see the state, condition, and defects of the reparation of all the said estates of the said A. B. and forthwith to give proper notices and directions for repairing the same, and generally to oversee, set, let, manage, and improve the said estates of the said A. B. to the best advantage; and also from time to time to fell or cut down any wood or underwoods, timber, or other trees standing or being on any of the said lands and hereditaments of the said A. B. which he hath power to cut down, as his said attorney

shall see fit, and the same to sell and dispose of, or allow for repairs, or otherwise, in or about the said premises, and generally to repair and uphold, or take down and new-build all or any houses, edifices, or buildings in and upon the said lands and hereditaments, as occasion shall require, or do any other act or thing for the improvement of the same. And also to pay all taxes, rates, charges, deductions, expenses, and all other payments whatsoever, due and payable, or to grow due and payable, for or on account of the honors, manors, messuages, lands, hereditaments, and other the premises the estate of the said A. B. And also to contract with any person or persons for leasing any of the said premises, and to set fines for new leases, and to accept surrenders of leases, and for that purpose, for the said A. B. and in his name, and as his act and deed, to make, seal, deliver, and execute any lease or leases, demises, or grants, or other lawful deeds or instruments whatsoever which shall be necessary and proper in that behalf, and also for, and in the name of, the said A. B. to ask, receive, and recover of all the stewards, bailiffs, receivers, farmers, tenants, and all other occupiers whatsoever, of all and every the said lands and hereditaments of the said A. B. all rents, arrears of rent, services, issues, profits, emoluments, sum and sums of money due, owing, and payable, or at any time hereafter to grow and become due, owing, and payable for, or in respect, or on account of, the same premises, in any manner whatsoever; and an account and accounts of them and all other the stewards, bailiffs, and accountants whatsoever of the said A. B. or any of them, to require and take; and the said stewards, bailiffs, receivers, and servants, to displace and remove, as his said attorney shall think fit, and on the displacing or death of any of them, new stewards, bailiffs, receivers, servants, or other agents, to put and appoint in the place of those so displaced or dying; and also to sue for, receive, and recover all manner of debts, dues, duties, rents, services, amerciaments, sum and sums of money whatsoever due, or to grow due, to the said A. B. in respect of the premises aforesaid, and on non-payment thereof, or of any part thereof, to enter and distrain, and the distress and distresses then and there found, to detain and keep, or otherwise to sell and dispose of the same according to law; and also for, and in the name of, the said A. B. to commence and prosecute any action or actions, suit or suits, as well real as personal and mixed, in any court of law or equity, for the recovery of any debt, matter or thing whatsoever, due or payable, or to become due or payable, or coming unto, or any wise appertaining or belonging to the said A. B. by any means, or on any account whatsoever, and the same action or actions, suit or suits, to prosecute and follow, or to discontinue or become nonsuit therein, if my said attorney shall see cause; and also for him the said A. B., and in his name generally to use and take such lawful ways and means for the recovering, receiving, obtaining, or getting in any rent, sum and sums of money, or other things whatsoever, which is, are, shall, or may be, or by his said attorney shall be conceived or thought to be due, owing, belonging, or payable unto the said A. B. unto any person or persons whomsoever, as fully and effectually to all intents and purposes as the said A. B. might or could do, use, or take, if he was present in person; and also upon payment, receipt, or recovery of all and every the aforesaid rents, arrears of rent, profit, produce, debts, dues, sum and sums of money for him the said A. B., and in his name to give proper acquittances and discharges for the same respectively; and also for, and in the name of the said A. B., to present a fit person or persons to any church or churches, or ecclesiastical benefice or benefices, to the advowson or right of presentation whereof the said A. B. is, or shall, or may be entitled; and generally for him the said A. B., and in his name, to do, execute, and perform all and every other act and acts, thing and things, needful and expedient in and about the premises, as fully and effectually to all intents and purposes as he the said A. B. could do if he were personally present, he the said A. B. hereby ratifying and confirming, and agreeing to ratify and confirm, all and whatever his said attorney C. D. shall lawfully do, or cause to be done, in and about the premises aforesaid; and for the better doing, performing, and executing of all or any the matters and things aforesaid, he the said A. B. doth hereby further give and grant unto the said C. D., his attorney, full power and authority to constitute and appoint, and in his place and stead put one or more attorney or attornies for him the said A. B., and as his attorney or attornies, and the same again at his pleasure to revoke, and other or others in his or their place or places to substitute. And whereas it is the intention of the said A. B. in case the said C. D. should happen to depart this life during the absence of him the said A. B., that immediately after the decease of him the said C. D., E. F., the brother of the said A. B. and C. D. should act as attorney for the said A. B. in the room or stead of the said C. D., and the said A. B. is therefore desirous of sufficiently authorising and empowering him the said E. F. so to do. Now therefore these presents further witness, that the said A. B. hath made, constituted, and appointed, and in his place and stead put, and by these presents doth, &c. the said E. F. his true and lawful attorney for him the said A. B. and in his name, from and after the decease of the said C. D. (in case he shall happen to depart this life during the absence of the said

A. B., to do, make, sign, seal, and execute all such act and acts, deed and deeds, matters and things whatsoever, as the said C. D. hereinbefore by these presents is authorised and empowered to do, make, and execute; the said A. B., to that intent, hereby giving and granting to, and vesting in the said E. F. all and every such and the same powers and authorities so to do, in as full, ample, and extensive a manner, to all intents and purposes whatsoever, as are hereinbefore by these presents given and granted to and vested in the said C. D.; and the said A. B. doth hereby agree to ratify and confirm all and whatsoever his said attornies, or either of them, shall lawfully do or cause to be done in the premises.

In witness, &c.

Power of Attorney from one Executor and Trustee to the others to act in his absence.

To all to whom these presents shall come, W. W. of, &c. eldest son and heir-at-law, and also one of the trustees and executors named and appointed in and by the last will and testament of A. W. late of, &c., esq., deceased, sendeth greeting. Whereas the said A. W. in and by his last will and testament in writing, bearing date, &c. after giving and bequeathing several pecuniary and specific legacies, annuities, and bequests to the several persons, and in manner therein mentioned, and charging all his personal estate with the payment thereof, did give all the rest and residue of his personal estates and effects of what nature or kind soever, subject and chargeable as aforesaid, to his (the said testator's) wife F. W., and to his friend W. S. R., his son the said W. W., and his son-in-law E. W. upon the several trusts, and to and for the ends, intents, and purposes therein and hereinafter in part expressed or declared of and concerning the same, viz. in trust (*recite the trusts*). And the said testator did thereby nominate, constitute, and appoint the said F. W., W. S. R., W. W., and E. W., executors of his last will and testament: and whereas the said A. W. departed this life on or about, &c. without having revoked or altered his said last will and testament in all or any of the matters aforesaid; and since his death the said F. W., W. S. R., W. W., and E. W., have all duly proved his said will in the prerogative court of the archbishop of Canterbury, and taken upon themselves the execution thereof; and whereas the said W. W. is about shortly to depart from Great Britain for the East Indies, and is desirous of enabling, so far as he lawfully may, the said other trustees and executors of the said A. W. to act in execution of the trusts of the said will, and in the management and conduct of the estate and affairs of the said testator during his absence, as fully and effectually as if he the said W. W. were present, and actually joining in all and every such act and acts as may be necessary for that purpose: Now know ye, that in order to carry such the desire of the said W. W. into execution, and for the purposes aforesaid, he the said W. W. hath made, deputed, constituted, and appointed, and by these presents doth make, depute, constitute, and appoint the said F. W., W. S. R., and E. W. and the survivor and survivors of them, to be his true and lawful attorney and attornies for him the said W. W. in his name and on his behalf, as one of the trustees and executors of the said will of the said A. W., to transact, manage, and negotiate all and singular matters and things whatsoever which in anywise relate to or concern the execution of the said trusts, or the management, disposal, or conduct of the estate and affairs of the said testator; and to that end for him the said W. W., and in his name, and on his behalf, as trustee and executors as aforesaid, to settle and sign, and also, if necessary, to seal, and as his act and deed, in due form of law, to deliver all and every or any account and accounts, releases, receipts, acquittances, deeds, writings, and instruments whatsoever which shall or may be, or to them the said F. W., W. S. R., and E. W. or the survivor or survivors of them, shall seem necessary or expedient for that purpose; and generally to do, execute, and perform, or cause and procure to be done, all and every or any acts, deeds, matters, and things whatsoever, anywise necessary or expedient to be done by or on behalf of him the said W. W., in or about the execution of the trusts aforesaid, or any of them, and the management, disposal, or conduct of the said testator's estate and affairs, or any part thereof; and all and whatever his said attornies, or any of them, shall do or cause to be done in pursuance of the powers hereby granted, he the said W. W. doth hereby, and at all times hereafter shall and will ratify, confirm, and allow.

In witness, &c.

To receive Bank Stock, and transfer the same.

Know all men, &c. that A. B. and C. his wife (daughter and administratrix of all and singular, the goods, chattels, rights, and credits of —— deceased), have constituted and appointed, and by these presents do, &c. D. E. gent. to be their true and lawful attorney for them the said A. B. and C. his wife, and for each of them, in their names, place, and stead, and to the use of the said A. B. to ask and receive all dividends now due, or which shall hereafter accrue or grow due to the said A. B. and C. his wife, or either of them, from the governor and company of the Bank of England; and upon the receipt thereof, or of any part thereof, acquittances or other sufficient discharges to make and give for the same; and also to assign and transfer the sum of ——*l.* in the Bank stock, and all and every other stock and stocks in the said Bank of England, which

they the said A. B. and C. or either of them, have or hath, or as she the said C. is entitled to as administratrix of —— deceased, or otherwise to the said A. B. or to such other person or persons as the said A. B. shall order and direct. And further, to do, execute, and perform all and singular deeds, acts, matters, and things which shall be expedient and necessary, touching and concerning the premises, as fully and effectually, to all intents and purposes whatsoever, as they the said A. B. and C. his wife, or either of them, might or could do in or about the same, being personally present; and whatsoever he the said D. E. shall, &c.

In witness, &c.

To accept and pay for and sell Bank Stock.

To accept of all such capital stock in the Bank of England as I have already bought or contracted to buy, or shall hereafter buy, or contract to buy, of any person or persons whatsoever, upon the transferring thereof, according to the usual manner of transferring the said stock, and pay such sum and sums of money, or consideration, for the purchase of all such capital stock, upon the transferring thereof, from time to time as I shall in that behalf order; and likewise for me, and in my name, and on my behalf, and to and for my own proper use, to sell and transfer all or any such stock as I now have, or shall buy or purchase in the said Bank of England, to such person or persons, and in such manner as I shall from time to time direct and appoint, by writing under my hand; and also for my use to receive the monies or considerations which shall become due or payable for or upon the sale of all or any such stock as he shall so sell and transfer for or on my account as aforesaid, and to give sufficient discharges for the same. And I do hereby give and grant, &c.

To execute a Deed of Composition, and to receive a Dividend.

To sign, seal, and execute an indenture tripartite, bearing date, &c. made or mentioned to be made between A. B. and C. of, &c. creditors of F. &c. and trustees for or on the behalf of other the creditors of the said F. of the first part; L. M. N. myself the said O. and P. Q. &c. creditors also of the said F. of the second part; and the said F. of the third part; and also for me, and in my name, and to and for my proper use and behoof, to demand and receive of and from the said A. B. and C. either or any of them, all monies due and payable to me upon and by virtue of the said indenture, as well for my share and dividend of the sum of ——*l.* already received by and in the hands of the said A. B. and C. some or one of them, of the estate of the said F. as of the sum of ——*l.* of the debts of the said L. M. N. yet outstanding and unreceived, or of so much thereof as shall be recovered and received, in proportion to the debt of ——*l.* owing to me by the said F. And I do hereby give and grant unto my said attorney my whole power and authority in the premises to do and perform all matters and things for the recovery and receiving of the monies due, or which shall become due or payable to me by virtue of the said indenture, as fully as I myself might or could do were I personally present. And I do hereby ratify and confirm the execution of the said indenture by my said attorney, and do undertake and promise to ratify and allow all other legal acts and things which shall be by him done and performed in and about the premises by virtue of these presents.

In witness, &c.

These are examples sufficient to explain the nature of these kinds of instruments.

The stamps necessary to be placed on them respectively by *55* Geo. 3. c. 184. are as follow:

Letter or power of attorney, made by any petty officer, seaman, marine, or soldier, for receiving prize-money -	0	1	0
And for receiving wages - -	1	0	0
Letter of attorney for the sale, transfer, acceptance, or receipt of dividends, of any of the government or parliamentary stocks or funds - - - - -	1	0	0
Letter or power of attorney of any other kind - - - -	1	10	0
And for every 1080 words, above the first - - - - -	1	0	0
Letter of Licence from creditors to a debtor - - - -	1	15	0
And for every 1080 words above the first - - - - -	1	5	0
Letter of marque and reprisal -	5	0	0

LETTER *of Credit*, is where a merchant or correspondent writes a letter to another, requesting him to credit the bearer with a certain sum of money. The bearer of this letter generally gives security to repay the sums he shall take up in pursuance of its contents.

LETTER *of Licence*, is a written permission granted to a person under embarrassment allowing him to conduct his affairs for a certain time without being molested. Such instrument will bind all the creditors by whom it is executed, and it generally contains certain stipulations to be observed by all parties.

LETTERS *of Marque*, are extraordinary commissions, granted to captains or merchants for reprisals, in order to make a reparation for those damages they have sustained, or the goods they have been deprived of by strangers at sea. These appear to be always joined to those of reprise, for the reparation of a private injury; but under a declared war the former only are required.

LETTERS *Patent*. *See* PATENTS.

LETTERS, *Threatening*, are that sort of private letters of which the law takes es-

pecial cognizance. By 9 Geo. 1. c. 22., amended by 27 Geo. 2. c. 15. knowingly to send any letter without name, or with a fictitious name, demanding money, &c. or threatening, without any demand, to kill, or fire the house of, any person, is made felony *sans* clergy. By 30 Geo. 2. c. 24. persons sending with, or without a name, or with a fictitious name, threatening to accuse any one of a crime punishable by law with death, transportation, pillory, or other infamous punishment, in order to extort money or goods, shall be punished at the discretion of the court, by fine and imprisonment, pillory, whipping, or transportation for seven years.

LETTER-FOUNDER, is the mechanic who cuts, casts, &c. letters for printing. This is an ingenious art, and requires a great variety of tools; as vices, hand-vices, hammers, and files of all descriptions, such as are used by watchmakers, also gravers and sculptors, suitable to the several letters intended to be cut, a flat-gauge, sliding-gauge, face-gauge, &c. There cannot be less than three gauges; the gauge for the long letters must be the length of the whole body, supposed to be divided into forty-two equal parts. The gauge for the ascending letters, Roman and Italic, are five-sevenths, or thirty parts of forty-two, and thirty-three parts for the English face. The gauge for the short letters is three-sevenths, or eighteen parts of forty-two of the whole body for the Roman and Italic, and twenty-two parts for the English face. The Italic and other standing gauges are to measure the scope of the Italian stems, by applying the top and bottom lines of the letters, and the other side of the gauge to the stem; for when the letter complies with these three sides of the gauge, such letter has its true shape. The next care of the letter-cutter is to prepare good steel punches well tempered and quite free from all veins of iron, on the face of which he draws or marks the exact shape of the letter with pen and ink if the letter be large; or with the smooth blunted point of a needle, if it be small; and then with size and properly shaped and pointed gravers and sculptors, digs or sculps out the steel between the strokes or marks he made on the face of the punch, and leaves the marks standing on the face. Having well shaped the inside strokes of his letter, he deepens the hollows with the same tools; for if a letter be not deep in proportion to its width, it will, when used at press, print black, and be good for nothing. This work is generally regulated by the depth of the counter-punch. Then he works the outside with proper files till it be fit for the matrice. The sinking and justifying of the matrice is performed by a mould adapted to the purpose, which must previously be justified. A matrice is a piece of brass or copper about an inch and a half long, and of a thickness proportioned to the size of the letter it is to contain. In this metal is sunk the face of the letter intended to be cast, by striking the letter punch about the depth of an *n*; after this the sides and face of the matrice must be justified and cleaned with files, of all punchings made by sinking the punch.

Every thing thus prepared, it is brought to the furnace, which is built of brick upright, with four square sides, and a stone on the top, in which stone is a wide round hole for the pan to stand in.

A foundery of any consequence has several of these furnaces.

In extensive founderies, the metal of which the types is to be cast, is always prepared in large quantities; but cast into bars of about twenty pounds weight, to be delivered out to the workmen as occasion requires.

The metal of which types are formed is lead, with a mixture of the regulus of antimony, or any other such substance as the letter-founder approves. These being duly mixed and melted in a large cauldron of cast-iron, by continued stirring with an iron ladle, the workmen proceed to draw the metal off into small troughs of cast-iron, which are ranged on a level platform faced with stone.

Fifteen hundred weight of metal can be prepared in this manner in the course of a day.

The founder must now be provided with a ladle, differing from all other ladles only in its size, which is adapted to that of the letter he has to cast; but before he begins this operation, he must kindle the fire in the furnace, to melt the metal in the pan.

If it be a small-bodied letter, or a thin letter with great bodies that he intends to cast, his metal must be very hot, and sometimes red-hot to make the letter come; then taking a ladle that will hold as much as will make the letter and break, he lays it to the hole where the flame bursts out, to heat; then he ties a thin leather, cut with its narrow end against the face, to the leather groove of the matrice, by whipping a brown thread twice about the leather groove, and fastening the thread with a knot.

He next puts both pieces of the mould together, and the matrice into the matrice cheek, and places the foot of the matrice on the stool of the mould, and the broad end of the leather on the wood of the upper half of the mould, but not tight up, lest it should hinder the foot of the matrice from sinking close down upon the stool in a train of work.

Afterward laying a little rosin on the upper part of the mould, and having his casting ladle hot, he, with the boiling side, melts the rosin, and presses the broad end of the leather hard down upon the wood, and so fastens it thereto.

In the act of casting, placing the under half of the mould in his left hand, with the

hook or jag forward, he holds the ends of its wood between the lower part of the ball of his thumb and his three hinder fingers; then he lays the upper half of the mould upon the under half; and at the same time the foot of the matrice places itself upon the stool, and clasping his left-hand thumb strongly over the upper half, he nimbly catches hold of the bow or spring with his right-hand fingers at the top, and his thumb under it, and places the point of it against the middle of the notch in the reverse side of the matrice, pressing it forward as well toward the mould as downward, by the shoulder of the notch, close upon the stool, while at the same time with his hands or fingers he draws the under half of the mould towards the ball of his thumb, with which he thrusts the upper part toward his fingers, that both the registers of the mould may press against both sides of the matrice, and his thumb and fingers press both sides of the mould closely together.

He next takes the handle of his ladle in his right-hand, and with the ball of it gives two or three strokes outwards upon the surface of the melted metal to clear it of the scum; then he takes up the ladle full, and having the mould in his left hand, turns his left side a little from the furnace, and brings the jet of his ladle to the mouth of his mould, and turns the upper part of his hand towards him, to pour the metal into it, while at the same instant he puts the mould in his left hand forwards, to receive the metal with a strong shake, not only into the bodies of the mould, but while the metal is yet hot, into the very face of the matrice, to receive its perfect form there as well as in the shank.

He then takes off the upper half of the mould by placing his right thumb on the end of the wood next his left thumb, and his two middle fingers at the other end of the wood; he tosses the letter, break and all, upon a sheet of waste paper laid on a bench a little beyond his left hand, and then is ready to cast another letter as before, and likewise the whole number in that matrice.

After this, boys who are commonly employed for this purpose, separate the breaks from the shanks, and rub them on a stone, and afterwards a man cuts them all of an even height, which finishes the fount for the use of the printer.

A workman will ordinarily cast 3000 of these letters per day.

The perfection of these letters consists in their being severally square and straight on every side, all of the same height, and evenly lined, without stooping one way or other; neither too big in the foot nor the head, well grooved, so as the two extremes of the foot contains half the body of the letter, and well ground, barbed, and scraped with a sensible notch.

LEVIGATION, the mechanical process of grinding the parts of bodies to a fine paste, by rubbing the flat face of a stone called the muller, upon a table or slab called the stone. Some fluid is always added in this process. The advantage of levigation with a stone and muller, beyond that of triturating in a mortar, is that the materials can more easily be scraped together, and subjected to the action of the muller, than in the other case to that of the pestle; and from the flatness of the two surfaces, cannot elude the pressure.

LIARD, a French copper coin, equivalent to 1*s.* 3*d.* sterling.

LIBEL, (*libellus.*) signifies literally a little book.

With regard to libels in general, there are, as in many other cases, two remedies; one by *indictment*, and another by *action*. The former for the public offence; inasmuch as every libel has a tendency to break the peace, or provoke others to break it: which offence is the same, whether the matter contained be true, or false; and therefore, the defendant, on an indictment for publishing a libel, is not allowed to allege the truth of it by way of justification. (5 *Rep.* 125.) But in the remedy by action on the case, which is to repair the party in damages for the injury done him, the defendant may, as for words spoken, justify the truth of the facts, and show that the plaintiff has received no injury at all. (11 *Mod.* 99.) The same rule holds in every particular with regard to libels by writing or printing, and the civil actions consequent thereupon, as in regard to words spoken; but as to signs or pictures, it seems necessary always to show, by proper *innuendoes* and averments of the defendant's meaning, the import and application of the scandal, and that some special damage has followed; otherwise it cannot appear, that such libel by picture was understood to be levelled at the plaintiff, or that it was attended with any actionable consequences.

These *libels*, taken in their largest and most extensive sense, signify any writings, pictures, or the like, of an immoral or illegal tendency; they are malicious defamations of any person, and especially a magistrate, made public by either printing, writing, signs, or pictures, in order to provoke him to wrath, or expose him to public hatred, contempt and ridicule. (1 *Hawk. P. C.* 193.) The direct tendency of these libels is the breach of the public peace, by stirring up the objects of them to revenge, and perhaps to bloodshed. The communication of a libel to any one person is a publication in the eye of the law; and therefore, the sending an abusive private letter to a man, is as much a libel as if it were openly printed, for it equally tends to a breach of the peace. (1 *Hawk. P. C.* 195.) For the same reason it is immaterial with respect to the essence of a libel, whether the matter of it be true or false; since the provocation

and not the falsity, is the thing to be punished criminally: though, doubtless, the falsehood of it may aggravate its guilt, and enhance its punishment. For though, in a civil action, the truth of the accusation may be pleaded in bar of the suit; yet, in a criminal prosecution, the tendency which all libels have to create animosities, and to disturb the public peace, is the whole that the law considers. And therefore in such prosecutions, the only points to be enquired into are, first, the making or publishing of the book or writing; and, secondly, whether the matter be criminal: and, if both these points are against the defendant, the offence against the public is complete.

But, though it has been held for more than two centuries, that *the truth of a libel* is no justification in *a criminal prosecution*, yet in many instances it is considered an extenuation of the offence; and the court of king's bench has laid down this general rule, viz. that it will not grant an information for a libel, unless the prosecutor who applies for it, makes an affidavit, asserting directly and pointedly, that he is innocent of the charge imputed to him. But this rule may be dispensed with, if the person libelled resides abroad, or if the imputations of the libel are general and indefinite, or if it is a charge against the prosecutor for language which he has held in parliament. *Doug.* 271. 372.

A person may be punished for a libel reflecting on the memory and character of the dead, but it must be alleged, and proved to the satisfaction of the jury, that the author intended by the publication to bring dishonour and contempt on the relations and descendants of the deceased. 4 *T. R.* 261.

And it has been holden not to be a libel to publish a correct copy of the reports or resolutions of the two houses of parliament, or a true account of the proceedings of a court of justice. "For though (as Mr. Justice Lawrence has well observed) the publication of such proceedings may be to the disadvantage of the particular individual concerned, yet it is of vast importance to the public that the proceedings of courts of justice should be universally known. The general advantage to the country in having these proceedings made public, more than counterbalances the inconveniences to the private persons, whose conduct may be the subject of such proceedings." *R.* v. *Wright*, 8 *T. R.* 293. But this doctrine must be received with great limitations; for in *R.* v. *Creevy*, 53 Geo. 3. it was decided, that an editor cannot report a libellous speech, though accurately copied, and even corrected by the author of it himself, without being responsible for the libellous matters contained in it.

It had frequently been determined by the court of king's bench, that the only questions for the consideration of the jury, in *criminal prosecutions* for libels, were the fact of publication, and the truth of the innuendoes, that is, the truth of the meaning and sense of the passages of the libel, as stated and averred in the record, and that the judge or court alone were competent to determine whether the subject of the publication was or was not a libel. (3 *T. R.* 428.) But the legality of this doctrine having been much controverted, the 32 Geo. 3. c. 60. was passed, intituled, *An act to remove doubts respecting the functions of juries in cases of libels.* And it declares and enacts, that on every trial of an indictment or information for a libel, the jury may give a general verdict of guilty, or not guilty, upon the whole matter in issue, and shall not be required or directed by the judge to find the defendant guilty, merely on the proof of the publication of the paper charged to be a libel, and of the sense ascribed to it in the record. But the statute provides, that the judge may give his opinion to the jury respecting the matter in issue, and the jury may at their discretion, as in other cases, find a special verdict, and the defendant, if convicted, may move the court as before the statute, in arrest of judgment.

The sale of the libel by a servant in a shop, is *prima facie* evidence of publication in a prosecution against the master, and is sufficient for conviction, unless contradicted by contrary evidence, showing that he was not privy, nor in any degree assenting to it. 5 *Burr.* 2686.

When a person is brought to receive judgment for a libel, his conduct, subsequent to his conviction, may be taken into consideration, either by way of aggravation or mitigation of the punishment. (3 *T. R.* 432.) By stat. 60 Geo. 3. and 1 Geo. 4. c. 8. a second conviction for a blasphemous libel, or for a seditious libel, intending to bring the king, either house of parliament, &c. into contempt, renders the offender liable to banishment; and the court, on conviction, may order the copies of the libel, in the possession of the party convicted, to be destroyed.

LICENCE. By the excise laws, licences are necessary for the carrying on various trades, upon which the following duties are paid to government for that purpose: viz.

Auctioneers, 12*s.*

Brewers of table beer, 2*l.*

Brewers of strong beer, if the quantity brewed within the year ending the 5th day of July in each year, previous to taking out the licence, shall not exceed 1000 barrels, 2*l.* 5*s.*

From 1000 barrels to 2000 barrels, 3*l.*

From 2000 barrels to 5000 barrels, 7*l.* 10*s.*

From 5000 barrels to 7500 barrels, 11*l.* 15*s.*

From 7500 barrels to 10,000 barrels, 15*l.*

From 10,000 barrels to 20,000 barrels, 30*l.*

From 20,000 barrels to 30,000 barrels, 45*l.*

From 30,000 barrels to 40,000 barrels, 60*l.*

Exceeding 40,000 barrels, 75*l.*

Every person who shall first become a common brewer of strong beer, for every such licence 1*l.* 10*s.*; and within ten days after the 5th day of July next after taking out such licence, such further additional sum as, with the said 1*l.* 10*s.* shall amount to the duty hereinbefore directed to be paid, according to the number of barrels of strong beer brewed within the preceding year, 2*l.* 5*s.* and surcharge.

Makers of wax or spermaceti candles for sale, 12*l.*

Dealers in ditto candles, 21*s.*

Chandlers, or makers of candles, 2*l.*

Persons trading in coffee, tea, cocoa-nuts, or chocolate, 11*s.*

Glass-makers, for each glass-house, 20*l.*

By 58 Geo. 3. c. 33. drop pinchers, in the glass trade, observing certain regulations, exempt from taking out licence.

Tanners in the bills of mortality, 10*l.*

Other tanners, 5*l.*

Tawers, 2*l.*

Dressers of hides and skins in oil, 4*l.*

Curriers, 4*l.*

Makers of vellum or parchment, 2*l.*

Maltsters, if the quantity of malt, within the year ending the 5th day of July in each year, previous to taking out the licence, shall not exceed 50 quarters, 7*s.* 6*d.* and surcharge.

From 50 quarters to 100 quarters, 15*s.*

From 100 qrs. to 150 qrs. 1*l.* 2*s.* 6*d.*

From 150 qrs. to 200 qrs. 1*l.* 10*s.*

From 200 qrs. to 250 qrs. 1*l.* 17*s.* 6*d.*

From 250 qrs. to 300 qrs. 2*l.* 5*s.*

From 300 qrs. to 350 qrs. 2*l.* 12*s.* 6*d.*

From 350 qrs. to 400 qrs. 3*l.*

From 400 qrs. to 450 qrs. 3*l.* 7*s.* 6*d.*

From 450 qrs. to 500 qrs. 3*l.* 15*s.*

From 500 qrs. to 550 qrs. 4*l.* 2*s.* 6*d.*

Exceeding 550 quarters, 4*l.* 10*s.*

Persons who shall first become maltsters, for every licence, 7*s.* 6*d.*; and within ten days after the 5th day of July next after taking out such licence, such further additional sum as, with the said 7*s.* 6*d.* shall amount to the duty hereinbefore directed to be paid, according to the quantity of malt made within the preceding year, 7*s.* 6*d.* and a surcharge.

Makers of metheglin or mead for sale, 2*l.*

Paper or pasteboard makers, and paper stainers, 4*l.*

Persons trading in gold or silver plate, or any goods or wares in which any quantity of gold exceeding two pennyweights, and under two ounces in weight, or any quantity of silver exceeding five pennyweights, and under 30 ounces in weight, in any one separate and distinct ware or piece of goods, is manufactured, 4*l.* 12*s.*

Persons trading in any gold or silver plate, or any goods or wares in which any quantity of gold of the weight of two ounces or upwards, or any quantity of silver of the weight of thirty ounces or upwards, in any one separate and distinct ware or piece of goods shall be manufactured: and every pawnbroker trading in, vending, or selling gold or silver plate, or goods or wares in which any quantity of gold or silver is manufactured, or taking in or delivering out pawns of such plate, goods, or wares: and every refiner of gold or silver, 11*l.* 10*s.*

Calico printers, and printers, painters, or stainers of linen, cotton, or stuff, 20*l.*

Makers of soap for sale, 4*l.*

Distillers or makers of low wines or spirits for sale or for exportation in England, 20*l.*

Rectifiers of spirits in England, 10*l.*

Dealers in brandy or other spirituous liquors or strong waters, 10*l.*

Persons in Scotland, who shall, by wholesale, deal in spirits made from malt, corn, grain, barley, beer, bigg, or other British materials, not being licensed distillers, or dealers in brandy, for every such licence to sell plain aqua vitæ only by wholesale, 3*l.*

Retailers of distilled spirituous liquors, or strong waters, in Great Britain, made from British materials, in Scotland, for every licence, if the dwelling-house in which such retailer shall reside, shall not, together with the offices, courts, yards, and gardens therewith occupied, be rated under the authority of any act or acts of parliament for granting duties on inhabited houses, at the rent of 15*l.* per annum or upwards, 5*l.* 5*s.*

Fifteen pounds or upwards, and under 20*l.* 6*l.* 6*s.*

At 20*l.* and under 25*l.*, 8*l.* 5*s.*

At 25*l.* and under 30*l.* 8*l.* 17*s.*

At 30*l.* and under 40*l.* 9*l.* 9*s.*

At 40*l.* and under 50*l.* 10*l.* 1*s.*

At 50*l.* per annum or upwards, 10*l.* 13*s.*

Persons in any part of Scotland, except the Highlands, retailing any spirits distilled from malt, corn, grain, barley, bere, bigg, or other British materials, called aqua vitæ, for every licence to retail plain aqua vitæ only, 2*l.*

Persons who shall retail such spirits within the several counties and districts of the Highlands of Scotland, the royal burghs, burghs of barony or regality therein excepted, 1*l.*

Starch-makers, 10*l.*

Maker of any kind of sweets, or made wines, other than mead, for sale, 10*l.*

Retailers of British made wines or sweets, 4*l.* 8*s.*

Manufacturers of tobacco or snuff, if the tobacco and snuff work weighed by such person for manufacture, within the year ending on the 10th day of October, previous to taking out the licence, shall not have exceeded 20,000 lbs. weight, 5*l.* and surcharge.

If not exceeding 30,000 lbs. weight, 4*l.* 10*s.*
Not exceeding 40,000 lbs. 6*l.*
Not exceeding 50,000 lbs. 7*l.* 10*s.*
Not exceeding 60,000 lbs. 9*l.*
Not exceeding 70,000 lbs. 10*l.* 10*s.*
Not exceeding 80,000 lbs. 12*l.*
Not exceeding 90,000 lbs. 13*l.* 10*s.*
Not exceeding 100,000 lbs. 15*l.*
Not exceeding 120,000 lbs. 18*l.*
Not exceeding 150,000 lbs. 22*l.* 10*s.*
If exceeding 150,000 lbs. 30*l.*

Every person who shall first become a manufacturer of tobacco or snuff, for every such licence, 3*l.* and within ten days after the 10th day of October next after taking out such licence, such further additional sum, as with the said 3*l.* shall amount to the duty hereinbefore directed to be paid, according to the quantity of tobacco and snuff work weighed for manufacture within the preceding year, 3*l.* and a surcharge.

Dealers in tobacco or snuff, within the limits of the chief office of excise in London or Edinburgh, for every such licence, 10*s.*

Ditto, in any other part of Great Britain, 5*s.*

Vinegar-makers, for sale, 1*l.*

Retailers of foreign wine in England, who shall not have an excise licence for retailing distilled spirituous liquors or strong waters, or a licence for the retailing of beer, ale, or other exciseable liquors, 10*l.* 8*s.*

Retailers of foreign wine in England, who shall have taken out a licence for retailing beer, ale, and other exciseable liquors, but shall not have an excise licence for retailing distilled spirituous liquors or strong waters, 8*l.* 8*s.*

Retailers of foreign wine in England, who shall have an excise licence for retailing distilled spirituous liquors or strong waters, 4*l.* 8*s.*

Retailers of foreign wine in Scotland, who shall not have an excise licence for retailing distilled spirituous liquors or strong waters, or a licence for retailing beer, ale, or other exciseable liquors, 3*l.* 6*s.* 8*d.*

Retailers of foreign wines in Scotland, who shall have taken out a licence for retailing beer, ale, or other exciseable liquors, but not for retailing distilled spirituous liquors or strong waters, 2*l.* 13*s.* 4*d.*

Retailers of foreign wine in Scotland, who shall have an excise licence for retailing distilled spirituous liquors or strong waters, 1*l.* 6*s.* 8*d.*

Wire-drawers of gilt or silver wire, called big wire, in Great Britain, 4*l.*

Makers of oxygenated muriatic acid, or oxymuriate of lime, 5*l.*

LICHEN, or LIVERWORT, a species of moss growing among rocks and on trees, and principally found in different parts of France, and in the Canary, and Cape de Verd, islands. There are several species of this genus, which are useful in the arts, particularly dyeing, and also as food or medicine. The lichen *clavatum* or *alpinum* is said to give to wool a fine orange, superior to that of annotta. The lichen *cinereus* does the same. The *chlorinus* gives a bright yellow, and the *vulpinus* a lemon colour. Lord Dundonald took out a patent for the use of lichen as a substitute for gum. The lichen, for this purpose, is scalded two or three times with boiling water, to remove the outer skin or resinous matter, washed in cold water, and then left ten or twelve hours on a stone or brick floor; after which the gum is extracted by boiling some hours in water, with about half or three quarters of an ounce of alkali to each pound of lichen. For an account of LICHEN ISLANDICUS, *see* ICELAND MOSS.

LIEN, a claim or attachment to any property which a person has in his possession, for a debt due to him from the owner of the property.

LIFE ESTATES, are of two kinds; viz. such as are created by the act of the parties; and such as are created by operation of law, as estates by the courtesy of England, and by dower. Estates for life, created by deed or grant, are where a lease is made of lands or tenements to a man, to hold for the term of his life, or for the life or lives of others, in any of which cases he is called a "tenant for life." 2 *Black. Com.* 120. Such estates (for life) are, in the common acceptation of the term, *freeholds*, and confer the right of voting for members of parliament; while estates for years, be the length of the term what it may, confer only a chattel interest, and do not give the right of suffrage.

LIFE INSURANCE. *See title* INSURANCE.

LIGHTER, a large heavy boat into which ships are *lightened*, or unloaded, the manager of which is called a *lighterman*; and the money paid for conveyance thereby is called lighterage.

LIGHT-HOUSE, is a marine term for a tower, advantageously situate on an eminence upon the sea-coast, or at the entrance of some port or river, for the direction of ships in dark nights, by means of some sort of illumination, as fire, candle, or lamp. We have many on our coasts, and light duties for the support of them are payable by stat. 4 & 5 Anne, c. 20. and 8 Anne, c. 17.; by which custom-house officers are prohibited from making out any cocket or other discharge, or taking any report outwards for any ship until the duties for this purpose are paid, and the master shall have produced a light-bill testifying the receipt thereof.

And it shall be lawful for every person authorised by the Trinity House, to go on board any foreign ship to receive the duties, and for non-payment to distrain the tackle of the ship; and in case of delay of payment for three days after distress, the receivers of

the said duties shall cause the same to be appraised by two persons, and to sell the distress.

British-built ships, the property of British subjects, sailing from foreign port to foreign port, and not touching at any place in Great Britain, are not liable to these duties. 3 *Term R.* 768.

LIGNUM VITÆ. (Ger. *Pockholz.* Du. *Pokhout.* Da. *Pokkentræ, Fransostræ.* Sw. *Pockenholts, Fransosenholts.* Fr. *Gayac, Bois saint.* It. *Guajaco, Legno santo Legno.* Sp. *Guayaco, Palo santo.* Port. *Guajaco, Páo sancto.* Rus. *Bakaut.* Pol. *Gwaiak.* Lat. *Guaiacum.*) This species of wood is of great utility, as well for turnery, as in pharmacy. The tree which produces it grows in most of the West India islands, but especially in Hayte, and Sainte Croix. The wood of this tree ought to be chosen solid, compact, and ponderous; its general colours are dark green, black, and brown, interiorly, though on the outside it is usually of a pale yellow, like box-wood. It has a bitterish taste, and affects the mouth with a slight degree of acrimony; its odour is remarkably aromatic and pungent, and not disagreeable when the wood is burnt. It is generally covered with a ligneous, thin, compact, shining bark, of a lead-colour without, and livid internally. The bark is resinous and extremely caustic. The resin extracted from lignum vitæ, is employed with the utmost success as a medicine. *See* GUAIACUM.

LILAC. The yellowish and red-streaked wood of old lilac-trees is valuable to turners and cabinet-makers, as the vessels and utensils made of it are equal to those made of olive-wood. By immersing such articles in aqua-fortis, largely diluted with water, they acquire a fine red colour.

LILY OF THE VALLEY. A beautiful green colour may be prepared from the leaves of this plant with the addition of lime.

LIME, (Ger. Du. Da. and Sw. *Kalk.* Fr. *Chaux.* It. *Calcina, Cālce.* Sp. and Port. *Cal.* Rus. *Iswest.* Pol. *Wapno.* Lat. *Calx,*) one of those earthy substances, which exist in every part of the known world. It is found purest in limestone, marble, and chalk. None of the substances are lime, but are capable of becoming so by burning in a white heat.

Lime may be also obtained perfectly pure by burning those crystallized limestones called calcareous spars, which are perfectly white and transparent, and also by burning some pure white marbles. It may be procured also in a state of purity by dissolving oyster-shells in muriatic acid, filtering the solution, mixing it with ammonia as long as a white powder continues to fall, and filtering again. The liquid is now to be mixed with a solution of carbonat of soda: the powder which falls being washed and dried, and heated violently in a platinum crucible, is pure lime.

Pure lime is of a white colour, moderately hard, but easily reduced to a powder. It has a hot burning taste, and in some measure corrodes and destroys the texture of those animal bodies to which it is applied. Its specific gravity is 2.3. It tinges vegetable blues green, and at last converts them to yellow.

If water be poured on newly burnt lime, it swells and falls to pieces, and is soon reduced to a very fine powder. In the mean time so much heat is produced, that part of the water flies off in vapour. If the quantity of lime slacked (as this process is termed) be great, the heat produced is sufficient to set fire to combustibles. In this manner, vessels loaded with lime have sometimes been burnt. When great quantities of lime are slacked in a dark place, not only heat but light also is emitted, as Mr. Pelletier has observed. When slacked lime is weighed, it is found to be heavier than it was before. This additional weight is owing to the combination of part of the water with the lime; which water may be separated again by the application of red heat; and by this process the lime becomes just what it was before being slacked.

Lime will become slacked, after a certain length of time, on mere exposure to the atmosphere under ordinary circumstances, from its absorbing the water diffused through that medium; a further change also takes place consequent on its great affinity for carbonic acid, by which it attracts a portion of that contained in the air, and thence becomes changed into a white, insipid powder, termed *chalk.* This may be again reduced to pure lime by the action of fire.

One of the most important uses of lime, is in the formation of mortar as a cement in building. Mortar is composed of quicklime and sand, reduced to a paste with water.

The lime ought to be pure, completely free from carbonic acid, and in the state of a very fine powder: the sand should be free from clay, and partly in the state of fine sand, partly in that of gravel; the water should be pure; and if previously saturated with lime, so much the better. The best proportions, according to the experiments of Dr. Higgins, are three parts of fine, and four parts of coarse sand, one part of quicklime, recently slacked, and as little water as possible.

The stony consistence which mortar acquires, is owing partly to the absorption of carbonic acid, but principally to the combination of part of the water with the lime. This last circumstance is the reason that if to common mortar one-fourth part of lime, reduced to powder without being slacked, is added, the mortar, when dry, acquires much greater solidity than it otherwise

would do. This was first proposed by Loriot; and a number of experiments were afterwards made by Morveau. The proportions which this philosopher found to answer best are the following:

Fine sand - - -	0.3
Cement of well-baked bricks	0.3
Slacked lime - -	0.2
Unslacked lime - -	0.2
	1.0

The same advantages may be attained by using as little water as possible in slacking the lime.

Higgins found that the addition of burnt bones improved mortar by giving it tenacity, and rendering it less apt to crack in drying; but they ought never to exceed one-fourth of the lime employed.

When a little manganese is added to mortar, it acquires the important property of hardening under water; so that it may be employed in constructing those edifices which are constantly exposed to the action of water. Limestone is often combined with manganese: in that case it becomes brown by calcination.

Another of the important uses to which lime is applied, is as manure to land. Every day produces some new proof of its general utility in this capacity, but every day also exhibits some new light in which its application may be viewed. It is applicable in different states to different kinds of soils, and to soils under different states of cultivation. Quite fresh, or, as it is called, *quick*, it is caustic, and will not do well on grass land; after it has long been exposed to the atmosphere and become mild, it will not forward sufficiently the process of putrefaction of the vegetables it meets with, and will be little productive. There are also limes of different essential qualities in their own nature, and on these differences their application, to be useful, must materially depend. Philosophers divide lime into two kinds, magnesian and calcareous. The former can only be useful in any considerable quantity on arable land, and even on that its good effects are problematical. The latter is salutary both on arable, and on grass land; and if the soil on which it is laid be any thing but chalk, it will bear to be abundantly applied. The finer it is pulverized the better, especially on grass, and it should neither be used so fresh from the kiln as to be extremely caustic, nor so long after being burnt as to have run into lumps, and altogether have lost its caustic quality. On fallows it will bear being laid even hot from the kiln, as it will not only destroy slugs and worms the better, and reduce them to mucilage, but will reduce weeds and other vegetable matters to a state of putrefaction.

When sheep have the common complaint denominated the *foot halt*, by driving them over a heap of caustic lime fresh from the kiln, a cure will frequently be effected.

LIME, *Bird*. *See* BIRD-LIME.

LIME, or LINDEN-TREE. (GER. and DU. *Linde*. DA. *Lindetræe*. SW. *Lind*. FR. *Tilleuil*. IT. *Tiglio*. SP. *Tilo*, *Tila*, *Tilon*. PORT. *Til*. RUS. and POL. *Lipa*. LAT. *Tilia*.) There are four species; the *europea*, *americana*, *pubescens*, and *alba*. The *europea*, or common lime-tree, is generally supposed to have been imported into England before the year 1652. The wood is light, smooth, and of a spongy texture, used for making lasts, and tables, for shoe-makers, curriers, &c. Ropes and bandages are made of the bark, and mats and rustic garments of the inner rind, in Carniola and some other countries. It is said that the linden cordage, made in some parts of Russia, is so remarkably strong and elastic, that in this respect it is superior to iron chains. The lime-tree contains a gummy juice, which being repeatedly boiled and clarified, produces a substance like sugar.

This tree is remarkable for those excrescences or *galls*, which appear on the edges of its leaves during the spring; these are of a reddish colour, and by being rubbed on linen, they are said to have imparted a beautiful red colour, which was not discharged, although it had been washed several times: hence it is probable that *lime-galls* might be rendered valuable in dyeing.

The wood of the lime-tree makes also excellent charcoal for drawing, or for the manufacture of gunpowder.

LIMES, a species of lemon, which grows in abundance in most of the West India islands, and is also to be met with in some parts of France, especially in Provence, as well as in Spain and Portugal. The lime is much smaller than the lemon, its rind is usually thinner, and its colour, when the fruit arrives at a perfect state of maturity, is a fine bright yellow. It is uncommonly juicy, and the flavour of its substance is esteemed far superior to that of the lemon. In Egypt a prodigious quantity of limes, each about the size of a walnut, and abounding in juice, with a remarkably smooth rind, is annually (sometimes biennially) gathered. The Egyptians make use of the juice as vinegar, and consume much of it in making sherbet, a favourite beverage in the Levant, and the neighbouring countries. They likewise send large quantities of lime-juice to Constantinople and Venice, always taking care to let the juice clarify prior to its being barrelled and shipped. There is, besides that just spoken of, another kind of *limes* common in Egypt, which is large, has uncommonly thick rind, and scarcely any juice. These limes are usually either preserved or made into marmalade. The West India lime is occasionally preserved green.

LIMITATION, a certain time prescribed by statute, within which an action must be brought. The time of limitation is two-fold; first in writs, by divers acts of parliament; secondly to make a title to any inheritance, and that is by the common law.

Limitation on penal statutes.—All actions, suits, bills, indictments, or informations, which shall be brought for any forfeiture upon any penal statute, made or to be made, whereby the forfeiture is, or shall be, limited to the queen, her heirs or successors only, shall be brought within two years after the offence committed, and not after two years; and all actions, suits, bills, or informations, which shall be brought for any forfeiture upon any penal statute made or to be made, except the statutes of tillage, the benefit and suit whereof is or shall be by the said statute limited to the queen, her heirs or successors, and to any other that shall prosecute in that behalf, shall be brought by any person that may lawfully sue for the same, within one year next after the offence committed; and in default of such pursuit, then the same shall be brought for the queen's majesty, her heirs or successors, any time within two years, after that year is ended: and it is provided that where a shorter time is limited by any penal statute, the prosecution must be within that time. 31 Eliz. c. 5.

Limitation in regard to personal actions of assault and battery, and actions arising upon contract and trespass.

All actions of trespass, of assault, battery, wounding, imprisonment, or any of them, shall be commenced and sued within four years next after the cause of such actions or suits, and not after. 21 Jac. 1. c. 16.

Actions of account, &c.—All actions of trespass *quare clausum fregit*, all actions of trespass, detinue, trover, and replevin, all actions of account, and upon the case, (other than such accounts as concern the trade of merchandise,) between merchant and merchant, all actions of debt grounded upon any lending, or contract without speciality, (that is, not being by deed or under seal,) all actions of debt for arrears of rent, and all actions of assault, menace, battery, wounding, and imprisonment, shall be commenced within the time and limitation as followeth, and not after; that is to say, the said actions upon the case (other than for slander), and the said actions for trespass, debt, detinue, and replevin, and the said actions for trespass *quare clausum fregit*, within six years, after the cause of such action. 21 Jac. c. 16.

Exception in relation to infants.—It has been holden, that if an infant during his infancy, by his guardian bring an action, the defendant cannot plead the statute of limitation, although the cause of action accrued six years before; and the words of the statute are, that after his coming of age, &c.

Exception in relation to merchants' accounts.—As to this exception, it has been matter of much controversy, whether it extends to all actions and accounts relating to merchants and merchandise, or to actions of account open and current only. But it is now settled, that accounts open and current only are within the statute; and that therefore, if an account be stated and settled between merchant and merchant, and a sum certain agreed to be due to one of them, if in such case, he to whom the money is due do not bring his action within the limited time, he is barred by the statute. 2 *Mod.* 312.

Exception in relation to persons beyond sea.—It seems to have been agreed that the exception as to persons being beyond sea, extends only where the creditors or plaintiffs are so absent, and not to debtors or defendants, because the first only are mentioned in the statute; and this construction has the rather prevailed, because it was reputed the creditor's folly, that he did not file an original, and outlaw the debtor, which would have prevented the bar of the statutes. If one of two plaintiffs be abroad, and the other be in England, the action must be brought within six years after cause of action. *Perry* v. *Jackson*, 4 *Term R.* 516.

Executor or administrator.—If A. receives money belonging to a person who afterwards died intestate, and to whom B. takes out administration, and brings an action against A., to which he pleads the statute of limitations, and the plaintiff replies, and shows that administration was committed to him such a year, which was within six years; though six years are expired since the receipt of the money, yet not being so since the administration committed, the action is not barred by the statute. 1 *Salk.* 421.

Where a debt barred by the statute shall be revived.—Any acknowledgment of the existence of the debt, however slight, will take it out of the statute, and the limitation will then run from that time: and where an expression is ambiguous, it shall be left to the consideration of the jury, whether it amounts or not to such acknowledgment. *Lloyd* v. *Maund*, 2 *Term R.* 760.

It is clearly agreed, that if after the six years, the debtor acknowledges the debt, and promise payment, that this revives it, and brings it out of the statute: as if a debtor by promissory note, or simple contract, promises within six years of the action brought, that he will pay the debt; though this was barred by the statute, yet it is revived by the promise. 1 *Salk.* 28. Evidence was, that "defendant acknowledged his acceptance of a bill, and that he *had been liable*, but that he was not liable *then*, because it was *out of date*:" this was holden sufficient to take the case out of the statute. *Leapor* v. *Tatton*, 16 *E. R.* 420.

LINDEN-TREE. *See* LIME-TREE.

LINE, denotes a French measure, containing the 12th part of an inch, or the 144th

part of a foot. Geometricians conceive the line subdivided into six points. The French line answers to the English barley-corn.

LINEN. (Ger. *Linnen, Leinwand.* Du. *Lynwaat.* Da. *Læred.* Sw. *Linneräf, Linne.* Fr. *Toile.* It. *Tela, Panno lino.* Sp. *Lienzo, Tela de lino.* Port. *Panno de linho.* Rus. *Polotno.* Pol. *Plotno.* Lat. *Linteum.*) Linen-cloth is chiefly made of *hemp* and *flax.* After the filaments of these plants have been properly dressed and combed, they are spun into yarn by the hand, in the usual manner; the yarn is then conveyed to the loom, where it is woven into cloth, after which it is bleached.

Linen is a commodity of universal use, and a commodity that cannot be supplanted by any thing else near so commodious and agreeable for those uses to which it is applied. The species of goods, which come under the denomination of linen, are table-cloths, plain, and damasked, cambric, lawn, shirting, sheeting, towels, Silesias, Osnaburghs, &c. The chief countries in which linens are manufactured, are Russia, Germany, Switzerland, Flanders, Holland, Scotland, and Ireland. Of these, Russia principally manufactures sheeting and sail-cloth; Germany, shirtings, sheeting, and bagging; Switzerland, both fine, and coarse, goods; Flanders, the finer articles, especially cambric and lawn; Holland, sheeting of the very best description; Scotland, coarse shirting; and Ireland, shirting, damask table-linen, and towelling, all of which, in point of quality, are greatly superior to the same description of articles manufactured in any other part of the world. The linen manufactures of Ireland are almost entirely confined to the northern provinces of that kingdom, and immense quantities are annually exported thence to England, and several other parts of Europe, as well as to North, and South, America, the West Indies, and Africa. The flax-seed is, for the greater part, procured from America; but other nations engaged in this lucrative branch of trade, either grow their seed at home, or procure it from the north of Europe. In several parts of Germany, Switzerland, Flanders, and France, linens are frequently embellished with painting; and at London, and the other parts of England, the produce of the Irish linen manufacture is beautifully printed in the manner of calicoes.

Several acts of parliament have been made at various times for the encouragement of the manufactures of British, and Irish, linens, and bounties have been allowed upon their exportation. But the first, from which the establishment of this manufacture may be dated, is the 15 Car. 2. prohibiting its importation from abroad, but under a heavy duty. Linens are protected by divers modern statutes.

Persons affixing on any foreign linens imported, any stamp in imitation of those put upon Scotch or Irish linens, shall forfeit *5l.* for each piece.

No linens to be stamped until oath be made that they are the manufacture of England, or Ireland; nor shall any bounty be allowed upon the exportation of any such linen, unless marked with the manufacturer's name and place of abode. The 18 Geo. 2. c. 27. makes it felony *sans* clergy to steal any linen, linen-yarn, &c. to the value of 10*s.* from bleach-yards, &c.; which offence is extended to accessories by 51 Geo. 3. c. 41. and the punishment changed to transportation. 4 Geo. 3. c. 37. makes it felony *sans* clergy to *destroy,* or *cut,* these articles.

Persons using false stamps, incur a penalty of *5l.* for each piece. *See* BLEACHING, FLAX, and WEAVING. *See also* Ireland, Holland, &c. *article* EUROPE.

LING, *gadus molva,* a species of cod-fish. Vast quantities of this fish are salted for exportation, as well as for home consumption. When it is cut or split for curing, it must measure twenty-six inches, or upwards, from the shoulder to the tail; if less than that it is not reckoned a sizeable fish, and consequently not entitled to the bounty on exportation. Ling is an inhabitant of the northern seas, and forms in many places a considerable article of commerce. Large quantities of this fish come to us from the Shetland and Orkney isles, from Rush in Ireland, and from the northern parts of Scotland.

LINGET, a small mass of metal.

LINSEED, (for the foreign names *see* FLAX-SEED,) is a small flat seed, of an oblong or oval figure, broad and obtuse, or rounded at one end, and terminating in a point at the other; it is of a bright brown colour, with some faint cast of reddishness in it.

Russia, the countries surrounding the Baltic, and Flanders, are more fertile in linseed than any other parts of the world. France, Prussia, Germany, New Zealand, and Great Britain, and Ireland, likewise produce small quantities. The linseed of New Zealand produces flax which, from some experiments made by M. Labillardiere, an ingenious Frenchman, appears to be much stronger than hemp, common flax, or the filaments of the aloe-tree bark. *See* FLAX.

LINSEED-OIL. (Ger. *Leinöl.* Du. *Lynöli.* Da. *Lünolie, Hörrolie.* Sw. *Linolja.* Fr. *Huile de lin.* It. *Olio di lino.* Sp. *Aceite de linaza.* Port. *Oleo de linhaça.* Rus. *Lnjanoe masslo.* Pol. *Oley lniany.* Lat. *Oleum lini.*) This oil is procured by expression from the *linseed,* on account of a mucilage that resides in the shell; the quantity obtained is comparatively small; and as the cold-drawn oil is not so fit for many purposes as that which is drawn hot, the following method is taken to destroy the mucilage before the application of the press: an iron

vessel, like a sand-bath, capable of containing some bushels, is fixed in a furnace. It is then filled with the seed, and heated by a moderate fire. Care must be taken to stir up its contents frequently, that every part may be equally roasted; at first there arises an abundance of aqueous vapour, which, as the heat is increased, is followed by dense blackish fumes, of a very nauseous odour. The roasting being completed, the paste is subjected to the operation of the mill. The cold-drawn oil has a rich yellow colour, is very unctuous, and unpleasant both to the taste and smell; by exposure to the air and light, it becomes dry. The hot-drawn oil is of a rich yellowish-red or deep wine colour, and is more nauseous than the former. It is of a thicker consistence, and dries without much difficulty in the air, particularly if it has been boiled with a little litharge. It is principally used by paint-makers.

LINSEYWOOLSEY, a coarse cloth made of flax, or hemp, and wool mixed, and much worn by the peasantry of Scotland, Wales, &c. It is principally manufactured in those two countries, and in the northern parts of Europe.

LINCHPINS, small pins of iron, which keep the wheels of carriages on their respective axle-trees; for when the end of the axle-tree is put through the nave, the linchpin is put in, to prevent the wheel from falling off.

LINTEL, is that part of the door-frame that lies across the door-posts over head.

LION-SKINS. (Ger. *Löwenhaüten.* Du. *Leewrenhuiden.* Da. *Lövehuder.* Sw. *Lejouhudar.* Fr. *Peaux de Lion.* It. *Pelle di Leone.* Sp. *Pieles de Leon.* Port. *Pelles de Leno.* Rus. *Lewowaja koshi.* Lat. *Leonis pelles.*) The general colour of the lion's skin is pale-tawny, still paler or more inclining to white beneath. The upper part of the head, the neck, and the shoulders of the animal are coated with long shaggy hair, forming a pendent mane; on the body the hair is short and smooth; and the tail is terminated by a tuft of blackish hair. The lioness is destitute of the mane, and is whiter beneath than the male. The lion is principally an inhabitant of Africa, but is also found, though far less numerous, in the hotter regions of Asia. Lion-skins are chiefly used to caparison military chargers, and are occasionally employed in the formation of knapsacks, more especially on the continent of Europe.

LIQUEURS, a word, like the article for which it stands, introduced from the French, and signifying a dram rendered mild and palatable. The foundation of all liqueurs is composed of white, or colourless brandy, and white sugar-candy, in which compound are infused different fruits, as orange, citron, lemon, raspberry, apricot, &c.; aromatics, as cloves, cinnamon, &c.; or kernels of fruits. They are made in many countries of Europe, and large quantities of them, in cases constructed to contain six, or eight, different sorts, are imported from Hamburgh.

LIQUID-AMBER, a resinous juice, flowing from a large tree, which grows in Virginia, Mexico, and other parts of America. This juice is at first about the consistence of turpentine, but by long keeping it hardens into a resin. It is of a yellow colour inclining to red, of a warm taste, and a fragrant smell, not unlike that of storax heightened with a little ambergris. It was formerly of great use as a perfume, but is at present a stranger to the shops.

LIQUORICE, or Licorice. (Ger. *Sussholz.* Du. *Zoethout, Kalishout.* Da. *Lakrizrod.* Sw. *Lakritsrot.* Fr. *Règlisse, Racine douce.* It. *Regolizia, Logorizia, Liquirizia, Ugurizia.* Sp. *Regaliz, Orozuz, Paloduz.* Port. *Regaliz, Regoliz, Alcacuz.* Rus. *Koren solodkowoi.* Pol. *Lakrycia, Slodki korzen.* Lat. *Glycynchiza.*) This root grows wild in many parts of France, Italy, Spain, and Germany. It is cultivated in several parts of England, but particularly in Yorkshire, in great abundance, and of much finer quality than the foreign liquorice, being longer, evener, and more succulent than the roots imported from any part of the world.

The plant which affords liquorice-root seldom exceeds a foot in height; its leaves are of a dark glossy green colour, gummy to the touch, and rounded; the blossoms are red, and produce small pods, which contain the seed. When liquorice-root is bought fresh, it ought to be chosen of a close texture, about the thickness of a man's finger, reddish without, of a golden yellow internally, and of a sweet, grateful flavour. When chosen *dry*, the preference should be given to that which has nearly the same qualities as the foregoing, and, if it be imported, care should be taken not to purchase the refuse of the different bales or parcels, which is ordinarily black, dirty, and of little value. In Germany, Muscovy, and Persia, they cultivate a species of liquorice, which is equally beautiful in appearance, but inferior in point of quality; of this article, large quantities are sent into France, and to other parts of Europe.

Bayonne and Saragossa in Spain, however, supply the principal part of Europe with liquorice-root. It is principally used in medicine, when reduced to powder, in coughs, and disorders of the lungs. It is an ingredient in almost all decoctions and ptisans.

LIQUORICE-JUICE, Spanish-Juice, or Liquorice-Ball, (Ger. *Lakritzensaft, Spanischer saft.* Du. *Drop.* Da. *Lackrisaft.* Sw. *Lackrits.* Fr. *Suc ou Jus de règlisse, Règlisse noir.* It. *Sugo di regolizia.* Sp. *Regaliz en bollos o' pastillas.* Port. *Succo de alcacuz.* Rus. *Solodkowoi sod.* Pol. *Lakrycya.* Lat. *Succus liquoritiæ,*) the inspissated juice of the common liquorice-root, is brought to us in rolls, or cakes, usually

covered with bay-leaves, from Spain and Holland. It is to be chosen firm, but not tough, hard, and when broken, of a fine shining surface, such as perfectly melts in the mouth, and does not taste of burning, nor leaves any harsh or gritty particles between the teeth.

The manner of preparing liquorice-juice in Spain is as follows: they take up the roots in the month of July; clean them perfectly as soon as taken out of the earth, and then hang them up in the air, till nearly dry; after this they cut them into thin slices, and boil them in water till the decoction is extremely strong, when they press it hard out to obtain all the juice from the roots. This decoction is left to settle a little, and when it has deposited its coarsest parts, they pour it off into vessels, evaporate it over a fire, strong first, but mild afterwards, till it becomes of a thick consistence; they then let the fire go out, and when the extract is so cool that they can handle it, they take out large parcels of it at a time, and work them well with the hands, forming them into cylindric masses, which they cut into such lengths as they please, roll them over half-dried bay-leaves, which adhere to their surfaces, and leave them exposed to the sun till perfectly dried. Great nicety is to be observed, at the end of the evaporation, to get the extract to a proper consistence without letting it burn. *Refined liquorice,* or that description of the article which is vended in thin, rounded, and glazed pieces, about the thickness of a crow's-quill, is entirely prepared in this country. The whole process consists in evaporating the liquorice-ball anew, and purifying it by rest, with the help of isinglass, &c.

LISBON WINE, a white-wine, of a fine sweet flavour, which we usually import from the city of that name. *See* WINE.

LIST, in the cloth manufactory, the border of the stuff, bounding its width on each side.

LITERARY PROPERTY. The statute 8 Ann. c. 19. makes it necessary for the printer of a book, published for the first time after the composition, with the consent of the proprietor of the copy-right, to deliver a copy upon the best paper to the warehouse-keeper of the company of stationers for the university library at Cambridge, *notwithstanding the title to the copy* of such book, and the *consent of the proprietor* to the publication, be not *entered in the register book* of the said company. 16 *East R.* 317.

An action is maintainable on the statute 8 Anne, for printing a single sheet of music. *Clementi* v. *Goulding.* 11 *East R.* 244.

An action lies to recover damages, "for printing the new corrections and additions to an old work." *Cary* v. *Longman,* 1 *East R.* 358.

But no such action lies for publishing sea-charts, on an improved and more useful principle, with material corrections, though *many of the lines were copied from old charts. Sayre* v. *Moore. Id.* 361.

But the action lies for a *servile* imitation of parts of a book of chronology, though other parts of the book were different. *Trusler* v. *Murray. Id.* 363.

Two penalties may be incurred on the same day on 12 G. 2. c. 36. for selling books, the originals of which have been written and published *here,* and afterwards reprinted in another country, and *imported* into this, if the *acts of sale be distinct. Brooke* v. *Millikin.* 3 *T. R.* 509.

The assignee of a print may maintain an action on statute 17 Geo. 3. c. 57. against any person who pirates it; and it is not necessary in such an action to produce the plate itself in evidence, but one of the prints taken from the original plate is good evidence; but the date must appear on the print. 5 *T. R.* 41. *See* further *titles* BOOKS and ENGRAVING.

LITHARGE, (Ger. *Glötte, Glätte.* Du. *Gelit.* Da. *Glöd.* Sw. *Glitt, Glette.* Fr. *Litharge.* It. *Litargirio.* Sp. *Almartaga, Litarjirio.* Port. *Almartaga, Lithargirio.* Rus. *Glet.* Pol. *Gleyte, Glete.* Lat. *Lythargyrium,*) an oxide of lead in an imperfect state of vitrification. When silver is refined by cupellation with lead, this latter metal, which is scorified, and causes the scorification of the imperfect metals alloyed with the silver, is transformed into a matter composed of small semitransparent, shining plates, resembling mica; which is litharge. Litharge is more or less white or red, according to the metals with which the silver was alloyed. The white is called litharge of silver, and the red has been, improperly, called litharge of gold.

Litharge may be easily revived into lead; accordingly, much of that which is produced by refining in the large way, is reduced, by being melted upon burning coals. The part of it which is least altered by mixture with other metals is thus reduced, and by this method good and saleable lead is obtained. The rest of the litharge of these refineries is sold, and used, for various purposes. Potters use much of it for glazing their wares. It is employed for the preparation of some plaisters, and other external remedies; and also in painting, to render linseed-oil drying. Lastly, it is added in the composition of some glasses, for it is very fusible, and assists the fusion of other substances. It has in general the same properties as the other oxides of lead. All the litharge which is commonly sold comes from refineries. The quantity formed there is more than sufficient for the demand. It comes to us from Sweden, Germany, and Denmark; but that from Dantzic is most esteemed. What we have been treating of is factitious litharge; but there is likewise a natural litharge, a mineral which is very

frequently met with in lead-mines. Natural litharge is usually reddish, is found in scales, may easily be broken, and possesses not only the appearance, but the properties of white lead.

LITHINA, an alkali lately discovered by M. Arfveason, a Swedish chemist, in the mineral called *petalite*. It has been reduced to the metallic state by Sir H. Davy, in which it bears a strong resemblance to sodium. The principal property distinguishing this alkali from potash and soda, is its greater power of saturating acids.

LITHOCOLLA, or LITHOCOLLUM, a kind of cement used by lapidaries to fasten precious stones, in order to cut them. It consists of resin and brick-dust. For diamonds they use melted lead, putting them therein before it is quite cold. For other cements they use marble-dust, with strong glue, and, to fasten their sparks, they add the white of an egg and pitch.

LITHOGRAPHY, the art of printing from stone. It was first introduced into this country, sixteen years ago, by a person of the name of André, who obtained a patent for the invention, but which, of course, could not have been sustained, as the art had been long practised on the continent. A periodical work was published by him, of impressions from stone; but it did not meet with success, and he soon left England. This mode of executing impressions was afterwards adopted by some other persons, but it was for some years very little encouraged; it does not appear that it had yet been practised in perfection in this country. A press has, however, lately been set up by Messrs. Moser and Harris; and as Mr. M. was for some time employed at several of the most considerable lithographic establishments on the continent, we may expect to see this cheap and quick mode of making impressions, (which for many purposes will rival copper-plate engraving,) brought to the highest degree of perfection, and meet with the encouragement it appears to merit. At Munich, where this art is principally practised, all the proclamations, &c. relating to the state, are thus printed; but it is not typographical printing, but copper-plate engraving, that it is, in many instances, likely to supersede.

Any calcareous stone, which is compact, with a fine and equal grain, susceptible of being polished with pumice, and capable of absorbing a little moisture, may be employed for lithography. The stone which completely answers the purpose, is a compact, nearly pure carbonate of lime, of a greyish-white colour. At Solenhofen, near Pappenheim in Bavaria, are extensive quarries of it; also at Kehlheim, near Ratisbon. It is also found in many of the departments of France. Among others, there are strata of calcareous stone in the mountains which separate Ruffec from Angouléme, which are well adapted for it. It is supposed to be the same as the *white lias*, which is found in England, covering the blue or common lias limestone. But specimens of the requisite hardness and fineness of grain have, we believe, not hitherto been found in this country. The stones are brought to an even surface, by rubbing them against one another, and then finished with fine sand and pumice-stone.

An ink is first to be prepared, with one part, by weight, of white soap, and the same quantity of pure gum-mastich. These substances are melted and carefully mixed together; five parts by weight of shell lac are then incorporated with them, by stirring them together until the whole is completely united, and there is gradually added a solution of one part of caustic soda in five or six parts its bulk of water. This addition must be made cautiously; for if the alkaline ley be poured in all at once, the liquor will froth up, and rise above the sides of the vessel. When these are completely mixed together, by employing a moderate heat, and agitation with a spatula, a proper quantity of lamp-black to give it a dark colour is added, and immediately after as much water as is sufficient to render the ink fluid and in a proper state for writing.

With this ink the design is traced on the stone as it would be on paper, either by a pen, or a camel's-hair pencil. Instead of ink, a pencil is sometimes employed to draw upon the stone, or upon paper, from which a counter-impression is taken upon the stone. The pencils for this purpose are composed of, three parts of soap, two parts of tallow, and one of wax: these are melted together, and well mixed, and lamp-black then added to colour it; the fluid is then run into moulds, where it becomes solid as it cools. The design being drawn on the stone, either with the fluid ink or the crayon, and suffered to dry; water acidulated with nitric acid is employed, in the proportion of 50 parts of water to one of acid: by means of a sponge the surface of the stone is soaked with this water, taking care not to rub the ink-lines. This process is repeated as soon as the stone appears to be dry. An effervescence is produced, and when it ceases, the stone is gently washed with pure water. While the stone is still moist, printers' ink is applied to it, with the common apparatus, which only adheres to the parts which have been drawn on; a sheet of paper not so damp as is required in copper-plate printing is laid over it, and it is subjected to the action of the cylinder-press. It is necessary to take about a dozen proofs before the work comes to its full perfection. After a number of impressions have been taken, the more delicate parts will begin to be a little blurred. As soon as this is perceived, the stone is to be removed from the press, and a sponge filled with rectified oil of turpen-

tine passed over it, and it is then to be washed with pure water. By this treatment the whole design will be apparently discharged: this, however, is not the case; for on applying the printing ink over the stone, every line which was in the original drawing, will again become visible, and the printing may be proceeded with as at first.

A variety in the practice of this art, that may be employed when very fine lines are wanted, is to cover the surface of the stone with a varnish of gum-water and lamp-black; the design may be sketched with an etching-needle, in the same way as on copper. The prepared ink is then to be applied over the whole surface, and when it has become perfectly dry, the stone is to be placed on its edge in warm water; the varnish soon dissolves off, and the traces made with the ink alone remain. The printing from it is then to be executed in the manner above directed.

The effect of wood engraving is given very perfectly by covering the entire surface of the stone with the prepared ink, and then scratching it off in the parts intended to be white.

Nothing resembling the strength or effect of the fine productions of copper-plate engraving can be produced; but it is admirably adapted to represent subjects of natural history, outlines, designs, plans, &c. The art is also applicable to the multiplication of writings, as the subject required to be printed, may be written on paper prepared for that purpose, and transferred on the stone, and printed without the least delay, and at no other expense than the mere printing.

LITMUS. *See* LACMUS.

LIVERY-LACE, a sort of lace for trimming the clothes of servants, usually made of worsted, silk, or gold and silver threads, worked in a variety of patterns. The texture of these laces is perfectly close.

LIVERYMEN of London, are a number of men selected from among the freemen of each company. Out of this body, the common-council, sheriff, and other superior officers of the government of the city are elected, and they alone have the privilege of giving their votes for members of parliament; from which the rest of the citizens are excluded.

LIVES, *Insurance on.* *See* INSURANCE.

LIVRE, an imaginary French money, equivalent to 10*d.* British.

LIXIVIUM, a ley, or water impregnated with the salts of burnt vegetables. What is left, after the evaporation of such a liquor, is called a *lixivious salt.* Lixiviums are used in medicine, bleaching, sugar-works, &c.

LOAD, or Lode, in mining, a word used, especially in the tin-mines, for any regular vein or course, whether metallic or not; but most commonly a load means a metallic vein. It is to be observed, that mines in general are veins within the earth, whose sides receding from or approaching to each other, make them of unequal breadths in different places, sometimes forming large spaces, which are called holes; these holes are filled like the rest with substances, which, whether metallic, or of any other nature, are called loads. When the substances forming these loads are reducible to metal, the loads are by the English miners said to be alive, otherwise they are termed dead loads.

The load is frequently intercepted by the crossing of a vein of earth or stone, or some other metalline substance; in which case it generally happens, that one part of the load is moved to a considerable distance on one side. This load is by the miners termed a flooking, and the part of the load which is moved, is by them said to be heaved. This fracture or heave of a load, according to Mr. Price, is produced by a subsidence of the strata from their primary positions, which he supposes to have been horizontal or parallel to the surface of the earth, and therefore should more properly be called a depression than a heave. This heaving of the load would be an inexpressible loss to the miner, did not experience teach him that as the loads always run on the sides of the hills, so the part heaved is always moved towards the descent of the hill; so that the miner, working toward the ascent of the hill, and meeting a flooking, considers himself as working in the heaved part; wherefore, cutting through the flooking, he works upon its back up the ascent of the hill, till he recovers the load, and *vice versa.*

LOADMANAGE, is the hire, which the pilot of a ship receives of the master or captain, for conducting the ship up the river or into port. *Petty loadmanage* and *primage* are due to the master and mariners for the use of his cables and ropes to discharge the goods, and to the mariners for loading and unloading of the ship or vessel: it is commonly about 12*d.* per ton. 32 Hen. 8. c. 14.

If the ropes break in hoisting of goods out of the ship into the lighter or boat, the master must answer if the goods be damaged or lost. *Leg. Oleron,* c. 10. But, if the ropes break at the crane, in taking them out of the lighter, (although till they are landed, they are not out of the master's custody,) yet the wharfinger shall answer.

LOADSMAN, or Lodesman, a kind of pilot, established for the safe-conduct of ships and vessels in and out of harbours, or up and down navigable rivers. *See* PILOT.

LOADSTONE. (Ger. Sw. and Pol. *Magnet.* Du. and Da. *Magneet.* Fr. *Aimant.* It. *Calamita.* Sp. *Iman.* Port. *Iman, Pedra de cevar.* Rus. *Magnit.* Lat. *Magnes.*) M. Hauy observes, that the ores in which the iron contains the least oxygen

without being engaged in other combinations, form natural magnets: and he calls the *loadstones* of commerce, which are found in considerable masses in Germany, Sweden, Norway, Spain, Italy, China, Siam, the Philippine Isles, Corsica, and Ethiopia, *oxidulated iron*. The loadstone is characterised by the following properties: a very strong action on the magnetic needle. Specific gravity 4.2457. Not ductile. Of a dark grey colour, with a metallic lustre. Primitive form, the regular octahedron. Insoluble in nitric acid. This singular substance was known to the ancients; and they had remarked its peculiar propety of attracting iron, though it does not appear that they were acquainted with the wonderful property which it also has, of turning to the pole when suspended, and left at liberty to move freely. Upon this remarkable circumstance the mariner's compass depends, an instrument which gives us such infinite advantages over the ancients. It is this which enables the mariners to conduct their vessels through vast oceans out of the sight of land, in any given direction; and this directive property also guides the miners in their subterranean excavations, and the traveller through deserts otherwise impassable. The natural loadstone has also the quality of communicating its properties to iron and steel; and when pieces of steel properly prepared are touched, as it is called, by the loadstone, they are denominated artificial magnets.

Fire corrodes the loadstone, and humidity diminishes its virtue. A good loadstone ought to be solid, tolerably light, somewhat porous, and of a shining black or deep blue colour.

LOANS, in political economy, sums of money, generally of large amount, borrowed from individuals or public bodies for the service of the state. They are either compulsory, in which case they may be more properly termed requisitions; or voluntary, which is the only mode that can be frequently resorted to with advantage. Loans are sometimes furnished by public companies as a consideration for peculiar privileges secured to them; but are much more commonly advanced by individuals on a certain interest being allowed for the use of the money, either for a term of years, or until the principal shall be repaid.

The practice of borrowing money, for defraying part of the extraordinary expenses in time of war, had been adopted in other countries long before it was introduced into Great Britain; but it has been carried to a far greater extent here, than in any other state; and the facility with which the government has been enabled to raise the largest sums, has arisen entirely from the strict punctuality with which it has constantly made good all pecuniary engagements. The chancellor of the exchequer is the officer who usually conducts negotiations of this kind on the part of the government, and the agreement is afterwards confirmed by parliament; the governor and company of the Bank of England have, of late years, been usually appointed receivers of the contributions, for which they have an allowance, at a certain rate per million; and the sums received by them are paid into the exchequer, in the name of the chief cashier of the Bank. The money appropriated to pay the interest or annuities, is issued at the receipt of the exchequer to the chief cashier of the Bank upon account, and he is enjoined to pay the annuities, and render his account in due course. The Bank detain their allowance for receiving the contributions out of the sum received, and likewise what they have allowed as discount to those subscribers who advanced their money before the times fixed for the several instalments.

When the parliament has voted the supplies, and the extent of the loan found necessary is determined, a communication is usually made to the Bank or Stock-exchange stating the particular stock on which the loan is to be made, and fixing a day for those who intend to bid for it to wait on the minister with their proposals: in the mean time each person forms his list of friends who are to take different proportions with him in case he succeeds. When the day comes, each party offers as low as he thinks he can venture with a fair prospect of profit, and the lowest offer is generally accepted. The only step to be taken by those who are not of the number just mentioned, and who may wish to take a share in the transaction, is to apply to one of the subscribers for a part of his subscription, which at first may sometimes be had without any premium, or for a very small one, for it cannot be presumed that any small number of men, who have subscribed for the whole sum to be raised, intend, or can keep it, but that they propose to include in their subscriptions a great number of their connections and acquaintance. Sometimes the subscription lies open to the public at the Bank, as in the instance of the loan of eighteen millions for the service of the year 1797, and then every person is at liberty to subscribe what he thinks proper; and if upon casting up the whole, there is a surplus subscribed, which has generally been the case, the sum each person has subscribed is reduced in an equal proportion, so as to make in the whole the sum fixed by parliament.

As soon as conveniently may be, after the subscription is closed, receipts are made out, and delivered to the subscribers, for the several sums by them subscribed; and for the conveniency of sale, every subscriber of a considerable sum has sundry receipts for different proportions of his whole sum,

by which means he can readily part with what sum he thinks proper; and a form of assignment is drawn upon the back of the receipt, which being signed and witnessed, transfers the property to any purchaser. The deposit is generally ten per cent., and is made at, or about, the time of subscribing; the second payment is about a month after, and so on till the whole is paid in, each instalment being usually either ten, or fifteen, per cent. Those subscribers who choose to pay the whole sum before the appointed days of payment, are allowed discount at an agreed rate per cent. on the sum paid in advance, from the time of such payment to the period when the whole is required to be paid in by instalments. Those who do not complete the payment of the sum they have subscribed for, forfeit the part they have paid; and this is the case according to the acts of parliament, if the money is not paid by the days appointed; but payments are sometimes received after the appointed days, on paying certain fees to the clerk.

Loans are usually raised upon either redeemable, or irredeemable, annuities. The former are those which, according to the conditions of the acts by which they are created, government may redeem without the consent of the proprietors, by discharging the debt at par; the latter are such as being granted for specific terms, cannot be redeemed without the consent of the proprietors. The various debts that have been incurred at different periods by loans on either of these species of annuities, constitute the funded debt of the nation; that is, the debt which has been secured upon certain funds, created by parliament, and appropriated to the payment of the annual interest on the sums borrowed. The constant hope of being able at a future period to redeem the debts contracted, has induced the government generally to prefer raising money on annuities redeemable at par; and the disadvantage which might arise to the stock-holder from being paid off at par, if his principal bore a high rate of interest, has always made those who advance money on loans prefer a large capital bearing a low rate per cent. though it may actually produce a somewhat less annual interest than would have been given on a capital equal to the sum advanced: the great speculations which are carried on in the public funds are also a strong inducement to prefer advancing money on these conditions, which have contributed so much to increase the nominal magnitude of the national debt.

The economy or extravagance of every transaction of this kind depends on its correspondence or disagreement with the price of the public funds, and the current rate of interest at which money could be obtained on good security at the time the bargain was concluded; and consequently, a loan on which the highest interest is paid, may have been obtained on the best terms that could possibly be made at the time it was negotiated. The interest paid, however, forms the real burthen of each loan to the country, and is the circumstance to be chiefly attended to in all comparisons of the advantage, or disadvantage, of the terms on which the public debts have been contracted at different periods.

From the difference in the terms of the loan, with respect to the capital created, the rate of interest it bears, and the different periods of the terminable annuities which have been granted with most of the loans, it is evident, that in order to form a proper comparison of the rate of interest paid for the money borrowed at different periods, the various conditions must be brought into some degree of uniformity; and the most obvious mode of doing this is, by converting that part of the interest which consists of terminable annuities into equivalent perpetual annuities; that is, into the additional interest, which must have been paid in lieu of such terminable annuities.

The rate of interest at which such conversion is made affects the result in some instances very materially; thus, the perpetual annuity, which is equal to an annuity of 10*l.* for 21 years, is, at 3 per cent. 4*l.* 12*s.* 5*d.* but at 5 per cent. 6*l.* 8*s.* 2*d.*; and the perpetual annuity equal to an annuity of 10*l.* for 60 years, which at 3 per cent. is 8*l.* 6*s.* is at 5 per cent. 9*l.* 9*s.* 3*d.* from which it is evident, that, if the terminable annuities, granted at different periods, are all valued at the same rate of interest, the comparison will by no means be just; for if a high rate is adopted, the loans which have been obtained at the lowest interest will be set in an unfavourable view; and if, on the contrary, they are all valued at a low rate, the charge of those loans, for which the highest interest is paid, will appear less than it really is. Nor is a medium or average rate more proper for exhibiting the real difference in the terms on which the several loans have been obtained. The least objectionable mode appears to be to convert the terminable annuities into perpetual annuities, according to the current rate of interest at the time when the annuities were granted, as it is upon the rate of interest that the proportionate value of an annuity for a certain term to the perpetuity depends; and in forming the following statements, the conversion has been made at the interest produced by money invested in the three per cents. according to the price of this stock at the times when the terms of the respective loans were settled: for, though by this means, the rate is, in each case, rather lower than it would have been had the interest produced by 4 or 5 per cent. stock been adopted, it is most probable, from the nature of the principal loans, that the stock

which must have been given in lieu of a long annuity, would chiefly have been three per cents.; and, therefore, the interest equivalent to the long annuity should be found according to the interest produced by this stock. It may also be proper to remark, that, as the terminable annuities have mostly been granted for a long term, and form but a small part of the whole interest, the difference of a quarter or even half per cent. in the rate at which they are valued has in general but little effect on the whole rate per cent. of the loan. Thus, if the long annuity of the loan of 14,500,000*l.*, in 1797, is valued at 6 per cent. (being the interest produced by 3 per cents. at that time) it makes the whole rate per cent. 6*l.* 6*s.* 10*d.*; but if the long annuity is valued at $5\frac{3}{4}$ per cent. it will be 6*l.* 6*s.* $9\frac{3}{4}$*d*: at $5\frac{1}{2}$ per cent. 6*l.* 6*s.* $9\frac{1}{4}$*d.*; and, at 5 per cent. 6*l.* 6*s.* $8\frac{1}{2}$*d.*

Lotteries have generally formed part of the terms of the loan; every subscriber of a certain sum towards the latter being entitled to a certain number of tickets, at a certain price. As the whole profits of the lotteries were thus given up to the subscribers, a part of the money advanced must be considered as equivalent to the sum which government would otherwise have received for the lottery, and is therefore to be deducted from the whole sum advanced on the loan. This profit is variable, but has generally been taken at the average of 2*l.* 10*s.* per ticket: making, on a lottery of 50,000 tickets, 125,000*l.* to be deducted from the sum advanced, in estimating the rate of interest paid thereon.

There are some other circumstances which affect the interest paid: such as the discount allowed for prompt payment, the different periods of the instalments, and the times from which the annuities commence; but as these drawbacks do not, in general, amount to any considerable sum, in comparison with the whole amount of the loan, they do not materially augment the rate of interest; and as they more, or less, affect all the loans, they are of still less importance in a comparative view.

It is unnecessary to enter into a particular investigation of the interest paid for the money borrowed in the infancy of the funding system, as the first loans differed materially from those of subsequent periods, in being raised wholly on terminable annuities, and in having a particular fund assigned for each loan, by the supposed adequateness or insufficiency of which the interest required by the lenders was frequently influenced, as well as by other causes, which have since ceased to exist.

During the reign of queen Anne, loans were chiefly raised on annuities for 99 years, till 1711, when, by the establishment of the South Sea company, a variety of debts were consolidated and made a permanent capital, bearing 6 per cent. interest. About this period lotteries were also frequently adopted for raising money for the public service, under which form a considerable premium was given, in addition to a high rate of interest. This mode of raising money was followed in 1712, 1713, and 1714. In the latter year, though the interest paid was equal to only 5*l.* 7*s.* 2*d.* per cent. on the sum borrowed, the premium allowed was upwards of 34*l.* per cent.; but as peace was restored, and the legal rate of interest had been reduced to 5 per cent. it seems that a larger premium was allowed, for the sake of appearing to borrow at a moderate rate of interest.

In the reign of George I. the interest on a considerable part of the public debt was reduced to 5 per cent. and the few loans that were raised were comparatively of small amount; that of the year 1720 was obtained at little more than 4 per cent. interest.

About 1730 the current rate of interest was $3\frac{1}{2}$ per cent.; and in 1736, government was enabled to borrow at 3 per cent. per annum. The extraordinary sums necessary for defraying the expenses of the war which began in 1739, were at first obtained from the sinking fund and the salt duties; a payment from the Bank, in 1742, rendered only a small loan necessary in that year, which was obtained at little more than 3 per cent. interest. In the succeeding years the following sums were raised by loans:

	Sums borrowed.	Interest.		
1743	£ 1,800,000	£ 3	8	4
1744	1,800,000	3	6	10
1745	2,000,000	4	0	7
1746	2,500,000	5	5	1
1747	4,000,000	4	8	0
1748	6,300,000	4	8	0
Loans of the seven years' war.				
1756	2,000,000	3	12	0
1757	3,000,000	3	14	3
1758	5,000,000	3	6	5
1759	6,600,000	3	10	9
1760	8,000,000	3	13	7
1761	12,000,000	4	1	11
1762	12,000,000	4	10	9
1763	3,500,000	4	4	2
Loans of the American war.				
1776	2,000,000	3	9	8
1777	5,000,000	4	5	2
1778	6,000,000	4	18	7
1779	7,000,000	5	18	10
1780	12,000,000	5	16	8
1781	12,000,000	5	11	1
1782	13,500,000	5	18	1
1783	12,000,000	4	13	9
1784	6,000,000	5	6	11
Loans of the war with the French republic.				
1793	4,500,000	4	8	7
1794	11,000,000	4	10	7
1795	18,000,000	4	15	8
1796	18,000,000	4	14	9
1796	7,500,000	4	12	2

	Sums borrowed.	Interest.		
1797	£18,000,000	£5	14	1
1797	14,500,000	6	6	10
1798	17,000,000	6	4	9
1799	3,000,000	5	12	5
1799	15,500,000	5	5	0
1800	20,500,000	4	14	2
1801	28,000,000	5	5	0
Loans since the war with the French empire commenced.				
1803	12,000,000	5	2	0
1804	14,000,000	5	9	2
1805	22,500,000	5	3	2
1806	20,000,000	4	19	7
1807	14,200,000	4	14	7
1808	10,500,000	4	14	6
1809	14,600,000	4	12	10
1810	12,000,000	4	4	2
1811	12,000,000	4	13	6
1812	32,500,000	5	5	7
1813	27,000,000	5	8	6
1814	24,000,000	4	12	1
1815	36,000,000	5	12	4
Being the last contracted.				

LOCK, (*Locks.* Ger. *Schlösser.* Du. *Sloten.* Da. *Laase.* Sw. *Lås.* Fr. *Serrures.* It. *Serrature.* Sp. *Cerraduras, Cerrajos.* Port. *Fechaduras.* Rus. *Samki.* Pol. *Zamki,*) a well-known instrument, reckoned the master-piece in smithery, a great deal of art and delicacy being required in contriving, and varying, the wards, springs, bolts, &c. and adjusting them to the places where they are to be used, and to the various occasions of using them. From the various structure of locks, accommodated to their different intentions, they acquire various names, as stock-locks, spring-locks, padlocks, &c. Of these the spring-lock is the most considerable, both for its frequency and its structure.

A treatise upon this subject has been published by Mr. Joseph Bramah, who begins with observing, that the principle on which all locks depend, is the application of a lever to an interior bolt, by means of a communication from without; so that, by means of the latter, the lever acts upon the bolt, and moves it in such a manner as to secure the lid or door from being opened by any pull or push from without. The security of locks in general, therefore, depends on the number of impediments we can interpose between the lever (the key) and the bolt which secures the door; and these impediments are well known by the name of wards, the number and intricacy of which alone are supposed to distinguish a good lock from a bad one. If these wards, however, do not in an effectual manner preclude the access of all other instruments besides the proper key, it is still possible for a mechanic of equal skill with the lock-maker to open it without the key, and thus to elude the labour of the other. "As nothing (says Mr. Bramah) can be more opposite in principle to fixed wards, than a lock which derives its properties from the motion of all its parts, I determined that the construction of such a lock should be the subject of my experiment." In the prosecution of these enquiries, he had the satisfaction to find, that the least perfect of his models fully ascertained the truth and certainty of his principle. The exclusion of wards made it necessary to cut off all communication between the key and the bolt; as the same passage which (in a lock simply constructed) would admit the key, might give admission likewise to other instruments. The office, therefore, which in other locks is performed by the extreme point of the key, is here assigned to a lever, which cannot approach the bolt till every part of the lock has undergone a change of position. The necessity of this change to the purposes of the lock, and the absolute impossibility of effecting it otherwise than with the proper key, are the points to be ascertained.

Of late years spring-locks have generally been sunk into, or set within, the doors of apartments, and when thus disposed, they are termed *mortise-locks.* The great advantage which this mode of placing locks has over the old practice of screwing them on the surface of the doors is, that apartments cannot be so readily forced, and that when once the lock is fastened, it cannot be removed without the aid of the key, or without demolishing the door itself.

The chief constituent parts of a spring-lock are the main-plate, cover-plate, and pin-hole, to the first of which belong the key-hole, top-hook, cross-wards, bolt-toe, or bolt-knob, drawback, spring-tumbler, pin of the tumbler, and staples. With the cover-plate are connected a pin, main-ward, cross-ward, and step-ward, or dap-ward; lastly, the pin-hole corresponds with the hook-ward, main cross-ward, shank, pot, or beard, bow-ward, and bit.

The best locks are manufactured at London, and Sheffield; the inferior sorts at Birmingham, Wolverhampton, and Dudley, and in the vicinities of these towns.

LOCUST, (Ger. *Johannisbrod, Sodschoten.* Du. *St. Jansbrood, Karoben.* Da. *St. Hans brod.* Sw. *Johannis bröd.* Fr. *Caroube, Carouge.* It. *Carobola, Carruba, Guainella.* Sp. *Algarroba, Garroba.* Port. *Alfarroba.* Rus. *Roshki turezkie i krimskie.* Pol. *Stodkie, Stracze, Chleb S. Jana.* Lat. *Siliqua dulcis,*) a species of bean, the produce of the carobe-tree, which grows abundantly in the island of Cyprus, and in some other islands of the Mediterranean, as well as in some parts of the East Indies. Locusts, which are likewise denominated Carobes, and St. John's bread, are eagerly bought up in the island of Cyprus by the Turks and the Grecians, who annually employ a vast number of vessels in carrying the article to the city of Alexandria. *See* CAROBES.

LODESTONE, a name given by Cornish miners to stones likewise called tinstone. They consist chiefly of stones or sand of different kinds, through which oxide of tin is invisibly disseminated. They are heavy, and of various colours; but blue, grey, black, and brown are the commonest.

LODGING. When a house is let out in separate apartments, they are termed *lodgings*, and the persons occupying them lodgers. They may be let, in the same manner as lands, and other tenements, either by a written, or verbal, agreement; by the year, or for any less specified period.

In case of a yearly tenancy, it is usual to have the contract in writing, in order to provide for the notice necessary to be given for quitting. For a less period than a year, it is not usual to make any other than a verbal contract; because where the tenant is to hold for a term certain, no notice is necessary, the tenancy expiring of course with the term for which the engagement was made. Where no term is mentioned, reasonable notice is necessary on both sides, which is generally regulated by local custom. In general, however, if taken from week to week, a week's notice is considered necessary; if from month to month, a month's notice.

It was formerly a doubt, whether a lodger, by reason of the special property he had in the furniture of his lodgings, could be guilty of felony in taking them away. *Kel.* 24. *Show.* 50. 57. 1 *Hawk. c.* 33. *sec.* 10.

But now by 3 & 4 Will. & Mar. c. 9. it is enacted, that if any person or persons shall take away with intent to steal, embezzle, or purloin, any chattel, bedding, or furniture, which by contract or agreement he or they are to use, or shall be let to him or them to use, in or with such lodging, such taking, embezzling, or purloining shall be adjudged larceny and felony. sec. 5.

An offender, to come within the meaning of this act, must be a lodger at the time the larceny is committed. *Old Bail. Sess.* 1785, No. 74.

And where a *whole house* is let ready-furnished; and, as it is said, where the party, by agreement, is to make good every thing which is missing or injured in a common lodging; for stealing the goods out of such a lodging-house, or ordinary lodging, no indictment will lie on this statute.

A man and his wife can scarcely *both* be guilty of the same larceny in robbing their lodgings; and where both are committed, the woman will generally be discharged.

Where lodgings are let to man and wife, the taking is that of the husband only.

The furniture let in ready-furnished lodgings cannot be taken as a distress for the rent; part of the contract being for the occupation of the apartments, and part for the use of the furniture. This has been doubted, but the better opinion seems to be as here stated.

Agreement for letting an unfurnished Apartment.

Memorandum of agreement made this —— day of —— 1818, between A. B. of ——, and C. D. of ——, whereby the said A. B. agrees to let, and the said C. D. agrees to take all, (*here insert the particulars of the apartments,*) with their and every of their appurtenances thereunto belonging, being part of a house and premises now in the occupation of the said A. B. situate and being No. ——, in —— street aforesaid; to have and to hold the same, with their appurtenances, and the sole and uninterrupted use and occupation thereof, unto the said C. D. his executors, administrators, and assigns, for the term of ——, to commence from —— now next ensuing, at the net yearly rent of ——*l.* of lawful money of the united kingdom of Great Britain and Ireland, free and clear of and from all and all manner of taxes, rates, and assessments whatsoever, parliamentary, parochial, or otherwise howsoever, payable quarterly, on the —— day of ——, the —— day of ——, the —— day of ——, and the —— day of ——, thence next ensuing: And the said C. D. doth hereby agree to make punctual payments of the rent hereby reserved, on the days and times the same is made payable: And it is further agreed, that at the expiration of the said term of ——, the said C. D. may hold, occupy, and enjoy the said ——, from quarter to quarter, (*as the case may be,*) for so long a time as the said A. B. and C. D. may and shall agree; and that each party be at liberty to quit possession, on giving to the other —— notice or warning, in writing, for that purpose: And it is also agreed between the said parties, that when the said C. D. shall quit the said premises, he shall leave them in as good condition and repair as they shall be in on his taking possession, reasonable use and wear only excepted. As witness our hands.

Agreement for letting furnished Apartments.

Memorandum of an agreement made this —— day of ——, in the year ——, between A. B. of ——, on the one part, and C. D. of ——, of the other part; by which the said A. B. agrees to let unto the said C. D. (*here insert the full particulars of the apartment,*) situate in —— street, in the parish of —— aforesaid, complete; furnished (which furniture is mentioned in a schedule hereunder written) (*the inventory must be stamped with the proper stamp,*) being part of the house belonging to the said A. B. to hold the said premises, for and during the term of ——, to commence from —— now next ensuing, at and under the yearly rent of ——*l.* of lawful money of the united kingdom of Great Britain and Ireland, payable quarterly, by even and equal portions; the first quarterly payment thereof to be made on the —— day of —— now next ensuing: And

it is agreed, by and between the said parties, that he the said C. D. after the expiration of the said term of ——, may hold and enjoy the said premises, with the said furniture, from quarter to quarter, (*as the case may be,*) so long as the said parties shall agree, at the same rent as aforesaid: And it is further agreed, between the said parties, that when the said C. D. shall quit the said premises, he shall and will leave the furniture and other things, mentioned in the schedule or inventory thereof hereunder written, in as good state and condition as the same now are, reasonable wear and use thereof only excepted. As witness our hands.

Witness.

Notice to quit Lodgings.

Sir, or Madam,

I hereby give you notice to quit and deliver up, on or before —— next, the rooms or apartments, and other tenements, which you now hold of me in this house (*as the case is.*) Witness my hand this — day of —, in the year —. To —— (*the lodger.*)

N. B. This must be delivered by a third person, who ought to keep an examined duplicate copy, signed by the landlord.

LOG, in naval affairs, is a flat piece of wood, shaped somewhat like a flounder, with a piece of lead fastened to its bottom, which makes it swim upright in the water. To this log is fastened a long line, called the log-line; and this is commonly divided into certain spaces, 50 feet in length, by knots, which are pieces of knotted twine inreeved between the strands of the line; which show, by means of a half-minute glass, how many of these spaces or knots are run out in half a minute. They commonly begin to be counted at the distance of about 10 fathoms or 60 feet from the log; so that the log, when it is thrown overboard, may be out of the eddy of the ship's wake, before they begin to count: and for the ready discovery of this point of commencement, there is commonly fastened at it a red rag.

The log being thus prepared, and thrown overboard from the poop, and the line veered out by the help of a reel, as fast as the ship sails from it, will show how far the ship has run in a given time, and consequently her rate of sailing.

Hence it is evident, that as the distance of the knots bears the same proportion to a mile as half a minute does to an hour, whatever number of knots the ship runs in half a minute, the same number of miles she will run in an hour, supposing her to run with the same degree of velocity during that time; and therefore, in order to know her rate of sailing, it is the general way to heave the log every hour; but if the force or direction of the wind varies, and does not continue the same during the whole hour, or if there has been more sail set, or any sail handed in, by which the ship has sailed faster, or slower, than she did at the time of heaving the log, there must be an allowance made for it accordingly.

Log-board, a table, generally divided into five columns, in the first of which is entered the hour of the day; in the second, the course steered; in the third, the number of knots run off the reel each time of heaving the log; in the fourth, from what point the wind blows; and in the fifth, observations on the weather, variation of the compass, &c.

Log-book, a book ruled in columns like the log-board, into which the account on the log-board is transcribed every day at noon: whence, after it is corrected, &c. it is entered into the journal.

LOGARITHMS are numbers so contrived and adapted to other numbers, that the sums and differences of the former shall correspond to, and show, the products and quotients of the latter.

Or, more generally, logarithms are the numerical exponents of ratios; or a series of numbers in arithmetical progression, answering to another series of numbers in geometrical progression. Thus,

0, 1, 2, 3, 4, 5, Indices, or logarithms.
1, 2, 4, 8, 16, 32, Geometric progression.

Or,

0, 1, 2, 3, 4, 5, Ind. or log.
1, 3, 9, 27, 81, 243, Geo. prog.

Or,

0, 1, 2, 3, 4, 5, Ind. or log.
1, 10, 100, 1000, 10000, 100000, Geo. prog.

Where it is evident that the same indices serve equally for any geometric series; and consequently there may be an endless variety of systems of logarithms to the same common numbers, by only changing the second term, 2, 3, or 10, &c. of the geometrical series.

It is also apparent, from the nature of these series, that if any two indices be added together, their sum will be the index of that number which is equal to the product of the two terms, in the geometric progression, to which those indices belong.

Thus the indices 2 and 3, being added together, are = 5; and the numbers 4 and 8, or the terms corresponding with those indices, being multiplied together, are = 32, which is the number answering to the index 5.

And, in like manner, if any one index be subtracted from another, the difference will be the index of that number, which is equal to the quotient of the two terms to which those indices belong.

Thus the index 6, minus the index 4, is = 2; and the terms corresponding to those indices are 64 and 16, whose quotient is = 4; which is the number answering to the index 2.

For the same reason, if the logarithms of any number are multiplied by the index of its power, the product will be equal to the logarithm of that power.

Thus, the index or logarithm of 4, in the above series, is 2; and if this number is multiplied by 3, the product will be = 6; which is the logarithm of 64, or the third power of 4.

And, if the logarithm of any number is divided by the index of its root, the quotient will be equal to the logarithm of that root.

Thus, the index or logarithm of 64 is 6; and if this number is divided by 2, the quotient will be = 3; which is the logarithm of 8, or the square root of 64.

The logarithms most convenient for practice are such as are adapted to a geometric series, increasing in a tenfold proportion, as in the last of the above forms; and are those which are to be found, at present, in most of the common tables upon this subject.

The distinguishing mark of this system of logarithms is, that the index, or logarithm, of 1 is 0; that of 10, 1; that of 100, 2; that of 1000, 3, &c. And in decimals, the logarithm of 1 is − 1; that of .01, − 2; that of .001, − 3, &c.

From whence it follows that the logarithm of any number between 1 and 10 must be 0 and some fractional parts, and that of a number between 10 and 100 will be 1 and some fractional parts; and so on for any other number whatever.

And since the integral part of a logarithm is always thus readily found, it is usually called the index, or characteristic; and is commonly omitted in the tables; being left to be supplied by the operator himself, as occasion requires.

Of the Making of Logarithms.—Whatever arithmetical progression we apply to a geometrical one, the terms of it are logarithms only to that series to which we apply them, and answer the end proposed only for those particular numbers; so that, if we had logarithms adapted only to particular geometrical series, they would be but of little use. The great end and design of these numbers is the ease and expedition which they afford in long calculations, by saving the laborious work of multiplication, division, and the extraction of roots: but this end would never be completely answered, unless logarithms could be adapted to the whole system of numbers, 1, 2, 3, 4, &c. And as here lie the chief excellence and merit of the contrivance, so also the difficulty. For the natural system of numbers, 1, 2, 3, 4, &c. being an arithmetical, and not a geometrical series, seems rather fit to be made logarithms of, than to have logarithms applied to it. But this difficulty may be easily removed, by considering,

That though the whole system of natural numbers, 1, 2, 3, 4, &c. is not in geometrical progression, and cannot, by any means, be made to agree with such a series, yet it may be brought so near it, as to be within any assignable degree of approximation which may be conceived, in general, thus: suppose a fraction, indefinitely small to be represented by x, and a geometrical series arising from 1, in the ratio of 1 to $1 + x$, to be 1, $(1 + x)^1$, $(1 + x)^2$, $(1 + x)^3$, $(1 + x)^4$, &c. Then some of these terms must come indefinitely near to all the natural numbers, 1, 2, 3, 4, &c. because, amongst numbers which arise by extremely small increments, some of them must exceed, or fall short of, any determinate number, by an indefinitely little excess or defect.

If, therefore, in the places of the terms of this series, which approach indefinitely near to any of the natural numbers, we suppose these natural numbers themselves to be substituted, then will the series be in geometrical progression, to an exactness which may be called indefinite; because the approximation of its terms to the natural numbers can never end, but goes on *in infinitum.*

And since this imagined geometric series comprehends, indefinitely near, the whole system of natural numbers, 1, 2, 3, 4, &c. so the indices of its terms comprehend a whole system of logarithms, which are adapted to this system of numbers, and may be extended to any length we please. For though the natural system of numbers make not, by themselves, a complete geometrical series, yet they are conceived as a part of such a series, and their logarithms are the indices of their distances from unity in that series; or, more generally, they are the corresponding terms of an arithmetical series applied to that geometrical one.

But, again, it must be observed, that an indefinitely small fraction cannot be assigned: and, therefore, in the actual construction of logarithms, we must be content with a determinate degree of approximation. Whence, according as we take x, in the series, 1, $(1 + x)^1$, $(1 + x)^2$, $(1 + x)^3$, $(1 + x)^4$, &c. the approximation of its terms to the natural numbers will be in different degrees of exactness: for the less x is, the nearer will be the approximation; but then the more are the number of involutions of $1 + x$, necessary to come with any determinate degree of nearness to the natural number assigned.

Thus then we may conceive the possibility of making logarithms to all the natural numbers, 1, 2, 3, 4, &c. to any determinate degree of exactness; viz. by assigning a very small fraction for x, and actually raising a series in the ratio of 1 to $1 + x$, and taking for the natural numbers such terms of that series as are nearest to them and their indices for the logarithms. But then, to construct logarithms in this manner, to such an extent of numbers, and degree of exactness, as would be necessary to make them of any considerable use, is next to impossible, because of the almost infinite labour and time it would require. This, however, is an in-

troduction for understanding the method of the noble inventor, who undoubtedly first took the hint of making logarithms from the consideration of the indices of a geometrical series; and by means of the principles and known properties of these progressions he first formed his tables and adapted them to the practical purposes intended.

To find the logarithm of any of the natural numbers, 1, 2, 3, 4, *&c. according to the method of* NAPIER.—1. Take the geometrical series, 1, 10, 100, 1000, 10000, &c. and apply it to the arithmetical series, 1, 2, 3, 4, &c. as logarithms. 2. Find a geometric mean between 1 and 10, 10 and 100, or any other two adjacent terms of the series betwixt which the number proposed lies. 3. Between the mean, thus found, and the nearest extreme, find another geometrical mean, in the same manner; and so on, till you are arrived within the proposed limit of the number whose logarithm is sought. 4. Find as many arithmetical means, in the same order as you found the geometrical ones, and the last of these will be the logarithm answering to the number required.

Examples. Let it be required to find the logarithm of 9.

Here the numbers between which 9 lies are 1 and 10.

First, then, the log. of 10 is 1, and the log. of 1 is 0; therefore, $\frac{1+0}{2} = .5$ is the arithmetical mean, and $\sqrt{(1 \times 10)} = \sqrt{10} = 3.1622777$ = geometric mean: whence the logarithm of 3.1622777 is .5.

Secondly, the log. of 10 is 1, and the log. of 3.1622777 is .5; therefore $\frac{1+.5}{2} = .75$ = arithmetical mean, and $\sqrt{(10 \times 3.1622777)} = 5.6234132$ = geometric mean, whence the log. of 5.6234132 is .75.

Thirdly, the log. of 10 is 1, and the log. of 5.6234132 is .75; therefore $\frac{1+.75}{2} = .875$ = arithmetical mean, and $\sqrt{(10 \times 5.6234132)} = 7.4989421$ = geometric mean: whence the log. of 7.4989421 is .875.

Fourthly, the log. of 10 is 1, and the log. of 7.4989421 is .875; therefore $\frac{1+.875}{2}$ = .9375 = arithmetical mean, and $\sqrt{(10 \times 7.4989421)} = 8.6596431$ = geometric mean: whence the log. of 8.6596431 is .9375.

Fifthly, the log. of 10 is 1. and the log. of 8.6596431 is .9375; therefore $\frac{1+.9375}{2}$ = .96875 = arithmetical mean, and $\sqrt{(10 \times 8.6596431)} = 9.3057204$ = geometric mean: whence the log. of 9.3057204 is .96875.

Sixthly, the log. of 8.6596431 is .9375, and the log. of 9.3057204 is .96875; therefore $\frac{.9375 + .96875}{2} = .953125$ = arith. mean, and $\sqrt{(8.6596431 \times 9.3057204)} = 8.9768713$ = geometric mean: whence the log. of 8.9768713 is .953125.

And, proceeding in this manner, after 25 extractions, the logarithm of 8.9999998 will be found to be .9542425; which may be taken for the logarithm of 9, because it differs from it only by $\frac{1}{50000000}$, and is therefore sufficiently exact for all practical purposes.

And in the same manner the logarithms of almost all the prime numbers were found: a work so incredibly laborious, that the unremitted industry of several years was scarcely sufficient for its accomplishment.

To determine the hyperbolic logarithm (L) *of any given number* (N). The hyperbolic logarithm of any number is the index of that term of the logarithmic progression, which agrees with the proposed number multiplied by the excess of the common ratio above unity.

Let, therefore, $(1+x)^n$ be that term of the logarithmical progression, 1, $(1+x)^1$, $(1+x)^2$, $(1+x)^3$, $(1+x)^4$, &c. which is equal to the required number (N.)

Then will $(1+x)^n = N$, and $1 + x = N^{\left(\frac{1}{n}\right)}$; and if $1 + y$ be put = N, and $m = \frac{1}{n}$, we shall have $1 + x = N^{\left(\frac{1}{n}\right)} = (1+y)^m = 1 + my + m \times \frac{m-1}{2} y^2 + m \times \frac{m-1}{2} \times \frac{m-2}{3} y^3$, &c.

And consequently, $x = my + m \times \frac{m-1}{2} y^2 + m \times \frac{m-2}{2} \times \frac{m-2}{3} y^3$, &c. where m being rejected in the factors $m - 1$, $m - 2$, $m - 3$, &c. being indefinitely small in comparison of 1, 2, 3, &c. the equation will become $x = my - \frac{my^2}{2} + \frac{my^3}{3} - \frac{my^4}{4}$, &c.

Hence $\frac{x}{m}$ $(nx = L) = y - \frac{y^2}{2} + \frac{y^3}{3} - \frac{y^4}{4} + \frac{y^5}{5}$, &c. = hyperbolic logarithm of N, as was required.

The hyperbolic logarithm (L) *of a number being given, to find the number* (N) *itself which answers to it.* Let $(1+x)^n$ be that term of the logarithmic progression, 1, $(1+x)^1$, $(1+x)^2$, $(1+x)^3$, $(1+x)^4$, &c. which is equal to the required number (N.)

Then, because $(1+x)^n$ is universally = $1 + nx + n \times \frac{n-1}{\ } x^2 + n \times \frac{n-1}{2} \times$

$\frac{n-2}{3}x^3$, &c. we shall have $1 + nx + n \times \frac{n-1}{2}x^2 + n \times \frac{n-1}{2} \times \frac{n-2}{3}x^3$, &c. = N.

But since n, from the nature of the logarithms, is here supposed indefinitely great, it is evident that the numbers connected to it by the sign — may all be rejected, as far as any assigned number of terms.

For as 1, 2, 3, &c. are indefinitely small in comparison to n, the rejecting of those numbers can very little affect the values to which they belong.

If, therefore, 1, 2, 3, &c. be thrown out of the factors $\frac{n-1}{2}$, $\frac{n-2}{3}$, $\frac{n-3}{4}$, &c. we shall have $1 + nx + \frac{n^2x^2}{2} + \frac{n^3x^3}{2.3} + \frac{n^4x^4}{2.3.4}$, &c. = N.

But nx (= L) is the hyperbolic logarithm of $(1 + x)^n$, or N, by what has been before specified; and therefore $1 + L + \frac{L^2}{2} + \frac{L^3}{2.3} + \frac{L^4}{2.3.4}$, &c. = N = number required.

Of the method of using a Table of Logarithms.—Having explained the method of making a table of the logarithms of numbers greater than unity, the next thing to be done is, to show how the logarithms of fractional quantities may be found. And, in order to this, it may be observed, that as we have hitherto supposed a geometric series to increase from an unit on the right hand, so we may now suppose it to decrease from an unit towards the left; and the indices, in this case, being made negative, will still exhibit the logarithms of the terms to which they belong.

Thus Log. — 3 — 2 — 10 + 1 + 2 + 3, &c.
Num. $\frac{1}{1000}$ $\frac{1}{100}$ $\frac{1}{10}$ 1 10 100 1000, &c.

Whence + 1 is the logarithm of 10, and — 1, the logarithm of $\frac{1}{10}$; + 2 the logarithm of 100, and — 2 the logarithm of $\frac{1}{100}$, &c.

And from hence it appears that all numbers, consisting of the same figures, whether they be integral, fractional, or mixed, will have the decimal parts of their logarithms the same.

Thus the logarithm of 5874 being 3.7689339, the logarithm of $\frac{1}{10}$, $\frac{1}{100}$, $\frac{1}{1000}$, &c. part of it will be as follows:

Num.	Logarithms.
5 8 7 4	3.7 6 8 9 3 3 9
5 8 7. 4	2.7 6 8 9 3 3 9
5 8. 7 4	1.7 6 8 9 3 3 9
5. 8 7 4	0.7 6 8 9 3 3 9
.5 8 7 4	—1.7 6 8 9 3 3 9
.0 5 8 7 4	—2.7 6 8 9 3 3 9
.0 0 5 8 7 4	—3.76 8 9 3 3 9

From this it also appears, that the index, or characteristic, of any logarithm, is always one less than the number of figures which the natural number consists of: and this index is constantly to be placed on the left hand of the decimal part of the logarithm.

When there are integers in the given number, the index is always affirmative; but when there are no integers, the index is negative, and is to be marked by a line drawn before it, like a negative quantity in algebra.

Thus, a number having 1, 2, 3, 4, 5, &c. integral places, the index of its log. is 0, 1, 2, 3, 4, &c. And a fraction having a digit in the place of primes, seconds, thirds, fourths, &c. the index of its logarithm will be — 1, — 2, — 3, — 4, &c.

It may also be observed, that though the indices of fractional quantities are negative, yet the decimal parts of their logarithms are always affirmative; and all operations are to be performed by them in the same manner as by negative and affirmative quantities in algebra.

In taking out of a table the logarithm of any number not exceeding 10000, we have the decimal part by inspection; and if to this the proper characteristic be affixed, it will give the complete logarithm required.

But if the number, whose logarithm is required, be above 10000, then find the logarithm of the two nearest numbers to it that can be found in the table, and say, as their difference : the difference of their logarithms : : the difference of the nearest number and that whose logarithm is required : the difference of their logarithms nearly; and this difference being added to, or subtracted from, the nearest logarithm, according as it is greater, or less, than the required one, will give the logarithm required nearly.

Thus let it be required to find the logarithm of 367182.

The decimal part of 3671 is by the table .5647844; and of 3672 is .5649027:

The log. of	367100 is 5.5647844		
	367200 is 5.5649027		
Their diff.	100	.0001183	diff.
Nearest No.	367200		
Given No.	367182		
		18	diff.

Therefore 100 : .0001183 : : 18 : .0000212.

And 5.5649027 — .0000212 = 5.5648815 = logarithm of 367182, nearly.

If the number consists both of integers and fractions, or is entirely fractional, find the decimal part of the logarithm as if all its figures were integral; and this, being prefixed to the proper characteristic, will give the logarithm required.

And if the given number is a proper fraction, subtract the logarithm of the denominator from the logarithm of the numerator, and the remainder will be the logarithm

sought; which, being that of a decimal fraction, must always have a negative index.

And, if it is a mixed number, reduce it to an improper fraction, and find the difference of the logarithms of the numerator and denominator, in the same manner as before.

In finding the number answering to any given logarithm, the index, if affirmative, will always show how many integral places the required number consists of; and, if negative, in what place of decimals the first, or significant figure, stands; so that, if the logarithm can be found in the table, the number answering to it will always be had by inspection.

But, if the logarithm cannot be exactly found in the table, find the next greater, and the next less, and then say, As the difference of these two logarithms : the difference of the numbers answering to them : : the difference of the given logarithm, and the nearest tabular logarithm : a fourth number; which added to, or subtracted from, the natural number answering to the nearest tabular logarithm, according as that number is less or greater than the given one, will give the number required, nearly.

Thus, let it be required to find the natural number answering to the logarithm 5.5648815.

The next less and greater logarithms, in the table, are

5.5647844	The numbers	367100
5.5649027	answering	367200
Diff. .0001183		100

And 5.5649027 − 5.5648815 = .0000212. Therefore .0001183 : 100 : : .0000212 : 18 nearly.

Whence 367200 − 18 = 377182 = number required.

The Use and Application of Logarithms. — It is evident from what has been said of the construction of logarithms, that addition of logarithms must be the same thing as multiplication in common arithmetic; and subtraction in logarithms the same as division; therefore, in multiplication by logarithms, add the logarithms of the multiplicand and multiplier together, their sum is the logarithm of the product.

		num.	logarithms.
Example.	Multiplicand	8.5	0.9294189
	Multiplier	10	1.0000000
	Product	85	1.9294189

And in division, subtract the logarithm of the divisor from the logarithm of the dividend, the remainder is the logarithm of the quotient.

		num.	logarithms.
Example.	Dividend	9712.8	3.9873444
	Divisor	456	2.6589648
	Quotient	21.3	1.3283796

To find the Complement of a Logarithm. — Begin at the left hand, and write down what each figure wants of 9, only what the last significant figure wants of 10; so the complement of the logarithm of 456, viz. 2.6589648, is 7.3410352.

In the Rule of Three. Add the logarithms of the second and third terms together, and from the sum subtract the logarithm of the first, the remainder is the logarithm of the fourth. Or, instead of subtracting a logarithm, add its complement, and the result will be the same.

To raise Powers by Logarithms. — Multiply the logarithm of the number given, by the index of the power required, the product will be the logarithm of the power sought.

Example. Let the cube of 32 be required by logarithms. The logarithm of 32 = 1.5051500, which multiplied by 3, is 4.5154500, the logarithm of 32768, the cube of 32. But in raising powers, viz. squaring, cubing, &c. of any decimal fraction by logarithms, it must be observed, that the first significant figure of the power be put so many places below the place of units, as the index of its logarithm wants of 10, 100, &c. multiplied by the index of the power.

To extract the Roots of Powers by Logarithms. — Divide the logarithm of the number by the index of the power, the quotient is the logarithm of the root sought.

To find Mean Proportionals between any two Numbers. — Subtract the logarithm of the least term from the logarithm of the greatest, and divide the remainder by a number more by one than the number of means desired; then add the quotient to the logarithm of the least term (or subtract it from the logarithm of the greatest) continually, and it will give the logarithms of all the mean proportionals required.

Example. Let three mean proportionals be sought, between 106 and 100.

Log. of 106 = 2.0253059
Log. of 100 = 2.0000000

Divide by 4)0.0253059(0.0063264.75

Log. of the least term 100 added 2.0000000
Log. of 1st mean 101.4673846.2.0063264.75
Log. of 2d mean 102.9563014.2.0126529.5
Log. of 3d mean 104.4670483.2.0139794.25
Log. of the greatest term - - 106. 2.0253059.

LOGWOOD. (Ger. *Blauholz, Kampescheholz.* Du. *Kampechehout.* Da. *Blaaholt, Campeschetræe.* Sw. *Campescheträ.* Fr. *Bois de Campeche.* It. *Campeggio, Legno tauro.* Sp. *Palo de Campeche.* Port. *Páo de Campeche.* Rus. *Kampetschkoed erewo.* Pol. *Kampesza.* Lat. *Lignum Campechense.*) This wood is likewise called India, Jamaica, and Campeachy wood, from the places where it grows most plentifully. It is very common in Jamaica, and on the eastern shore of the bay of Campeachy; it is found also at St. Croix, Martinico, and Granada. The tree which produces it, is

called, by Linnæus, *Hæmatoxylum campechianum*. It grows very high and large in a good soil, generally rising from 16 to 24 feet: the bark is thin, smooth, and of a bright grey, or sometimes yellowish; the trunk is straight and prickly: the leaves somewhat resemble those of the bay-tree in appearance, and also in their aromatic qualities; whence the tree has been called aromatic bay, or Indian bay: its seeds have been improperly called clove-seeds, from their flavour, and in England are known by the name of Jamaica pepper, or all-spice. Logwood is so heavy as to sink in water; hard, compact, of a fine grain, capable of being polished, and scarcely susceptible of decay. Its predominant colour is red, tinged with orange, yellow, and black. Logwood is cut in the spring, when the tree is full of sap, at which time the cutters find it easy, after they have cut the trunk and larger branches into lengths, to chip off the blea, or soft outer wood, and bark; and then they lay up the rest for drying. In our markets, logwood is sold either in large solid pieces, or in chips, and the chipt logwood generally bears the better price, fetching about five pounds per ton more than the other. The chief use of logwood is for dyeing. For this purpose, its juice, as it is commonly called, may be extracted by decoction with water. Alcohol extracts it more readily and copiously than water. The colour of its dyes is a fine red, inclining a little to violet or purple. Its watery decoction, left to itself, becomes in time yellowish, and at length black. Acids turn it yellow: alkalies deepen its colour, and give it a purple or violet hue. Stuffs would take only a slight and fading colour from the decoction of logwood, if they were not previously prepared with alum and tartar. A little alum is added also to the bath. By these means a pretty good violet-blue colour may be obtained from logwood, by mixing verdigris with the bath, and dipping the cloth till it has acquired the proper shade. The great consumption of logwood is for blacks, to which it gives a lustre and velvety cast, and for greys of certain shades. It is also of very extensive use for the different compound colours, which it would be difficult to obtain of equal beauty and variety by means of drugs affording a more permanent dye. Juice of logwood is frequently mixed with that of Brazil, to render colours deeper; their proportion being varied according to the shade desired. Logwood is used for dyeing silk violet. For this the silk must be scowered, alumed, and washed. To dye silk thus, it must be turned in a cold decoction of logwood, till it has acquired the proper colour. Bergman has observed, that a fine violet might be produced from logwood, by impregnating the silk with solution of tin. In fact, we may thus obtain, particularly by mixing logwood and Brazil in different proportions, a great number of fine shades, more or less inclined to red, from lilac to violet. There is a statute prohibiting the use of it in dyeing woollen goods, of not quite a century old, but it is obsolete in practice.

LONG-BOAT, the largest boat belonging to a ship. It serves to bring goods, provisions, &c. to or from the ship, to land men, weigh the anchor, &c.

LONGITUDE, in navigation, the distance of a ship or place, east or west, from another, reckoned in degrees of the equator.

As the discovery of a method to find the longitude would render voyages safe and expeditious, and also preserve ships and the lives of men, the following rewards have been offered as an encouragement to any person who shall discover a proper method for finding it out: — In the year 1714, the British parliament offered a reward for the discovery of the longitude: the sum of 10,000*l.* if the method determined the longitude to 1° of a great circle, or to 60 geographical miles; of 15,000*l.* if it determined it to 40 miles; and of 20,000*l.* if it determined it to 30 miles: with this proviso, that if any such method extend no further than 30 miles adjoining to the coast, the proposer should have no more than half the rewards. The act also appoints the first lord of the admiralty, the speaker of the house of commons, the first commissioner of trade, the admirals of the red, white, and blue squadrons, the master of the Trinity-house, the president of the royal society, the royal astronomer at Greenwich, the two Savilian professors at Oxford, and the Lucasian and Plumian professors at Cambridge, with several other persons, as commissioners for the longitude at sea. The Lowndian professor at Cambridge was afterwards added. After this act of parliament, several other acts passed in the reigns of George II. and III. for the encouragement of finding the longitude. In 1774, an act passed, repealing all other acts, and offering separate rewards to any person who should discover the longitude, either by the watch keeping true time within certain limits, or by the lunar method, or by other means. — In 1818, (58 Geo. 3. c. 20.) another act was passed, "for more effectually discovering the longitude at sea," which was afterwards amended by 1 & 2 Geo. 4. c. 2. Under the superintendance of the board instituted by this statute, the Nautical Almanack is published, and the time-keepers used in the navy are regulated.

To find the longitude by a time-keeper. The sun appears to move round the earth from east to west, or to describe 360°, in 24 hours, and therefore he appears to move 15° in an hour. If, therefore, the meridians of two places make an angle of 15° with each other, or if the two places differ 15° in longitude, the sun will come to the eastern meridian one hour before he comes to the western meridian, and therefore when it is twelve

o'clock at the former place, it is only eleven at the latter; and, in general, the difference between the times by the clock at any two places, will be the difference of their longitudes converted into time, at the rate of 15° for an hour, the time at the eastern place being the forwardest. If, therefore, we can tell what o'clock it is at any two places at the same instant of time, we can find the difference of their longitudes, by allowing 15° for every hour that the clocks differ.

Let, therefore, the time-keeper be well regulated, and set to the time at Greenwich, that being the place from which we reckon our longitude; then, if the watch neither gains nor loses, it will always show the time at Greenwich, wherever you may be. Now to find the time by the clock at any other place, take the sun's altitude, and thence find the time; now the time thus found is apparent time, or that found by the sun, which differs from the time shown by the clock by the equation of time. We must, therefore, apply the equation of time to the time found by the sun, and we shall get the time by the clock; and the difference between the time by the clock so found, and the time by the time-keeper, or the time at Greenwich, converted into degrees at the rate of 15° for an hour, gives the longitude of the place from Greenwich. For example: let the time by the time-keeper, when the sun's altitude was taken, be 6h. 19′, and let the time deduced from the sun's altitude be 9h. 27′, and suppose at that time the equation of time to be 7″, showing how much the sun is that day behind the clock, then the time by the clock is 9h. 34″, the difference between which and 6h. 19′, is 3h. 15′; and this converted into degrees, at the rate of 15° for 1 hour, gives 48° 45″, the longitude of the place from Greenwich; and as the time is forwarder than that at Greenwich, the place lies to the east of Greenwich. Thus the longitude could be very easily determined, if you could depend upon the time-keeper. But as a watch will always gain or lose, before the time-keeper is sent out, its gaining or losing every day for some time, a month for instance, is observed; this is called the rate of going of the watch, and from thence the mean rate of going is thus found:

Suppose I examine the rate of a watch for 30 days; on some of those days I find it has gained, and on some it has lost: add together all the quantities it has gained, and suppose they amount to 17″; add together all the quantities it has lost, and suppose theyamount to 13″; then, upon the whole, it has gained 4″ in 30 days; and this is called the mean rate for that time; and this divided by 30, gives 0″, 133 for the mean daily rate of gaining; so that if the watch had gained regularly 0″, 133 every day, at the end of the 30 days it would have gained just as much as it really did gain, by sometimes gaining and sometimes losing. Or you may get the mean daily rate thus: Take the difference between what the clock was too fast, or too slow, on the first, and last, days of observation, if it be too fast, or too slow, on each day; but take the sum, if it is too fast on one day, and too slow on the other, and divide by the number of days between the observations, and you get the mean daily rate. Thus, if the watch was too fast on the first day 18″, and too fast on the last day 32″, the difference 14″ divided by 30, gives 0″, 466, the mean daily rate of gaining. But if the watch was too fast on the first day 7″, and too slow on the last day 10″, the sum 17″ divided by 30, gives 0″, 566, the mean daily rate of losing. After having thus got the mean daily rate of gaining, or losing, and knowing how much the watch was too fast or too slow at first, you can tell, according to that rate of going, how much it is too fast or too slow at any other time. In the first case, for instance, let the watch have been 1′ 17″ too fast at first, and I want to know how much it is too fast 50 days after that time: now it gains 0″, 133 every day; if this is multiplied by 50, it gives 6″, 65 for the whole gain in 50 days; therefore, at the end of that time, the watch would be 1′, 23″, 65 too fast. This would be the error, if the watch continued to gain at the above rate; and although, from the different temperatures of the air, and the imperfection of the workmanship, this cannot be expected, yet the probable error will by this means be diminished, and it is the best method we have to depend upon. In the watches under trial at the Royal Observatory at Greenwich, of candidates for the rewards, this allowance of a mean rate has been admitted, although not mentioned in the act of parliament.

As the rate of going of a watch is subject to vary from so many circumstances, the observer, whenever he goes ashore, and has sufficient time, should compare his watch for several days with the true time found by the sun, by which he will be able to ascertain its rate of going. And when he comes to a place whose longitude is known, he may then set his watch to Greenwich time; for when the longitude of a place is known, the difference between the time there and at Greenwich is also discovered. For instance, if he go to a place known to be 30° east longitude from Greenwich, his watch should be two hours slower than the time at that place. Find, therefore, the true time at that place, by the sun, and if the watch be two hours slower, it is right; if not, correct it by the difference, and it again gives Greenwich time.

In the year 1726, Mr. John Harrison produced a time-keeper of his own construction, which did not err above one second in a month for ten years together; and in the year 1736, he had a machine tried in a

voyage to and from Lisbon, which was the means of correcting an error of almost a degree and a half in the computation of the ship's reckoning. Since that period, other time-pieces have been made by several other persons, who have been severally remunerated by the board of longitude, by the India company, and by many wealthy men of science, for their skill and labour.

Others have proposed various astronomical methods for finding the longitude. These methods chiefly depend on having an ephemeris, or almanac, suited to the meridian of some place, as Greenwich for instance, to which the Nautical Almanac is adapted, which shall contain, for every day, computations of the times of all remarkable celestial motions and appearances, as adapted to that meridian. So that, if the hour and minute be known, when any of the same phenomena are observed in any other place whose longitude is desired, the difference between this time, and that to which the time of the said phenomenon was calculated and set down in the almanac, will be known, and consequently the difference of longitude also becomes known between that place and Greenwich, allowing at the rate of fifteen degrees to an hour.

Now it is easy to find the time at any place, by means of the altitude or azimuth of the sun, or stars, which time it is necessary to find by such means, both in these astronomical modes of determining the longitude, and in the former by a time-keeper; and it is the difference between that time, so determined, and the time at Greenwich, known either by the time-keeper, or by the astronomical observations of celestial phenomena, which gives the difference of longitude at the rate above mentioned. Now the difficulty in these methods lies in the paucity of proper phenomena, capable of being thus observed; for all slow motions, such as belong to the planet Saturn, for instance, are quite excluded, as affording too small a difference, in a considerable space of time, to be properly observed; and it appears that there are no phenomena in the heavens proper for this purpose, except the eclipses or motions of Jupiter's satellites, and the eclipses or motions of the moon, viz. such as her distance from the sun, or certain fixed stars lying near her path, or her longitude, or place in the zodiac, &c. Now of these methods,

1st. That by the eclipses of the moon is very easy, and sufficiently accurate, if they did but happen often, as every night. For at the moment when the beginning, or middle, or end, of an eclipse is observed by a telescope, there is no more to be done but to determine the time by observing the altitude or azimuth of some known star; which time being compared with that in the tables, set down for the happening of the same phenomenon at Greenwich, gives the difference in time, and consequently of longitude sought. But as the beginning, or end, of an eclipse of the moon cannot generally be observed nearer than one minute, and sometimes two or three minutes of time, the longitude cannot certainly be determined by this method, from a single observation, nearer than one degree of longitude. However, by two or more observations, as of the beginning and end, &c. a much greater degree of exactness may be attained.

2d. The moon's place in the zodiac is a phenomenon more frequent than her eclipses; but then the observation of it is difficult, and the calculation perplexed and intricate, by reason of two parallaxes; so that it is hardly practicable to any tolerable degree of accuracy.

3d. But the moon's distances from the sun or certain fixed stars, are phenomena to be observed many times in almost every night, and afford a good practical method of determining the longitude of a ship at almost any time; either by computing from thence the moon's true place, to compare with the same in the almanac; or by comparing her observed distance itself with the same as there set down.

From the great improvements made by Newton in the theory of the moon, and more lately by Euler and others on his principles, professor Mayer, of Gottingen, was enabled to calculate lunar tables more correct than any former ones; having so far succeeded as to give the moon's place within one minute of the truth, as has been proved by a comparison of the tables with the observations made at the Greenwich observatory; and the same have been still farther improved, and the whole computed to tenths of a second. These tables when compared with the above-mentioned series of observations, a proper allowance being made for the unavoidable error of observation, seem to give always the moon's longitude in the heavens correctly within 30 seconds of a degree; which greatest error, added to a possible error of one minute in taking the moon's distance from the sun or a star at sea, will at a medium only produce an error of 42 minutes of longitude. To facilitate the use of the tables, a nautical ephemeris was adopted by the commissioners of longitude, and first executed in the year 1767, since which time it has been regularly continued, and now is brought to such perfection, that the calculations relating to the longitude, which could not be performed by the most expert mathematician in less than four hours, may be completed with great ease and accuracy in half an hour.

4th. The phenomena of Jupiter's satellites have commonly been preferred to those of the moon, for finding the longitude; because they are less liable to parallaxes than these are, and besides they afford a very commodious observation whenever the planet

is above the horizon. Their motion is very swift, and must be calculated for every hour.

Now, to find the longitude by these satellites: with a good telescope, observe some of their phenomena, as the conjunction of two of them, or of one of them with Jupiter, &c. and at the same time find the hour and minute, from the altitudes of the stars, or by means of a clock or watch, previously regulated for the place of observation; then, consulting tables of the satellites, observe the time when the same appearance happens in the meridian of the place for which the tables are calculated, and the difference of time, as before, will give the longitude.

The eclipses of the first and second of Jupiter's satellites are the most proper for this purpose; and as they happen almost daily, they afford a ready means of determining the longitude of places at land, having indeed contributed much to the modern improvements in geography. There are inconveniences to which these observations are liable from the motions of the ship; however, considering the great power requisite in a telescope proper for these observations, and the irregularities in this motion, it is to be feared that the complete management of a telescope on shipboard, will always remain among the desiderata in this part of nautical science. And further, since all methods that depend on the phenomena of the heavens, have also this other defect, that they cannot be observed at all times, this renders the perfection of time-keepers of the greater importance.

LONG-PEPPER, is the unripe fruit of a tree brought to us from the East Indies, about an inch or an inch and a half in length, of a cylindrical figure, resembling the catkins of the birch-tree. Its external surface appears covered with numerous minute grains, disposed in a very particular manner. Its internal part is divided into several small cells, each of which contains a roundish seed, outwardly of a blackish hue, inwardly whitish; the whole is of a hot, biting, bitterish taste. Long-pepper should be chosen fresh, entire, weighty, hard to break, sound, and free from dust and other impurities.

LOOF, or LUFF, in the sea language, is a term used in various senses; thus the loof of a ship is that part of her aloft which lies just before the chess-tree; hence the guns which lie there are called loof-pieces: "keep your loof," signifies keep the ship near to the wind: "to loof into a harbour," is to sail into it close by the wind: "loof up," is to keep nearer the wind: "to spring the loof," is when a ship that was going large before the wind, is brought close by the wind.

LOOF-TACKLE, is a tackle in a ship which serves to lift goods of small weight into, or out of, her.

LOOKING-GLASS, (*Looking-glasses.* Ger. *Spiegel.* Du. *Spiegels.* Da. *Spejle.* Sw. *Speglar.* Fr. *Miroirs.* It. *Specchi.* Sp. *Espejos.* Port. *Espelhos.* Rus. *Serkala.* Pol. *Zwierciadla,*) a plain glass speculum or mirror, which being impervious to the light, reflects its rays, and so exhibits the images of objects presented to it.

Looking-glasses are invariably made from plate-glass, (*see* GLASS) and are either convex, concave, or perfectly flat. When of a large size, such for example as are used in the embellishment of splendid apartments, they are denominated mirrors, and to such a degree of perfection have glasses of this description been brought, that single mirrors are commonly sold for many hundred pounds. The French plate-glass was formerly unrivalled, but of late years the London makers have produced plates, which if they do not exceed, are certainly in no wise inferior to the finest specimens of French manufacture. For the mode of polishing and grinding plate-glass, *see* POLISHING. For the process of foliating or silvering mirrors, *see* FOLIATING.

LOOM, a weaver's frame, whereby several distinct threads are woven into one piece. Looms are of various kinds, according to the different sort of materials that are to be woven, such as woollens, silks, linens, cottons, cloths of gold, and other works, as tapestry, ribands, stockings, &c. The weaver's loom-engine, otherwise called the Dutch loom-engine, was brought into use from Holland to London, in or about the year 1676. *See* WEAVING.

LOOM, in the sea language. When a ship appears big, being seen at a distance, they say she looms.

LOOM-GALE, a gentle easy gale of wind, in which a ship can carry her top-sails atrip.

LOOP, in the iron-works, denotes a part of a sow or block of cast-iron, broken or melted off from the rest.

LORINER, Lorimer, (from the Latin word *Lorum*, a thong,) a bridle bit-maker. The loriner makes bits, and all the iron-work belonging to a bridle, together with the stirrups. It is an ingenious and laborious branch of the smith's business; and the beauty of the work consists in filing and polishing. There is a distinct company of loriners or bit-makers in the livery of London, whose charter bears the date of 1488.

LOSH-HIDES, the hides of buffaloes. *See* BUFF.

LOT, a certain portion or parcel of goods. This appellation is generally applied to any parcel of goods sold by auction. Thus we say of twenty pipes of Port wine put up at once for sale, that the lot consists of twenty pipes; and so of other articles.

Lot likewise signifies a contribution or duty. *See* SCOT.

LOTTERIES, are declared to be public nuisances, 5 Geo. 1. c. 9.; but for the pub-

lic service of the government, lotteries are frequently established by particular statutes, and managed by special officers and persons appointed.

By stat. 42 Geo. 3. c. 54. lottery-office keepers are to pay *50l.* for every licence in London, Edinburgh, and Dublin, or within 20 miles of either, and *10l.* for every licence for every other officer; and licensed persons shall deposit 30 tickets with the receiver-general of the stamp-duties, or licence to be be void.

By stat 22 Geo. 3. c. 47. lottery-office keepers must take out a licence; and offices are to be opened only from eight in the morning to eight in the evening, except the Saturday evening preceding the drawing. The sale of chances and shares of tickets, by persons not being proprietors thereof, is prohibited under penalty of *50l.*; and by 42 Geo. 3. c. 19. all games or lotteries called *little-goes*, are declared public nuisances, and all persons keeping any office or place for any game or lottery, not authorized by law, shall forfeit *500l.* and be deemed rogues and vagabonds. The proprietor of a whole ticket may nevertheless insure it for its value only, with any licensed office for the whole time of drawing from the time of insurance, under a *bona fide* agreement without a stamp.

Justices, on information, may authorise persons to break open the doors of places where such offences shall have been committed, to apprehend offenders and others assisting them, and carry them before a justice.

Persons employing others, although not discovered upon the premises, to be deemed rogues and vagabonds.

Persons agreeing to pay any sum, or deliver any goods, &c. upon any event relative to such game or lottery, or publishing any proposal for such lottery, shall forfeit *100l.*

LOUIS D'OR, a French gold coin first struck under the reign of Louis XIII. in 1640, equal to 24 livres French, or *1l.* sterling.

LOXODROMICK. The art of oblique sailing by the rhomb, which always makes an equal angle with every meridian; that is, when you sail neither directly under the equator, nor under one and the same meridian, but across them.

LUCERNE-SEED. (Ger. and Du. *Luzerne.* Da. and Sw. *Lucerne.* Fr. *Luserne.* It. *Lucerna, Erba spagna.* Sp. *Alfalfa.* Port. *Luzerna, Herva medica.* Lat. *Medicago, sativa.*) This seed produces a species of grass of very quick growth, which affords excellent fodder for cattle. It is a plant frequently cultivated in the manner of clover. Its leaves, like those of the latter, grow three at a joint; its stalk is erect, and after mowing it immediately springs up again from the stubble. It is made into hay in the same manner as saintfoin. It contributes much to make cows yield abundance of milk. France exports large quantities of the seed of excellent quality.

LUFF, or Loof, in the sea language, is to keep the ship close to the wind.

LUGGER, a sort of vessel usually heavily built, and rigged with a square sail. The French employ luggers as privateers; but there are not many of this description of ships in our service.

LUG-SAIL, in maritime affairs, is a kind of square sail.

LUMBER, in the American trade, means stowage-wood and small timber; as spars, joists, boards, planks, shingles, hoops, staves, anchor-stocks, handspikes, &c.

LUNGWORT, or Lung-Moss, (Ger. *Lungenmoos.* Du. *Longemos.* Da. *Lungemos.* Sw. *Lungmossa.* Fr. *Palmonaire de chêne.* It. *Pulmonaria di quercia.* Sp. *Pulmonaria de arbol.* Port. *Pulmonaria dos Carvalhos.* Rus. *Karastnaja trawa.* Pol. *Plucnik.* Lat. *Muscus pulmonarius,*) a plant, of which there are seven species; the most remarkable is the common spotted lungwort, or Jerusalem cowslip. It is a native of woods and shady places in Italy and Germany, but has been cultivated in Britain for medical use. The leaves are of a green colour, spotted with white; and of a mucilaginous taste, without any smell. They are recommended in phthisis, ulcers of the lungs, &c. but their virtues in these diseases are not warranted by experience.

LUNT, a match-cord used to fire great guns with.

LUSTRING, a species of light, shining silk, first manufactured in France, but which was several years past introduced into this country. There is at present very little demand for lustrings. They are chiefly made in Spitalfields, and that neighbourhood; and are either plain or delicately figured.

LUTE, (*Lutes.* Ger. *Lauten.* Du. *Luiten.* Da. *Lutter.* Sw. *Lutõr.* Fr. *Luths.* It. *Liuti.* Sp. *Laudes.* Port. *Aulaudes.* Lat. *Citharæ,*) a stringed instrument formerly much in use; anciently containing only five rows of strings, but to which six, or more, were afterwards added. The lute consists of four parts, viz. the table; the body, which has nine or ten sides; the neck, which has as many stops or divisions; and the head, or cross, in which screws for tuning it are inserted. In playing this instrument, the performer strikes the strings with the fingers of the right hand, and regulates the sounds with those of the left hand. The origin of this instrument is not known, though generally believed to be of very early date. Indeed, authors are not agreed as to the country to which we are indebted for its invention. Some give it to Germany, and derive its name from the German word *lauten,* which signifies the same thing, whilst others ascribe it to the Arabians. *See further title* HARP.

LUTES. In many chemical operations the vessels must be covered with something to preserve them from the violence of the fire, from being broken or melted; and also to close exactly their joinings to each other, in order to retain the substances which they contain, when they are volatile, and reduced to vapour.

LYCOPODIUM. The fine dust of lycopodium, or club-moss, is called by some, on account of its great inflammability, vegetable sulphur. The plant is of the creeping kind, and is common in dry and mountainous places, and in forests of fir-trees. Its leaves are numerous, narrow, acute, often curved at the extremity, terminated with a long white hair, which surround the stalk. It produces a kidney-shaped capsule, which bursts with elasticity when ripe, and throws out a light yellow dust, of which we have just spoken. This dust diffused or strewed in the air takes fire from a candle, and burns off like a flash of lightning. It is used in the London theatres. It strongly resists water, insomuch that if a handkerchief be strewed over with the dust, that liquid may be tied up in it. Some species of lycopodium are good dyes. Wool or silk boiled in a decoction of common club-moss, and then immersed in Brazil, acquires a good and very fast blue. All acids, however, redden it; but the colour is again restored by alkalis. By increasing the quantity of Brazil the colour may be brought to a pace.

LYNX SKINS, (Ger. *Luchsfelle.* Du. *Losvellen.* Da. *Losskind.* Sw. *Loskinn.* Fr. *Peaux de lynx ou de loup cervier.* It. *Pelli di Lince.* Sp. *Pieles de Lince ou de Lobos cervales.* Port. *Pelles de Lince ò de Lobo cerval,*) are of a grey colour, more, or less, approaching to a black, according to the climate which the animal inhabits. The darkest shade is on the back, and the hue becomes gradually lighter downwards to the belly, which is white, and marked with black spots, as are the other parts of the skin. The hair is longest on the belly, and is, therefore, most frequently employed by furriers in the manufacture of muffs. Lynxes are common in Sweden, Russia, Poland, and upon the Alps; those which inhabit the latter are not very dissimilar to the others, but their fur is less soft and beautiful. These animals are likewise to be met with in most parts of North America. Those of Canada and the neighbouring districts, are of a very deep grey colour; but such as inhabit the vicinity of Hudson's Bay are almost white, on which account their skins are highly valued.

M, The twelfth letter of our alphabet. As a numeral, it stands for *mille* a thousand; and with a dash over it, thus $\overline{M}$ for a thousand times a thousand, or 1000,000. M. M. P. signify *manu mancipio potestate;* M. S. manuscript, and M. S. S. manuscripts, in the plural. In the prescriptions of physicians, M stands for *manipulus,* a handful; and sometimes for *misce,* or *mixtura.*

MACE, (Ger. *Macis, Muskatenblüthe.* Du. *Foelie, Foely, Muscaatbloom.* Da. *Muskatblommer.* Sw. *Muskottblommer.* Fr. *Macis, Fleur de muscade.* It. *Mace.* Sp. *Macio.* Port. *Maxcis, Flor de noz moscada.* Rus. *Muskatnoi zwet.* Pol. *Muckatowy kwiat.* Lat. *Macis,*) one of the exterior coverings of the nutmeg; it is at first of a purplish-red colour, which changes before it arrives to us to an orange-yellow, and by long keeping grows paler and paler. It is a fleshy and fat membranous substance, which divides into filaments, lying under the green, and covering the ligneous shell of the nutmeg. It is taken off with a knife, left to dry in the sun for the space of a day, and is afterwards removed to a less exposed place, where it remains for eight days. It is then moistened with sea-water, and lastly squeezed close in small bags. Mace is a warm aromatic, like the nutmeg, accompanied with a degree of bitterishness, being of an astringent, drying nature; and like that spice also contains both an essential and expressible oil. From 16 ounces of mace, Neumann obtained with alcohol $4\frac{1}{2}$ ounces of extract, which retained some of the expressible, and the more ponderous part of the essential, oil, the lighter arising towards the end of the experiment, and impregnating the distilled spirit; from the residuum were obtained two ounces and a half of gummy extract, with five drachms of essential oil, which arose during the process, and sunk to the bottom of the distilled water. Water applied first extracted four ounces and a half: the residuum gave with alcohol three ounces of an oily extract, eight ounces and a half remaining undissolved. The watery extract has an unpleasant and somewhat saline taste, which that of nutmegs has nothing of. On expression, mace yields an oil less consistent than that of nutmegs, which is usually sold for it. The genuine is commonly brought from the East Indies, in glass or porcelain vessels. The Banda isles annually produce about 100,000 lbs. of mace.

MACHINE, in general, signifies any thing that serves to augment, or to regulate, moving powers, so as to save either time or force.

Machines are divided into simple, and compound. The simple machines are the balance, lever, pully, wheel, wedge, and screw; the compound are constituted of several simple ones combined together. The latter are innumerable, as well in their form as their application: as stocking-looms, sawing-mills, throwing-engines, weaving or spinning engines, mills for striking files, cutting watch-wheels, making nails, &c. *See titles* ENGINE *and* MILL.

MACKAREL. (Ger. *Makrelen.* Du. *Marreelen.* Da. *Makrel.* Sw. *Makrill.* Fr. *Maquereaux.* It. *Macarelli.* Sp. *Escombros, Sardus.* Port. *Sardas, Escombros.* Lat. *Scombri.*) This beautiful fish is a native of the European and American seas, generally appearing at stated seasons, and swarming in vast shoals, round particular coasts. *See* FISHERY.

MADDER. (Ger. *Krapp, Röthe, Färberöthe.* Du. *Mee, Meekrap, Krap.* Da. *Krap.* Sw. *Krapp.* Fr. *Garance.* It. *Robbia.* Sp. *Granza, Rubia.* Port. *Grança, Ruiva.* Rus. *Mariona, Krap.* Pol. *Marzana.* Lat. *Rubia tinctorum.*) There are seven species, of which the most remarkable is the *tinctorum,* or dyer's madder, so much used by dyers and calico-printers. This has a perennial root, and annual stalk; the root is composed of many long, thick, succulent fibres, almost as large as a man's little finger; these are joined at the top in a head like asparagus, and run very deep into the ground. From the upper part, or head of the root, come out many side-roots; which extend just under the surface of the ground to a great distance, by which it propagates very fast; for these send up a great number of shoots, which, if carefully taken off in the spring, soon after they are above ground, become so many plants. The root is of a reddish colour, somewhat transparent; and has a yellowish pith in the middle, which is tough, and of a bitterish taste. From this root arise many large four-cornered jointed stalks, which in good land will grow five or six feet long, and if supported, sometimes seven or eight: they are armed with short herbaceous prickles; and at each joint are placed five or six spear-shaped leaves: their upper surfaces are smooth; the branches are terminated by loose branching spikes of yellow flowers, which are cut into four parts resembling stars. These appear in June, and are sometimes succeeded by seeds, which seldom ripen in England

For cultivating the madder plant, the ground is ploughed deep in autumn, and again in March; and then laid up in ridges, eighteen inches asunder, and about a foot high. About the beginning of April they open the ground where the old roots are planted, and take off the side-shoots, which they transplant immediately upon the new ridges, at about a foot distance, where they remain two seasons; at Michaelmas, when the tops of the plants are decayed, they take up the roots. It is to be observed, that this method of planting in ridges, is only necessary in wet land. If all the horizontal roots are destroyed from time to time, it will cause the large, downright roots, to be much bigger, in which the goodness of this plant chiefly consists. After the madder-roots, the only parts of the plant used by dyers, are taken up, they are kiln-dried, and then reduced to a powder by a mill. Previously to the grinding they are carefully assorted; the finest roots peeled make, what is called, crop, from the German *krap;* good roots, not peeled, make the ombro, *unberaubt;* gamene, or *gemeine,* are all the inferior small roots; the mulls consist of the refuse, peelings, &c. The fine quality of madder is distinguished by its being of a bright, lively, light colour, well ground, without any coarse parts, proceeding from the peelings. Fresh is always more valuable than old madder. It should be kept close to prevent the access of air, as its virtue evaporates when exposed. Madder is principally cultivated in Holland, Germany, and France, especially the former, where it grows in greater abundance than in any other part of the world. The *rubia peregrina,* or Turkey madder-root, likewise called *alizari,* is principally cultivated about Smyrna. This plant may be propagated either by offsets or seeds. On a light thin soil the culture cannot be carried on to any profit: that soil in which the plant delights, is a rich sandy loam, three feet or more in depth.

The ground being first made smooth, is divided into beds four feet wide, with alternate alleys, half as broad again as the beds: the reason of this extraordinary breadth of the alleys will appear presently. In each alley is to be a shallow channel for the convenience of irrigating the whole field, &c. that that part of the alley that is not otherwise occupied, may be sown with legumes. The madder-seed is sown broad-cast in the proportion of from 25 to 30 lbs. per acre, about the end of April. In a fortnight or three weeks the young plants begin to appear, and from this time to the month of September, care must be taken to keep the ground well watered and free from weeds. If the plants are examined in autumn, they will be found surrounded with small yellow offsets at the depth of two inches, and early in September, the earth from the alleys is to be dug out and laid over the plants of madder to the height of two or three feet; with this the first year's operation finishes.

The second year's work begins in May, with giving the beds a thorough weeding; and care must be taken to supply them with plenty of water during summer. In Sep-

tember, the first crop of seed will be ripe, at which time the stems of the plants may be mown down, and the roots covered a few inches with earth, taken as before out of the alleys.

The weeding should take place as early as possible in the spring of the third year; and the crop, instead of being left for seeds, may be cut three times during summer for green fodder, all kinds of cattle being remarkably fond of it. In October, the roots are taken up, the offsets are carefully separated, and immediately used to form a new plantation; and the roots, after being dried, are sold either without further preparation, or ground to a coarse powder, and sprinkled with an alkaline ley. The roots lose four-fifths of their weight in drying, and the produce of an acre is about 2000 lbs. weight of dry saleable madder.

It is always imported in its original state, as a root. Our dyers have tried the experiment of ordering the Dutch madder from abroad in the same state, but they were not able to use it. The principal use of madder is in dyeing. It gives out its colour both to water, and rectified spirit: the watery tincture is of a dark, dull red; the spirituous, of a deep bright one. It imparts to woollen cloth, prepared with alum and tartar, a very durable, though not a very beautiful red dye. As it is the cheapest of all red drugs, that give a durable colour, it is the principal one commonly made use of for ordinary stuffs. Sometimes its dye is heightened by the addition of Brazil-wood, and sometimes it is employed in conjunction with the dearer reds, as cochineal, for demi-scarlets, and demi-crimsons. Madder-root is sometimes employed in medicine as an emmenagogue. When the madder is given to animals with their food, it produces a curious phenomenon, namely, tinging their bones with red. The bones of young pigeons will be thus tinged of a rose-colour, in 24 hours, and of a deep scarlet in three days; but the bones of adult animals will be a fortnight in acquiring a rose-colour. *See* DYEING.

The cultivation of this article was protected by 31 Geo. 2. c. 35., whereby the pulling up, stealing, or destroying the roots thereof, was made an offence punishable summarily on conviction before a justice. The importation of it has been made subject to a duty by different statutes, the last of which is 58 Geo. 3. c. 55.

MADEIRA, a well known white wine, deriving its name from an island of Africa, where the vines which produce it are cultivated. This wine is usually purchased by the English, the Dutch, and the Danes, who sometimes bring it directly from the island of Madeira; but it is frequently sent either to the East or West Indies, in order to its amelioration, and is thence brought to England. The Americans are likewise purchasers of Madeira wines; and no inconsiderable shipments of the article are made to the Portuguese settlements in South America. The wine generally known by the name of Madeira, is a dry, full-bodied, white wine; but there are, besides this description of the wine, Burgundy-Madeira, whose colour and flavour are nearly similar to those of the wine from which it derives its designation, and Malmsey-Madeira, a white, luscious, and highly palatable wine.

MAGAZINE, in its primary signification, means a store-house, or granary, but is metaphorically used for any large receptacle for miscellaneous produce; whence, in literature, it is applied to those periodical publications which are the depositories of a great number of short independent essays, and other miscellaneous matter. In the *art military*, the term is applied to a place in fortified towns, set apart for the reception of all kinds of military stores. In the *art naval*, to a small apartment in a ship, where the powder for battle is kept. In mercantile language, the application of the word approaches nearer to its original signification; for it means nothing more than the principal store-house, or receptacle for the articles of trade, from which the places for traffic, or inferior deposit, are supplied.

MAGNESIA, (Lat. *Magnesia alba*,) like all the other earths, is no where found in a state of purity. The earth which hitherto appears to present it in a state the nearest approaching to purity, is that of Salinellos, near to Sommieres, in the department of Gard, where M. Berard has shown that it is mixed with silex in the proportion of 22 parts pure magnesia, 45 silex, 1 oxide of iron, and 32 water. It exists also, mixed with silex and with alumine, in talcs, in the serpentine earths, in asbestos, and generally in all the unctuous stones which admit of being worked in the lathe. Nature presents it to us in the state of a salt, almost always combined with the sulphuric acid. This combination is formed by the efflorescence or decomposition of certain secondary schists more or less charged with sulphur: in proportion as the sulphuric acid is produced by the slow combustion of the sulphur, it attaches itself to the component parts of the schist, and gives rise to the sulphate of lime, magnesia, alumine, or iron. It is by the decomposition of the sulphate of magnesia, that this earth is usually obtained. Magnesia, when pure, is very white, light, and spongy.

Magnesia is much used as a medicine. It is generally employed in the form of carbonate; but there are many cases in which it is important that it should be used *pure*. Various methods have been adopted for obtaining it entirely free from carbonic acid: the most effectual, is that of Mr. Lockyer, of London. The magnesia prepared by this chemist is in a state of absolute purity.

MAGNET. *See* LOADSTONE.

MAHOGANY. (Ger. *Mahagonholz*.

Du. *Mahognyhout.* Da. *Mahagoni.* Sw. *Mahagony.* Fr. *Bois de mahagoni, d'amaranthe, d'acajou.* It. *Legno mogano.* Sp. *Caoba, Caobana.* Port. *Caoba, Pao mahagony.*) The *swietena mahogoni* or mahogany-tree, is a native of the warmest parts of America, and grows also in the islands of Cuba, Jamaica, Hispaniola, and the Bahamas. It abounded formerly in the lowlands of Jamaica; but it is now found only on high hills, and places difficult of access. This tree grows tall and straight, rising often sixty feet from the spur to the branches, and is usually four feet in diameter. The foliage is a beautiful deep green, and the appearance made by the whole tree, so elegant, that none could be more ornamental for an avenue. The flowers are of a reddish or saffron colour, and the fruit of an oval form about the size of a turkey's egg. Some of them have attained to a monstrous size, exceeding one hundred feet in height.

In felling these trees, the most beautiful part is commonly left behind. The negro-workmen raise a scaffolding four or five feet above the ground, and hack up the trunk, which they cut into balks. The part beneath, extending to the root, is not only of a larger diameter, but of a closer texture than the other parts, most elegantly diversified with shades or clouds, or dotted like ermine, with black spots, and moreover takes the highest polish, with singular lustre. This part is only to be come at by digging below the spur, to the depth of two or three feet, and cutting it through, which is so laborious an operation, that few attempt it, unless they are uncommonly curious in the choice of their wood, or to serve a particular order. The mahogany tree thrives in most soils, but varies in texture and grain, according to the nature of the soil. On rocks it is of a smaller size, but very hard and weighty, and of a close grain, beautifully shaded; while the produce of the lower and richer lands is observed to be more light and porous, of a paler colour and open grain; and that of mixed soils to hold a medium between both. This constitutes the difference between the Jamaica wood, and that which is collected from the coast of Cuba, and the Spanish main; the former is mostly found on rocky eminences, the latter in swampy soils near the sea-coast. The superior value of the Jamaica wood for beauty of colour, firmness, and durability, may, therefore, be easily accounted for; but as a large quantity of balks and planks is brought from the Spanish-American boats to Jamaica, to be shipped thence to Great Britain, the dealers are apt to confound all under the name of Jamaica-wood, which in some measure injures the credit of this staple production. This wood is generally hard, takes a fine polish, and is found to answer better than any other sort, in all kinds of cabinet ware. It is a very strong timber, and was frequently used as such, in Jamaica, in former times. It was not till the commencement of the last century, that mahogany was imported into England, with the view of making household furniture of it.

The Spaniards were the only people who could afford to build their ships of war of mahogany; but they obtained it from the colonies without much difficulty, on account of government. The men of war of that nation, taken by the English, at the last memorable siege of Gibraltar, in 1782, were of the finest species of this wood.

MAIL, or Coat of Mail, a piece of defensive armour for the body, made sometimes almost entire, at other times in the shape of scales, like the outward coat of fish, other times of small iron rings, interwoven in the manner of a net.

MAIL-COACH, emphatically denominated "*the mail*," from its being a carriage of the coach kind, expressly appropriated (in its primary application) to the conveyance of letters in leathern bags, formerly called mails. These coach-conveyances for letters were established in 1784; previous to which, the mails or bags were conveyed on horseback, or in small carts.

MAILLE is a term which, at different periods, has been used to signify a small coin. In that sense it is still understood in France, and was common in England in the reign of our Henry 5. In Scotland it had the same signification originally; but afterwards was used as synonimous with small rent, so small as to be paid in mailles, the smallest of coin. Hence they had the term black maille, and white maille, which make a conspicuous figure in the histories of the border-wars.

MAIN-MAST, the chief or middle-mast of a ship. It is divided into four unequal sections, viz. the *main-mast*, properly so called, which first rises from the deck; the *main-top-mast*, immediately rising from the *main-mast*; the *main-top-gallant-mast*, just above the main-top-mast; and the *main-royal-mast*, which crowns the whole. The form of the main-mast, like that of other masts, is taper. Each division of the mast has its particular sail to which it gives name; as the *main-sail, main-top-sail*, &c. and its particular yard, as the *main-yard, main-top-sail-yard, main-top-gallant-sail-yard*, &c. besides its separate head or top, as the *main-top, main-top-mast-head*, &c. The ropes, tackling, &c. of each section are named in a similar manner.

MAIZE, (Ger *Maïs.* Du. *Mays.* Fr. *Maïs, ble' d'Inde.* Sp. and Port. *Maiz.* Lat. *Frumentum indicum,*) a kind of Indian corn, much used in America for making of bread. The stalk of the maize is joined like the sugar-cane; it is very soft and full of juice, which is so sweet that a syrup has been made from it; and things sweetened with it have not been distinguishable from

those done with sugar. The stalk of this plant, if cut up before it is too much dried, makes excellent winter fodder for cattle. The husks about the ear, are usually separated from the rest, and afford a particular sort, not inferior to our hay. To reduce the grain into flour, it is carefully parched in an oven, pounded in mortars, and then sifted. *See* ZEA.

MALACHITE, green carbonate of copper. This ore is often amorphous, but often chrystallised in long slender needles. Its specific gravity is 3.571 to 3.653. It may be easily scratched with a knife. It dissolves with effervescence in the nitric acid, and colours the flame of it green. Malachite is susceptible of the finest polish, and is found in masses or stalagmites; of it are made cups, snuff boxes, trinkets, which look extremely well, as the surface is almost always ornamented with zones of various strongly-marked colours, with succession of the beds or layers that have gradually formed the malachite. It is found in great quantity on the Vosges, mountains so called in Lorraine, and in the mines of the Harts forest in Saxony. The silky green copper ore of this kind from China, where it is found abundantly in the form of solid bundles, is the purest. There is a species of Siberian malachite which is sometimes mixed with calcareous earth and gypsum, and is found in Norway and Siberia.

MALLEABILITY, a property of metals, whereby they are capable of being extended under the hammer. Gold is considered the most malleable of all metals. *See* GOLD, IRON, COPPER, &c.

MALLET, a wooden hammer.

MALMSEY-WINE. (Ger. *Malvasier.* Du. *Malveziewyn.* Da. *Malvasier.* Sw. *Malvasirvin.* Fr. *Malvoisie.* It. *Malvagia.* Sp. and Port. *Malvasia.* Rus. *Malvaseja.* Pol. *Malmazya.* Lat. *Vinum malvaticum.*) This designation is generally bestowed upon a luscious, rich species of Madeira wine; several sorts of Spanish sweet wine are, however, likewise denominated malmseys, more especially by French writers. The vine which produces malmsey-wine, properly so called, is a native of Malvasia, a small Grecian island, where its cultivation is at present but little attended to.

MALT, (Ger. *Maly.* Du. *Mout.* Da. and Sw. *Malt.* Fr. *Mal, Blédgermé.* It. *Malto.* Sp. *Cebada retonada ó entallecida.* Rus. *Solod.* Pol. *Slod.* Lat. *Maltum,*) is, correctly, *any corn* prepared after a particular manner, for brewing the various kinds of beer; but in its general acceptation is applied only to *barley* so prepared.—Before we proceed to state the method of making malt, it is necessary to premise, that the colour which is designed to be given to liquor made from malt, is occasioned by a greater, or less, degree of heat; the fine pale ales being produced by malt dried on floors moderately heated, while porter, and the other dark-coloured liquors, are obtained from malt dried on floors excessively heated, which is generally denominated "high dried malt."

It has been well observed by an able writer on this subject, (Theoretic Hints on Brewing, by Richardson,) that "the process of malting is but an artificial or forced vegetation, in which, the nearer we approach the footsteps of nature in her ordinary progress, the more certainly we shall arrive at perfection." A bold acrospire, or plumule, therefore, extending to the extremity of the grain without having actually burst its confinement, is the best indication of the perfection of malt. The first consideration involved in this subject, is the barley from which the malt is to be manufactured; and after much discussion, it seems now to be admitted, that the boldest grain, with the fullest skin, is the best, although it be true that the corn of a lighter quality, grown on light sandy land, *malts more freely*, to use a technical phrase. The first step, then, in the operation of manufacturing barley into malt, is

Steeping the barley.—This is performed by placing it in a cistern constructed for the purpose, in which it is to be completely saturated with water, and the softer that water is, the better. The formation of these cisterns, and the number of hours the corn is to continue in steep, as well as the notice to be given of performing this operation, have been the subject of many successive provisions by statute. The most recent are 52 Geo. 3. c. 128, and 53 Geo. 3. c. 9. Maltsters are prohibited by a former stat. (3 Geo. 3. c. 13.) from beginning to wet, or steep, their malt at any time, without first giving 24 hours' notice to the excise-officer, in cities and market-towns, and 48 hours in other places. By the before-mentioned stat. of 53 Geo. 3. it is enacted, that thenceforward where any maltster shall, in the notice in writing by him given, or caused to be given, to the officer of excise, under whose survey such maltster shall then be, of the particular hour or time of the day, when he or she intends to wet corn or grain to be made into malt, specify, that it is the intention of such maltster to continue the same in steep for the space of sixty-five hours, from the time of its being first begun to be wetted, it shall be lawful for such maltster who shall have wetted such corn, or grain, according to such notice, to continue the same in steep and covered with water, for the said space of sixty-five hours; provided always, that no maltster, having so as aforesaid specified such intention, shall begin to wet or steep any such corn or grain specified in such notice to be intended to be continued in steep for the said space of sixty-five hours, at any other time than between the hours of eight

in the evening and eleven at night; and any such maltster, having so specified such intention, shall be at liberty to begin to wet or steep any such corn or grain, and so to continue in steep for the said space of sixty-five hours, at any time between the hours of eight in the evening and eleven at night, any thing in any former act to the contrary in anywise notwithstanding; and no such maltster shall empty, or take any such corn, or grain from, or out of his, or her cistern, uting, vat, or other vessel, or utensil used for the wetting, or steeping thereof, at any other time than between the hours of one and four in the afternoon; and if any such maltster, having wetted, or begun so to wet, any such corn or grain, shall neglect or refuse to continue the same or any part thereof in steep, or covered with water, for any longer, or shorter, space of time than sixty-five hours, from the time of its being first begun to be wetted, or shall begin to wet or steep any such corn, or grain, at any other time than between the hours of eight in the evening and eleven at night, or shall empty, or take any such corn, or grain from, or out of, his, her, or their cistern, uting, vat, or other vessel, or utensil, and for the wetting, or steeping thereof, at any other time than between the hours of one and four in the afternoon of that day, on which such sixty-five hours shall expire; such maltster so offending, shall for every such offence, forfeit and lose the sum of 200*l.* s. 2.

And whereas, by means of a ladder, and moveable plank, any cistern may be accurately gauged, if one side of such cistern be accessible. Every maltster shall thenceforward provide such ladder, and such moveable plank, of a convenient length and breadth, and shall also so construct his cistern, or cisterns, that the said moveable plank may be laid across every such cistern in every part thereof, in such a manner and form, that any officer of excise may easily and securely have access to such cistern and cisterns respectively, and conveniently gauge in every part thereof the corn or grain which shall at any time be contained therein, on pain of forfeiting 200*l.* for neglect, or refusal, to provide the same.

When the corn has been completely saturated, by lying its due time in the cistern, it is taken out and put into a square frame, where it lies something more than 24 hours, in which state it is called *a couch.* When it has lain in the couch its appointed time, it is turned out, and it is then called *a floor.* Here the principal skill of the maltster, in the manufacture of malt, is required; for, to his management of it in this state, the progress of that inchoate vegetation, on which the quality of the article depends, is indebted. If it be heaped too thick, or remain in a quiescent state too long, an undue heat will be generated, and the malt spoiled. It should not exceed 45 degrees *Fahrenheit.* After this explanation it is scarce necessary to add, that *the floor* should be spread thin, and frequently turned, not less, on the whole, than three times in twelve hours. The next step is that of *sprinkling* the malt on the floor with water, which is prohibited by statutes 42 Geo. 3. c. 38. and 48 Geo. 3. c. 74. from being done till the expiration of 12 days after it shall have been taken from the cistern, under a penalty of 200*l.* on the maltster, and 50*l.* or imprisonment of 12 months, on the servant or labourer employed in so doing.

The next process is *drying on the kiln.* In this operation, the grain is spread thick upon a floor composed of flat bricks, constructed specially for the purpose, or of iron plates, full of perforations. Under this floor is an oven, or furnace, in which is a large fire made of cokes, or billets of wood, which, by a current of air at the mouth of the furnace, are kept in full conflagration for at least two days. Nothing but coke, or wood, will answer this purpose, as the smoke of coal would spoil the malt. The kiln is a room from 12 to 14 feet in height, and in the centre of the area, and in proportion to its dimensions, is an enclosure for the purpose of retaining the heat of the fire, that the whole may be regularly distributed to every part of the drying floor.

The admission of a certain quantity of atmospheric air, which is accomplished by different devices in different kilns, is necessary, and by the admission of more or less of it, and by the quantity of fuel administered, depends chiefly the colour of the liquor to be extracted from the malt. The depth of the malt on the floor must vary according to various circumstances; as, the draught of the kiln, the saturation of the grain, &c. &c. but the usual thickness may be about four inches; and the time required for drying the palest malt from 60 to 70 hours.

By 42 Geo. 3. c. 38. maltsters are prohibited from wetting, sprinkling, or damping malt after it shall have been taken from the kiln, before delivery to a purchaser under a penalty of 100*l.*

By 53 Geo. 3. c. 128. no maltster shall have more than five floors of malt arising from the same cistern, in his malt-house, at the same time, under a penalty of 200*l.*; and shall not lay his floors of corn, but in succession according to seniority, under a penalty of 100*l.* and shall not empty his cistern more than once in 96 hours, under a penalty of 200*l.*; and every maltster shall empty all his cisterns, if he have more than one, at the same time, under a like penalty of 200*l.* and shall not mix corn of different wettings, either on the floor or kiln, under a penalty of 200*l.*

Malt made specially for exportation is subject to many regulations, which it is beside our purpose to notice in this place; but they are generally provided for annually by the malt act. It may be necessary, how-

ever, to add to what has already been advanced on the general subject, that every maltster must take out an annual licence, (*see title* LICENCE;) that malt made for exportation only is not liable to duties (12 Geo. 1. c. 4. and 33 Geo. 2. c. 7.); nor shall any drawbacks be allowed for malt exported (*Id.*); and lastly, that if any person who shall export malt shall produce a certificate from the officer with whom the entry of the corn shall have been made, (which the latter is to give gratis) of the sums that such person is entitled to receive, according to the allowance of thirty quarters of malt for every twenty quarters of corn entered, and upon such person's giving security to the customer or collector, that the malt shall not be relanded in Great Britain, then the collector or chief officer of the port shall give the exporter a debenture, directed to the person by whom the allowance is to be paid; which debenture being produced, such person is to pay such allowance.

If the malt, or any part thereof, be relanded, all such malt, and treble the value, shall be forfeited; one moiety to the king, and the other to the person who shall seize, inform, or sue; and the malt may be seized by any officer of customs or excise. The 3 Geo. 4. c. 18. repealed some of the duties on malt, and made regulations for better securing the duties on malt.

MALTHA, or MINERAL PITCH, a kind of cement much used in ancient times, of which there were two sorts, native and factitious; one of he latter sort consisted of pitch, wax, plaster, and grease; another kind used by the Romans in their aqueducts, was made of lime slacked in wine, incorporated with melted pitch and fresh figs. Natural maltha is a kind of bitumen, with which the Asiatics plaster their walls; and which being set on fire, its combustion is augmented by the effusion of water.

MAMOUDI, a Persian silver coin, value 8*d.* British.

MANCHINEEL-TREE, a native of the West Indies, which grows to the size of an oak. Its wood is of a beautiful grain, will polish well, and last long. The fruit is of the colour and size of the golden pippin, and is a rank poison.

MANDREL, a kind of wooden pulley, which makes part of a turner's lathe. Of this there are several kinds, as the *flat mandrel,* for turning flat boards on; *the pin mandrel,* which has a long wooden shank to fit into a round hole made in the work to be turned; *the hollow mandrel,* for turning hollow work; and *a screw mandrel,* for turning screws, &c.

MANGALIS, an East Indian weight for diamonds, pearls, &c. equal to five grains British.

MANGANESE, (Ger. *Braunstein, Glasseise.* Du. *Bruinsteen.* Da. *Bruunsteen.* Sw. *Brunsten.* Fr. *Manganése, Magalèse, Magne. Savon du verre.* It. *Manganesia.* Sp. *Manganesia, Marganesa.* Port. *Manganesia.* Rus. and Pol. *Magnesia.* Lat. *Magnesia nigra, Manganesium,*) is a brilliant metal, of a darkish white colour, inclining to grey, very brittle, of considerable hardness, and of difficult fusibility. Its specific gravity is about 8.00. When exposed to the air, it absorbs oxygen rapidly, and falls into powder. On account of its great affinity for oxygen, it is never found in a metallic state, and most usually in that of an oxyd. It is found in Devon and Somersetshire; in America, and various parts of the continent of Europe: usually in large shapeless masses of oxyd; but sometimes in prismatic crystals of the colour of steel.

The oxyde of manganese is of considerable use; it is employed for making the oxymuriatic acid, for forming bleaching-liquor. It is also used in glazing black earthen-ware; for giving colours to enamels; and in the manufacture of porcelain. It is the substance generally used by chemists for obtaining oxygen gas.

MANGEL WURTZEL, is a species of beet-root, the culture of which has been very confined in this country till lately, though commonly grown in others, especially in Germany. It differs materially in the size to which it will grow, in proportion to the strength of the soil on which it is produced, and which it is thought very much to exhaust. The roots vary from 10 to 20lb. in weight. Fifty tons per acre have been obtained upon good loam. It will fatten every species of cattle with greater rapidity than any other plant, and is peculiarly excellent for the food of milch cows; not only increasing the quantity of their milk, but enriching it beyond any other vegetable. It is reasonably conjectured, that it will yield sugar, and spirit, in considerable proportions.

MANGO, a sort of fruit of a remarkably hot flavour, which is brought from the island of Java. It is used as a pickle.

MANHEIM GOLD. *See* ORSIDUE.

MANIFEST, is a regular list of a ship's cargo, containing the mark and number of each separate package, the names of the persons by whom the different parcels of goods are shipped, and those of the persons to whom they are consigned; a specification of the quality of the goods contained in each package, as rum, sugar, tea, coffee, &c. and also an account of the freight that the captain is to receive from the consignee of such goods, on his arrival, corresponding with the bills of lading which he has already signed. The manifest is usually signed by the ship-broker who clears the vessel out at the custom-house, and by the captain, and serves as a voucher for the latter, whereby to settle his account with his owners, &c.

Abstract of an act for regulating the production of manifests, and for more effectually preventing fraudulent practices in obtaining bounties and drawbacks, and in the clandestine re-landing of goods. 26 Geo. 3. c. 40.

Sec. 1. *Manifest of goods on board.*—From the times hereinafter mentioned, no goods shall be imported into Great Britain from parts beyond the seas, in any ship or vessel belonging to His Majesty's subjects, unless the master or commander thereof shall have on board a manifest, or content, in writing, signed by such master or commander, containing the names of the several ports or places where the goods, in such manifest mentioned, shall have been respectively laden, the name and build of such ship or vessel, and the true admeasurement or tonnage, according to the register, with the christian and surname of the master or commander, the port to which such ship or vessel belongs; and a true account of all the cargo, and of all packages of goods, so laden on board, with the several marks; and the particulars of the cargo which is stowed loose; and of the following particulars, in words at length, that is to say, the several and respective numbers of the packages, with a particular description thereof, whether leaguer, pipe, butt, puncheon, hogshead, barrel, or other cask or package, describing such other cask or package by its usual name; or whether case, bale, pack, truss, chest, box, bundle, or other package, or by such other name or description as the same is usually called or known.

2. *Manifest of wine.* — No wine shall be imported into Great Britain, from any foreign parts not belonging to Great Britain, in any ship or vessel, unless the master or commander thereof shall have on board a manifest, in writing, and signed by such master or commander, before the clearing of every such ship or vessel from every such port where such wine shall be laden on board, containing the name of the respective ports or places where the wine, mentioned in such manifest, shall have been so laden on board; the name and build of such ship or vessel, and the true tonnage, or admeasurement of tonnage, thereof; together with the christian and surname of the master or commander, and the port to which such ship or vessel belongs; and a just account of the whole quantity of wine, distinguishing the quantity of each different kind, so taken on board, and of the marks of the different packages, and if known, the names of the persons to whom the wines are consigned; and also, in words at length, the numbers of the packages, with a description thereof, whether leaguer, pipe, butt, puncheon, hogshead, barrel, or other cask or package, or by what name or description such other cask or package is called or known. Provided that nothing shall extend to permit any goods which are required to be accompanied with certificates and other documents, to be imported into Great Britain without such certificate, &c., but the same shall be accompanied, as well with such certificate, &c., as with the manifest before-directed; and, on failure, the goods shall continue to be liable to all the duties and restrictions, and to the fines and forfeitures, to which the same are subject by law.

(Additional regulations respecting manifests to be brought by masters of vessels from the territories of the East India Company, the Cape of Good Hope, and the island of St. Helena, were made by 54 Geo. 3. c. 36. By these, additional manifests are required from ships arriving from the countries above-mentioned, beside the original manifests. Notwithstanding this statute, however, wines had been commonly imported from the Cape of Good Hope and others of the places specified, without the necessary manifest: an order was given from the custom-house in Dec. 1817, that for the future, the penalties of the said statutes would be strictly enforced.)

3. *How ships are to clear out for Great Britain.* — Before any ship or vessel shall be cleared out for Great Britain, from any foreign parts belonging to Great Britain, the master or commander thereof shall deliver the manifest, in writing, herein-before required, to the collector of the customs there; and, if there shall not be a collector of the customs there, then to the chief officer of the customs; and, if there shall not be any officer of the customs there, then to the principal officer or magistrate, or some other person by him specially appointed, resident at or nearest to such place; which said collector, or other chief officer, &c., shall cause a duplicate to be made, and indorse, upon the original manifest, his name, with the day and year on which the same was produced to such collector, &c., and shall then return the said original manifest, or content, to the said master, on the clearing of any such ship or vessel; and such collector, and other chief officer, shall, upon the clearing of every such ship or vessel, immediately transmit the said duplicate of such manifest to the collector and comptroller of His Majesty's customs at the port in Great Britain to which the goods are consigned, and to which the manifest refers

4. *How ships with wine are to clear out for Great Britain.* — No sort of wine shall be admitted to an entry into Great Britain, in any ship or vessel whatever, from any port not belonging to Great Britain, unless the master or commander thereof, importing the same, shall, before his departure from the port where such wine is shipped, verify upon oath the truth of the contents of the said manifest before the British consul, or other chief British officer, if there shall be

any such resident at or near the port where such wine shall be taken on board.

5. *Consequence of not having a manifest.*—If any goods shall be imported into Great Britain, in any ship or vessel belonging to his Majesty's subjects, from any foreign parts, without such manifest, or shall not be described therein, or shall not agree therewith; or if any wine shall be imported into Great Britain, by any such ship or vessel, without a manifest so verified as aforesaid; in every such case, the master or commander thereof shall forfeit double the value of such goods, together with the full duties payable on the same.

6. *Manifests to be produced.*—Every master or commander of any ship or vessel, belonging to His Majesty's subjects, laden with goods, and bound to Great Britain, shall, on his arrival within four leagues of the coast, upon demand, produce all such manifests, which such master or commander is required to have on board, to such officer of the customs as shall first come on board his said ship or vessel, for his examination, and shall deliver to such officer a true copy thereof, (which copy shall be provided and subscribed by the said master or commander of the said ship); and that the officer to whom the original manifest shall have been produced, shall certify, upon the back thereof, that the same was produced, and the day and year when, and such copies as aforesaid were to him delivered; and shall likewise certify, upon the back of such copies, the day and year on which the same were produced, and transmit such copies to the respective collectors and comptrollers of the several ports to which the goods, by such manifests, shall appear respectively to be consigned; and that the said master or commander of any such ship or vessel shal produce, to the officer of his Majesty's customs, who shall first come on board such ship or vessel, upon her arrival within the limits of any port in Great Britain, in which the cargo, or any part thereof, is intended to be discharged, such manifest, and also deliver a true copy thereof; the production of such manifest, and the delivery of such copy thereof, shall also be certified to have been produced and delivered, as aforesaid, by the said officer who shall so first come on board the said ship or vessel, on her arrival within the limits of any such port, upon the back of the original manifest, with the day and year, and the time when such manifest was produced to such officer, and when he so received the said copy; and such officer is required to transmit the said copy to the collector and comptroller of that port: proviso, that nothing shall extend to require of such master or commander of such ship or vessel, the delivery of more than one copy of the manifest which he is directed to have on board, to the officer who shall first come on board within four leagues of the coast of Great Britain, and to none other who shall afterwards come on board within the distance aforesaid; and one other copy to such officer who shall first come on board within the limits of any port in Great Britain; and to none other who shall afterwards come on board within such limits, if such master or commander of any such ship or vessel shall produce to such officer his manifest, with a certificate at the back thereof: proviso, that if any manifest, directed to be delivered up to the collector or comptroller of any port where such ship or vessel arrives, shall contain an account of goods not there to be landed, but which shall appear to be consigned to some other port in Great Britain, then the collector and comptroller shall certify upon such manifest under their hands, such part of the cargo as shall there have been delivered, and shall then deliver back the original manifest to the master; and so in like manner as often as the case shall require, until such ship or vessel shall arrive at her last port or place of discharge.

7. *Refusing to produce manifests.*—If the master or commander of any ship or vessel, laden and bound to Great Britain, shall not, upon his arrival within the limits of any port in Great Britain, or within four leagues of the coast, produce such manifest to the officer of His Majesty's customs, upon demand, and give such copy to the officer who shall first come on board such ship or vessel, upon her arrival within any port in Great Britain, where the cargo, or any part thereof, is intended to be discharged or landed, or shall not give an account of the destination of such ship or vessel, or shall give a false account of the destination thereof, in order to evade the production of the manifest, the master or commander of such ship or vessel shall forfeit double the value of the goods, together with the full duties payable thereon; and if such officer, first coming on board, shall refuse to certify, on the back of such manifest, the production and delivery of such copies as are required to be delivered, every such officer, so neglecting or refusing, shall forfeit the sum of 100*l.*

8. *Breaking bulk.*—If, after the arrival of any ship or vessel laden with goods, and bound to Great Britain, either when within the limits of the ports of Great Britain, or within four leagues of the coast, bulk shall be broken, or any part of the cargo shall be unladen or unshipped, with intention to be laid on land, or unshipped as aforesaid within the limits aforesaid, before such ship or vessel shall come to the proper place for the discharge of her cargo, and shall be there duly authorised by the proper officer of the customs to unlade the same, the master or commander of such ship or vessel, and the mate or other person next in command, shall respectively forfeit 200*l.* except in case of unavoidable necessity, and distress of weather, or other unavoidable accident

or distress; of which distress the master or commander of such ship or vessel shall give notice, and (together with two or more of the mariners on board) shall make proof, upon oath, before the collector or other chief officer of the customs of the port within the limits of which such accident or distress shall happen, or before the collector or other chief officer of the first port in Great Britain within the limits of which such ship or vessel shall afterwards arrive, if the said accident or distress shall have happened, not within the limits of any port, but within four leagues of the coast of Great Britain.

9. If, upon the arrival of any ship or vessel within the limits of any port in Great Britain, for the discharge of her cargo, there shall be any goods which must be unavoidably stowed, either in the cabin, or between the decks, or upon the decks, or in the steerage, forecastle, or other place out of the main hold, (except such part of the cargo as is stowed in the chains or other parts on the outside of such ship or vessel,) in such case the officer of the customs, who shall first go on board, shall, before he shall leave the ship or vessel, mark or seal such packages, as such officer shall be directed by the commissioners of the customs, or any four or more of them, in England, or the commissioners of the customs, or any three or more of them, in Scotland, and shall keep a particular account; which mark or seal shall not be altered or broken, before the goods contained in such packages shall be landed, either at the quays, or at such other places as shall from time to time be allowed, by special leave from the commissioners and officers of the customs, and an order from the proper landing-waiters, and in the presence of such superior officer or officers, as the said commissioners of the customs, in England and Scotland, shall appoint to see such packages opened.

10. *Marks of packages altered.*—If any of the marks or seals which shall have been put upon any of the packages, shall be altered or broken by the master or commander of the ship or vessel, or by any of the crew, or by any other person with the consent of the said master or commander, every such master or commander, and also the mate, or such person as shall be next in command to such master or commander, shall, for each offence, forfeit 200*l.*

11. *Ships to be entered on arrival.*—The master or commander of any ship or vessel, in which such goods shall be so imported as aforesaid into Great Britain, shall, within twenty-four hours after arrival at such places as shall be fixed upon by the commissioners of the customs, or any four of them, in England, or the commissioners of the customs, or any three or more of them, in Scotland, make entry, upon oath, of the build, burthen, contents, and lading, of such ship or vessel, with the particular marks, numbers, and contents, of every parcel of goods then laden on board, and perform every act and thing relating thereto, before the collector or other chief officer of the customs at the said port, in the custom-house at the same port, in the manner directed by an act passed in the 13th and 14th of Charles II. intituled, "An act for preventing frauds and regulating abuses in His Majesty's customs," under the penalty of 100*l.*; and the said master, or other person, shall, at the time he so makes his report of his ship at the custom-house, deliver to the collector, or other chief officer of the customs at the said port, the manifest, to accompany their cargoes, and to be on board every ship or vessel in which goods shall be so as aforesaid imported into Great Britain, and if the said master or commander of any such ship or vessel shall neglect to deliver such manifest to the said collector, or other chief officer of the customs, at the time he so makes his report, every such master, or other person, shall forfeit 200*l.*

12. *Manifest not agreeing with the cargo.*—If any package whatever, which shall have been reported by the master or commander of any ship or vessel, shall not be found on board the same, in conformity to such report; or if the goods imported shall not agree with the manifests; or if either the reports or the manifests shall not agree with the cargo found on board; then the master or commander of such ship or vessel shall forfeit 200*l.* Provided, that in case any goods shall be imported without such manifests; or in case the manifests, accompanying the goods, shall not agree with the report; or be defaced, or incorrect, or not agree with the goods on board; and it be made appear, to the satisfaction of the commissioners of the customs, that the cargo imported was wholly taken on board in foreign parts, naming the particular places where it was taken on board respectively, and that no part of the cargo has been unshipped since it was taken on board, and that the manifest has been lost or mislaid without fraud or collusion, or that the same was defaced by accident, or incorrect by mistake; in such case, the penalties and forfeitures herein-before inflicted shall not be incurred. Provided, that in case any goods shall, from necessity, be taken on board of any ship or vessel in any foreign port, for Great Britain, after such manifest as is required shall have been attested, in manner herein-before directed, the master or commander of such ship or vessel shall make out a separate manifest of all such goods as shall be so taken on board; which manifest shall be subject to all and every provision in this act contained, in like manner as the manifests are subjected; and, in such case, the penalties,

herein-before inflicted, with respect to goods imported without a manifest, shall not be incurred, if the urgent necessity of so taking such goods on board shall be made appear to the satisfaction of the commissioners of the customs.

13. *Goods destroyed, except by necessity.* — If any goods, so taken on board in any foreign port, shall, after the arrival of such ship or vessel, within the limits of any port of Great Britain, or within four leagues of the coast thereof, or after the first production of the manifest to the officers of the customs (whether such goods shall be inserted in the said manifests, directed to accompany such goods, or not) be thrown over-board, or staved, or in any manner destroyed, (except in case of unavoidable necessity, proof of which shall be made to the satisfaction of the commissioners of his Majesty's customs) the master or commander of the ship or vessel, on board of which such offence shall be committed, shall forfeit 200*l.*

14. *Importer or consignee to make entry at the customs.*—Every importer, proprietor, or consignee of any goods imported into Great Britain, shall, within twenty days after the master or commander of such ship or vessel shall have made his report upon oath, or after the expiration of the time within which he is required by law so to do, make a due entry with the collector or other chief officer of the customs, at the port where the ship or vessel so laden shall arrive, of all the goods so by them imported therein, or of which they are the importers, proprietors or consignees, and pay the full duties payable for such goods within the time aforesaid; and that, if he or they shall fail in so doing, it shall be lawful for the officers of the customs to convey such goods to His Majesty's warehouse, at the custom-house, for the security of the duties; and, if the full duties are not paid within three months, they should be sold, and the produce applied agreeably to an act of the 12th Queen Anne, intituled, *An Act for the Encouragement of the Tobacco-trade.* Proviso, that nothing shall extend to the selling of any goods, which may be entered and warehoused, upon bond or security being given for the whole of the duties due thereon.

22. *Masters to bring to at the usual places for revenue-officers.* — The master or commander of any ship or vessel, arriving from foreign parts, shall not presume to pass such usual places without bringing to, and receiving the revenue-officers on board; or being outward-bound, for foreign parts, shall not presume to pass without bringing to, at such usual places, for the purpose of the cargo being examined, and of relieving or landing such officers, unless in case of distress of weather, and other unavoidable accident, to be made appear to the satisfaction of the commissioners of the customs; and that every such master, or other person, who shall pass without bringing to for the purposes aforesaid, shall, for every such offence, forfeit 100*l.*

23. *Revenue-officers to have access to all parts of the ship.* — From the passing of this act, any officer of his Majesty's revenue, properly authorised to examine any ship or vessel, or the cargo on board, shall at all times have free access to the cabin, and every other part or place in such ship or vessel; and, in case any places within the cabin, forecastle, steerage, or any other part of the ship, or any boxes, chests, or other things contained therein, shall be locked, or in any manner fastened, and the keys shall be withholden, or the places shall not be opened for such officers, on their requiring the same of the master or commander of such ship or vessel, such officers, if they are of a degree superior to tidesmen or watermen, shall, and are hereby authorised and empowered to, open the same in the best manner they can, and are hereby indemnified in so doing; but, if such officers shall only be of the class of tidesmen or watermen, they shall send for their superior officer, who is hereby in like manner authorised to open the same, and is hereby indemnified in so doing.

27. *Who may seize ships or goods, &c.* —It shall be lawful for the commanders of any of His Majesty's ships or vessels of war, or any commissioned, warrant, or petty, officer, specially authorised by them, to seize, without any deputation or commission from the commissioners of the customs or excise, any goods, ships, &c. which shall be subject to forfeiture by this or any other act now in force, for any offence against the revenue. Provided, that the commander of such ship or vessel of war shall bring every such seizure to His Majesty's warehouse, at the nearest custom-house to which such seizure can conveniently be brought, and there deposit the same in the custody of the proper officer of the customs, in case the seizure shall be made under any act for securing the revenue of the customs; or in the custody of the proper officer of excise, in case it shall be made under any act for securing the revenue of excise only; and shall conform to all the rules to which the officers of customs and excise are now, in case of such seizure made by them, subject.

[By the 41 Geo. 3. c. 91. s. 6. any goods seized, for which any excise-duty is imposed, may be lodged in one of His Majesty's warehouses of excise, if the commanding officer deems it expedient, instead of bringing such seizure to the custom-house; and every seizure so brought shall be prosecuted under the directions of the commissioners of excise.]

28. *Witnesses.*—From the passing of this act, any person examined as a witness, shall deliver his testimony upon oath, to be ad-

ministered by the surveyor-general, who shall examine him.

29. *False oath.*—If any person shall be convicted of making a false oath, or of giving false evidence, on his examination on oath before the surveyor-general of the customs, such person so convicted, shall be deemed guilty of perjury, and shall be liable to the pains and penalties to which persons are liable for wilful and corrupt perjury.

30. *Penalties.*—All penalties incurred by this act shall be sued for in such a manner as any penalties incurred, or any goods or vessels forfeited, for any offence against the laws of customs may be sued for; and the officer concerned in such seizures or prosecutions under this act, shall receive such share of the produce arising from the seizures, as they are now by law intitled to upon prosecutions or seizures for unlawful importation, and to such share of the produce arising from any pecuniary fine or composition paid for any offence against this act, as they are now by law intitled to upon prosecutions for pecuniary penalties.

31. *Information.*—From the passing of this act, in case any information shall be commenced and brought to trial, on account of the seizure of any goods, ship, &c. wherein a verdict shall be given for the claimer, and if it appear to the judge that there was a probable cause of seizure, the judge shall certify on the record that there was a probable cause for the prosecutor's seizing the said goods, ship, &c. and, in such case, the defendant shall be intitled to costs of suit, nor shall the persons, who seized the said goods, ship, &c. be liable to any action on account of such seizure; and, in case any action shall be commenced and brought to trial against any person, on account of the seizure of any such goods, ship, &c. where no information shall be commenced or brought to trial to condemn the same, and a verdict shall be given upon such action, against the defendant, if the judge shall certify that there was a probable cause for such seizure, then the plaintiff, besides his goods, &c. so seized, or the value thereof, shall not be intitled to above two-pence damages, nor to any costs of suit, nor shall the defendant in such prosecution be fined above one shilling.

33. *Seizures to be sold by public auction.*—From the twenty-ninth of September, 1786, all ships and vessels, and all goods, which shall be seized in pursuance of any act, made in Great Britain, relative to the trade and revenue of the British colonies or plantations, and which shall be condemned there, shall be sold by public auction, to the best bidder, at the custom-house, by the collector and comptroller of the customs for the island, colony, or plantation, in whose custody such vessel, ship, or goods, shall be lodged and secured; and the produce of such sale shall be accounted for and applied, by such collector and comptroller, or other principal officer of the customs, according to law, subject to the direction of the commissioners of customs in England, or any four or more of them.

By 53 Geo. 3. c. 155. & 54 Geo. 3. c. 36. the master of every vessel belonging in whole or in part to His Majesty's subjects, arriving in Great Britain from any place within the limits of charter of the East India Company, from the Cape of Good Hope, or from St. Helena, shall have on board a manifest, as directed by 26 Geo. 3. c. 40. and shall produce and deliver such manifest, as directed by that act. And no goods shall be imported into Great Britain from any of the places before-mentioned, unless the master of such vessel shall have on board a manifest, signed by such master, and containing the particulars described in that act; nor shall any vessel be permitted to clear out from any port of the United Kingdom, for any place within the said limits of the said Company's charter, without a like manifest.

And the names of the places where the goods were taken on board, and those of the persons to whom consigned, shall be inserted in such manifest; and the places where stowed in the ship, viz. in the hold, and elsewhere, shall be distinguished; and if any alteration of stowage shall take place, it shall be inserted in a supplementary manifest, sec. 4 & 5.

And such manifests shall be authenticated by the master of the vessel by indorsement of his name, and the date of delivery, &c. and shall be delivered to the persons appointed at each place of delivery, and a duplicate shall be taken and sent to the commissioners of customs in England or Scotland respectively, as the case may require, sec. 6, 7.

All masters of vessels coming from India, and touching at the Cape, or at St. Helena, shall deliver their manifests, authenticated as before described, to the proper officer; which officer shall transmit duplicates thereof to the commissioners of the customs here, and also a separate duplicate of a supplementary manifest of all additional goods taken in at such places, sec. 8, 9.

All goods imported without a manifest, or with an incorrect manifest from the places before-mentioned, shall be forfeited, and the master shall forfeit 50*l.* for each and every package so imported, sec. 12.

MANILLE, a large brass ring, in the form of a bracelet, either plain or engraven, round or flat; they are a principal article of export to the coast of Africa, and were exchanged with the natives for slaves. These people wear them as ornaments on the small part of the leg, and on the thick part of the arm above the elbow. The great men wear manilles of gold and silver, but these are made in the country by the natives themselves.

MANNA. (Ger. Du. Da. and Sw. *Manna.* Fr. *Manne.* Sp. *Mana, Mangla, Almangre.* It. Port. Rus. Pol. and Lat. *Manna.*) Several vegetables afford manna: it is extracted from the pine, the fir, the maple, the oak, the juniper, the fig, the willow, the olive, &c.; but the ash, the larch, and the alhagi, afford it in the largest quantities. Lobel, Rondelet, and others, have observed at Montpellier, upon the olive trees, a kind of manna, to which they have given the name of *æliomeli.* Tournefort collected it from the same trees at Aix and at Toulon.

The ash which affords manna grows naturally in all temperate climates; but Calabria and Sicily appear to be the most congenial countries to this tree; or at least it is only in these countries that it abundantly furnishes the juice called manna in commerce.

The manna flows naturally from this tree, and attaches itself to its sides in the form of white transparent drops; but the extraction is facilitated by incisions made in the tree during summer: the manna flows through these apertures upon the trunk of the tree, from whence it is detached with wooden instruments. Care is likewise taken to insert straws, or small sticks of wood, into these incisions; and the stalactites, which hang from these small bodies, are separated, and known in commerce by the name of *Manna in Tears:* the smallest pieces form the manna in sorts or flakes, and the common or fat manna is of the worst quality, because the most contaminated with earth and other foreign substances.

The larch, which grows abundantly in Dauphiny and the environs of Briançon, likewise affords manna. It is formed during the summer on the fibres of the leaves, in white friable grains, which the peasants collect and put into pots, which they keep in a cool place. This manna is of a yellow colour, and has a very nauseous smell.

The *alhagi* is a kind of broom, which grows in Persia. A juice transudes from its leaves in the form of drops, of various sizes, which the heat of the sun indurates. An interesting account of this tree may be seen in Tournefort's Travels. This manna is known in the Levant, in the town of Tauris, by the name of *Tereniabin.*

The manna most frequently used is that of Calabria. Its smell is strong, and its taste sweetish and slightly nauseous: if exposed on hot coals, it swells up, takes fire, and leaves a light bulky coal.

The best and greatest quantity of manna comes from Sicily. It consists of two sorts, the one called flaky, generally of more than double the value of the other, called manna in sorts. The principal parts of Sicily where this drug is collected, are Cinesi and Geraci. The denomination of Cinesi manna comprehends not only the produce of Cinesi, but also of the villages of Capace, Carini, Favoretta, &c. So also Geraci manna means not only the manna collected at Geraci, but at Castelbuono, Cefalu, and St. Mauro. The best flaky manna comes from Cinesi and Capace; the very best from Cinesi. It is computed that the four villages of Cinesi, Capace, Carini, and Favoretta, produce on an average above 1400 cantars of manna, whereof four-fifths are in sorts, and twenty-five to thirty cantars flakes. The Sicilian cantar is equal to 196lb. avoirdupois. The crop of Sicilian manna is generally bought up by the merchants of Palermo, at the harvest, which begins in August, and ends in October. The chief market for flaky manna is at Leghorn. The manna in sorts generally goes to Marseilles or the Levant. Tolpha manna is inferior in value to the flaky, but more valuable than manna in sorts. It takes its name from Tolpha, a place in the territory of the Pope. Manna forms the basis of many purgative medicines.

MAN OF WAR, a large ship, carrying from 20 to 120 guns, invariably employed in naval engagements. *See* SHIP.

MANSIA, a Persian weight, equal to 12lb. avoirdupois.

MANUFACTORY denotes a place where several artificers are employed in making a commodity, as *manufacture* is the work itself. *See titles* EUROPE, ASIA, AFRICA, and AMERICA, for accounts of different branches of industry.

Many acts of parliament have been passed for the encouragement and regulation of manufactures. Persons exporting the tools or utensils used either in the silk, linen, or woollen manufactures, incur a forfeiture, and the sum of 200*l.*; and if the captain of the ship be acquainted with such illegal proceeding, he is liable to pay a fine of 100*l.* The forfeiture of the articles and 200*l.* is farther imposed upon all persons collecting them for the purpose of exportation; and if the captain of a king's ship, or officer of the customs, knowingly suffer such exportation, both incur a penalty of 200*l.* lose their employment, and are for ever incapacitated from holding any office under government. Persons having tools in their possession, or procuring them to be made with a view to exportation, are also subject to forfeiture of the same, together with 200*l.* and to imprisonment for 12 months; and every person exporting such tools shall forfeit them, together with 500*l.* *See titles* ARTIFICER and WOOL.

MANUMISSION, the act of enfranchising, or giving freedom to, a slave or person in a state of bondage, by a master or owner. The forms preserved in executing this ceremony have been various at different periods, and in different countries. The Justinian code presented the mode to be adopted by the Romans. During the con-

tinuance of the feudal system, introduced into this kingdom by William the Norman, villains were manumitted by proclamation in the county court. There was also an implied sort of manumission practised, by treating the slave as a freeman; as by executing an obligation for payment of money to him, &c. The subject has little interest here now, beyond that excited by curiosity; but in America and the West India islands, it is still of some importance: in some parts of those countries it is effected by a kind of registration before certain public authorities; in others merely by a private certificate of enfranchisement. An extraordinary fact is attested by recent travellers on that continent, viz. that the most numerous impediments to the manumission of slaves are to be found in those provinces of the United States whose general laws and constitutions were founded on the basis of liberty.

MANURES. Manuring land is the act of ameliorating the soil, by applying thereto some matter proper for its fertility.

Under the term *manures* may be included chalk, lime, shells, bones, gypsum, marl, clay, sand, pond-mud, pond-weeds, ashes, soot, sea-weed, salt, rape-dust, malt-dust, yard-dung, pigeons' dung, rabbits' dung, night-soil, &c. &c.

Chalk is used to great advantage as a manure on some wet, stiff soils, having no calcareous earth; in quantity, from 50 to 80 cart-loads per acre; but there are many soils which derive no benefit from it.

The best method of using it, is to spread it early in the autumn, in order that it may be thoroughly drenched with rain, that the frost may have its full operation upon it; by which means it is well pulverised when the thaw comes on, and will mix the more readily with the soil.

Old grass-lands on wet, sandy, or clayey soil, over-run with furze or rushes, are greatly improved by chalk.

But it is to be observed, that land once completely chalked, after its fertilising power appears to be exhausted, seems deteriorated by the use of it.

Lime not only acts as chalk, into which it is converted, but it destroys and decomposes weeds, when laid on fallows. It may likewise be mixed advantageously with green weeds, in alternate layers, for this purpose, and the result will be a beneficial manure.

Turf-ashes, if spread on poor chalky thin lands for turnips, at the rate of about 20 cart-loads of 30 bushels each per acre, will seldom fail to produce a good crop: and it is well known, that if once a good crop of turnips, can be obtained on such poor lands, a good foundation is laid for future improvements. Ashes of all sorts improve wet soil.

Bone-dust is perhaps of all manures the most universally advantageous as a manure. Its effects upon the soil, are in the highest degree beneficial; and its durability does not constitute the least portion of its value.

Marl. The term marl is employed in a very comprehensive sense, including a variety of substances, very different in external appearance, and varying greatly, if not in the nature of their constituent parts, at least in the proportions in which these are arranged in the mass. The most common varieties are distinguished by the appellations of clay-marl, slate-marl, and stone-marl; the first of these kinds only is generally beneficial. The criterion of the excellence in marl is, chiefly, being greasy to the touch when moist; and friable when dry. Another is its fermenting with any strong acid, such as aqua fortis, or muriatic acid. Marl of this description, when put into water, will fall to pieces, allowing a considerable portion of sand to sink to the bottom of the vessels; from the application of which simple test the farmer might, in many instances, derive much advantage. There is an excellent kind of marl sometimes met with, which is vulgarly called dove-dung, from its resembling in appearance the dung of pigeons.

The quantity of marl to be used varies according to its quality, and the nature of the soils on which it is used. On a light or sandy soil, two cubic roods of marl, each rood containing 64 solid yards, is reckoned a good covering for a statute acre. On strong retentive clay-land, one rood is generally found sufficient for the same extent of surface. The usual time of marling is in the summer months; beginning in May, when the ploughing is over, and continuing till the commencement of harvest. It is sometimes laid on the green sward in winter; and, after being acted upon by the frost, is ploughed in the following spring, generally for oats. Marling on fallows is also practised to a very considerable extent.

That marl is actually productive of the greatest benefit to the lands on which it is used, is a fact which can admit of no doubt. Much variety of opinion, however, exists, as to the mode of operation by which this benefit is effected, but into these it is beside our purpose to enter.

Sand, as a manure, is of the greatest advantage in some lands. When there is a piece of strong clay-land in tillage, and there is an opportunity of covering it over with sand, the soil will be pulverised, and, opened by this means, will give better crops when in tillage, and when laid down, will produce a finer herbage, less liable to be parched in dry, or trod down in wet seasons.

Turf-ashes are often used for wheat, and sometimes for other crops; but there is no application of them so advantageous as that of using them for turnips.

Coal-ashes are a good manure for the same purpose; but not so much used. They are sown on the land in the spring, at the

rate of four or five chaldrons per acre. Cold, wet, clay meadows are much improved by them, but only those.

Soot is a valuable manure for a top-dressing on sainfoin, clover, lucerne, and meadows: it is usually sown on the land at the rate of 40 or 50 bushels per acre, early in the spring.

Sea-weed is a very excellent manure, being a mass of vegetable matter strongly impregnated with salt.

Though various experiments have been made, with a view to ascertain the utility of common salt as a manure, yet, from the difference which has been experienced in their results, no very decisive or satisfactory conclusion has hitherto been obtained on the subject.

Rape-dust is another excellent manure, and has been used in several instances with the greatest advantage. The large proportion of oily and mucilaginous matter, which it contains, might indeed induce a belief, *à priori*, that this would be the case.

Soap-suds and woollen rags, &c. have each been used, to a certain extent, as manures in some counties; and with different degrees of success. *Oyster-shells* either calcined, or beaten into powder by a weight, and which are only a fine species of lime, are excellent manure, especially for grass.

Bone-dust, on the same principle, is now in the greatest request.

The dung of those animals which are fed upon the substances constituting in a great measure the subsistence of man, is esteemed more valuable than that procured from animals whose food is of a different description. The dung of swine, of horses fed upon corn, &c. is said to be more beneficial as a manure, than that of cows, sheep, or horses, fed entirely upon grass or hay, but is much too hot in its nature to be used alone, especially pigs' dung.

Refuse leather, and bark from hot-houses, after its office in them has been performed, have been tried, but with less success than might have been expected.

What has been said here respecting manures as applicable to agriculture, is with little variation applicable also to horticulture. *See further title* AGRICULTURE.

MAP, (*Maps*, Ger. *Landkarten*. Du. *Kaarten*. Da. *Landkarter*. Sw. *Landkartor*. Fr. *Cartes géographiques*. It. *Carte geografiche*. Sp. *Mapas*. Port. *Mapas*, *Cartas geographicas*,) a plane figure, representing the surface of the earth, or a part thereof. In maps these three things are essentially requisite. 1. That all places have the same situation and distance from the great circles therein, as on the globe, to show the parallels, longitudes, zones, climates, and other celestial appearances, 2. That their magnitudes be proportionable to their real magnitudes on the globe. 3. That all places have the same situation, bearing, and distance, as on the earth itself.

Maps are not always to be used as they lie before us, for sometimes any part is uppermost; but, generally, the top is the north part, the bottom the south, the right hand the east, and the left hand the west, and marked with these words, or Latin ones of the same import. There is also inscribed a compass, pointing to all the quarters of the world, the north one being marked with a fleur-de-lis.

The degrees of longitude are always numbered at top and bottom, and the degrees of latitude on the east and west sides. In all right-lined and general circular maps, the degrees of latitude on the sides are of an equal breadth; and in all circular and right-lined maps, and the plane charts, the degrees of longitude are unequal.

In general maps the circles corresponding to those in the heavens are inscribed, viz. the equator is expressed by a straight east and west line; and the first meridian, the polar circles, the tropics, and the other meridians, and parallels, which are drawn every five or ten degrees, intersect each other at right angles.

MAPLE. (Ger. and Du. *Ahorn*. Da. *Valbirk*. Sw. *Loun*. Fr. *Etable*. It. and Port. *Acero*. Sp. *Arce*. Rus. *Klen*. Pol. *Klon*. Lat. *Acer*.) The wood of the common *maple-tree*, is much used by turners, being superior to beech. When it abounds with knots, it is valuable for the purpose of inlaying. It is used in the manufacture of musical instruments, being remarkably white, and may be turned so thin as to be nearly transparent.

The sugar-maple is so called from its juice, exuding from the boll, on incision of the bark, affording sugar when boiled. It is much cultivated in America for this purpose, and to a certain degree in France. A middle-sized tree will yield 30 or 40 quarts of juice in the months of April and May, without injury to the tree; and on boiling, the produce of sugar will be a twentieth part of the weight of juice. No tree is more easily cultivated; and it is raised by seeds, by cuttings, and by layers; which will grow in most soils, but thrive best, and produce most, in a dryish mould.

MARAVEDIE, or Marvadis, a small Spanish copper coin, value $\frac{43}{272}d.$ sterling. *See* MONIES, *App.*

MARBLE, (Ger. Da. Sw. Rus. and Lat. *Marmor*. Du. *Marmer*. Fr. *Marbre*. It. *Marmo*. Sp. *Marmol*. Port. *Marmore*. Pol. *Marmur*,) a genus of fossils, composed chiefly of lime; being a bright and beautiful stone moderately hard, not giving fire with steel, fermenting with, and soluble in, acid menstrua, and calcining in a slight fire.

The colours by which marbles are distinguished are almost innumerable; but the most remarkable are, 1. The black marble

of Flanders. 2. Plain yellow. 3. Yellow with some white veins. 4. Yellow with black dentrites. 5. Yellow with brown figures resembling ruins. 6. Black and yellow. 7. Black and white. 8. Pale yellow, with spots of a blackish-grey colour. 9. Yellow, white, and red. 10. Pale yellow. 11. Olive-colour, with deeper-coloured cross lines, and dentrites. 12. Brownish-red. 13. Flesh-coloured and yellow. 14. Common red marble. 15. Crimson, white, and grey. 16. Reddish-brown lumps, on a whitish ground. 17. Blueish-grey. 18. Snowy-white. The finest solid modern marbles are those of Italy, Blankenburg, France, and Flanders. Great quantities of very beautiful marble have been lately discovered at Portsoy in the northern parts of Scotland, and in some of the western isles; in the county of Kilkenny, in Ireland, is found abundance of beautiful black marble, with white spots elegantly mixed through it, called *Kilkenny marble*.

Derbyshire is the county of England most abounding in this mineral. Near Kemlyn-bay, in the county of Anglesea, there is a quarry of beautiful marble, called *verde di Corsica*, being common to this place, some parts of Italy and Corsica. Its colours are green, black, white, and dull purple, irregularly disposed. Italy is that part of Europe which produces the most valuable marble, and in which its exportation makes a considerable branch of foreign commerce. The black and the milk-white marble, coming from Carara, a town in the duchy of Massa, are particularly esteemed.

Those of Germany, Norway, and Sweden, are of a very inferior kind, being mixed with a sort of scaly lime-stone.

Marble is of so hard, compact, and fine a texture, as readily to take a beautiful polish. The marble most esteemed by statuaries is that which is brought from the island of Paros, situate in the Archipelago: this was the species of marble employed by the prince of sculptors, Praxiteles, and by Phidias, both of whom were natives of that island, whence the famous Arundelian marbles at Oxford were brought.

The marble of Carara is likewise in high repute among sculptors, and is so much sought after, that, according to an Italian writer, the quarries which produce it yield their proprietor an annual income of nearly 17,000*l*.

The specific gravity of marble is from 2,700 to 2,800; that of Carriera, a very fine Indian marble, is 2,717. Black marble owes its colour to a slight mixture of iron.

MARBLE, *polishing of*, is performed by first rubbing the marble well with free-stone or sand, till the strokes of the axe are worn off, then with pumice-stone, and afterwards with emery.

To make artificial marble. — Provide a flat and smooth piece of marble of the size and shape desired. Make a border or wall, to encompass it, with wax or clay. Provide next several glazed pipkins, and as many colours as are to be employed; viz. white lead, vermilion, lake, orpiment, masticot, Prussian-blue, &c. Melt some brimstone in the pipkins over a slow fire, and put one particular sort of colour into each pipkin and stir it well with the brimstone. Oil the marble slab well all over within the wall, and then drop on it from one of the pipkins spots of different sizes; then from another the same; from a third the same, and so on till the number of colours necessary to be inserted in the projected mass are deposited. The next thing to be provided is the ground of the intended slab. If it be grey, it will be obtained by mixing fine sifted ashes; if red, ochre; if white, lead; if black, bone-charcoal; with brimstone. This, when melted and well-mixed, must be poured pretty hot over the slab thus prepared with the coloured spots, with which it will incorporate. The mass must be sufficiently thick to fill the receptacle to the top of the border of circumvallation, so that a dry and smooth board laid upon it while hot will come in contact with, and adhere to, the whole surface. Let it lie till cold, and then take up the board to which the manufactured slab will adhere. Polish the surface with oil and a cloth, and it will imitate marble closely.

MARBLING, in general, the painting any thing with veins and clouds, so as to represent those of marble. Marbling of books or paper is performed thus: Dissolve four ounces of gum arabic in two quarts of fair water; then provide several colours mixed with water in pots or shells, and with pencils peculiar to each colour, sprinkle them by way of intermixture upon the gum-water which must be put into a trough, or some broad vessel; then with a stick curl them or draw them out in streaks, to as much variety as may be done. Having done this, hold your book or books close together, and only dip the edges in, on the top of the water and colours very lightly; which done, take them off, and the plain impression of the colours in mixture will be upon the leaves; doing as well the ends, as the front, of the book in the same manner.

Marbling books on the covers is performed by forming clouds with aqua fortis, or spirit of vitriol mixed with ink, and afterwards glazing the covers.

MARBLE-PAPER, (Ger. *Türkisches papier*. Du. *Turksch papier*. Da. *Tyrkish papir*. Sw. *Turkish papper*. Fr. *Papier marbré*. It. *Marmorata, turca*. Sp. *Papel pintado*. Port. *Papel pintado de pedra*. Rus. *Turczkaja bumaga*. Pol. *Turecki papier*,) paper coloured with veins and clouds, so as to appear like marble, used for covering and lining books, &c. *See* MARBLING.

MARCASITE. This name has long

been given to all sorts of minerals, ores, pyrites, and semi-metals. It seems to be confined to pyrites: and Wallerius proposes to apply it to only such pyrites as are regularly formed. The word is little used at present.

MARCO, a weight used at Goa, of eight ounces Portuguese, or a demi rotoli. *See* WEIGHTS and MEASURES.

MARINE STORES. *See* 1 & 2 Geo. 4. c. 75. & 76.

MARJORAM, an aromatic herb, useful in pharmacy as a snuff, and infused in water as a tea; it also yields an essential oil, beneficial for tooth-ache. The tops when young make a purple dye. We import it from Italy, and grow a good deal at home, but it will not seed in so cold a climate as ours. Oil of marjoram is obtained from this plant.

MARGODES, a blueish grey stone, entirely resembling clay in its outward appearance, but so hard as to cut spars or even zeolites, though not to such a degree as to give fire with steel.

MARK, or MARC, denotes a weight used in several parts of Europe, and for several commodities, especially gold and silver. In France the mark is divided into 8 oz. or 64 drachms, or 192 derniers or pennyweights, or 160 esterlines, or 300 mailles, or 640 felins, or 4608 grains. In Holland the mark weight is also called troy-weight, and is equal to that of France. When gold and silver are sold by the mark, it is divided into 24 carats.

MARK is also used among us for a money of account, and in some other countries for a coin. The English mark is two-thirds of a pound sterling, or 13*s.* 4*d.*, and the Scotch mark is of equal value in Scotch money of account. The mark-lubs, or Lubeck-mark, used at Hamburgh, is also a money of account, equal to one-third of the rix-dollar, or to 10*d.* sterling. Mark-lubs is likewise a Danish coin equal to 16 sols-lubs. Mark is also the name of a silver and copper coin in Sweden. *See* MONIES, App.

MARK *of goods.* A certain mark is affixed to goods, to ascertain their property and quality; and if one person shall use the mark of another, with intent to do him damage, upon an injury being sustained, an action on the case will lie. Certain marks are also affixed, to show where the goods were made, and by whom, and also to denote, in various articles subject to the excise, whether they were surveyed by the proper officers, &c. The marks put upon packages of goods are always inserted in the margins of the invoice and bill of lading, as well as in the ship's manifest.

MARKET, a public place in a city or town where provisions are sold; no market is to be kept within seven miles of the city of London; but all butchers, victuallers, &c. may hire stalls and standings in the flesh-markets there, and sell meat and other provisions. Every person who has a market is entitled to receive toll for the things sold in it; and, by ancient custom, for things standing in the market, though nothing be sold; but by keeping a market in any other manner than it is granted, or extorting tolls or fees where none are due, they may be forfeited.

In London every shop in which goods are exposed publicly to sale, is market overt for such things only as the owner professes to trade in: though if the sale be in a warehouse, and not publicly in the shop, the property is not altered. But if goods are stolen from one, and sold out of the market overt, the property is not altered, and the owner may take them wherever he finds them. 5 *Rep.* 83.

If a man buy his own goods in a market, the contract shall not bind him, unless the property had been previously altered by a former sale.

MARKET PRICE, an expression not unusual in contracts, whereby a person engages to furnish another with articles of consumption from time to time, according to the *average price* of similar commodities, in the market of the place, at the time of each delivery.

MARL, or MARLE, (GER. DU. DA. and SW. *Mergel.* FR. *Marne.* IT. SP. and PORT. *Marga.* RUS. *Tschernosem, Nowos.* POL. *Margiel.* LAT. *Marga.*) *See title* MANURE.

MARL, *bituminous,* is found in different parts of Germany. Colour greyish or brownish-black. Found massive. Shistose. Plates flat or waved. Opaque. Feels soft. Easily broken. Moderately heavy. Effervesces with acids. Burns before the blowpipe, leaving black scoriæ.

MARLINE. Long wreaths of untwisted hemp dipped in pitch, with which cables are guarded.

MARLING, in sea-language, means the winding any small line about a rope, so as to prevent its giving way from being worn through by friction.

MARMALADE, or MARMALET. (GER. DU. DA. SW. and FR. *Marmelade.* IT. *Colognato.* SP. and PORT. *Marmelada.* LAT. *Miva, Marmela.*) The skins of quinces, oranges, &c. cut very small, and boiled into a consistence with sugar.

The Scotch are celebrated for marmalade of oranges, and it makes an increasing article of domestic traffick. It is an excellent substitute for honey, and many persons use it spread on bread who are forbidden to eat butter.

MARMOTS, (GER. *Murmelthiere, Marmotten.* DU. *Marmeldier, Marmot.* DA. *Murmeldyr.* SW. *Mormeldjur.* FR. *Marmotte.* IT. *Marmotta, Montanello, Marmontana, Varosa.* SP. and PORT. *Marmota.* RUS. *Surik.* LAT. *Marmota,*) likewise called the Alpine mice, are rather bigger than the rabbit, and are much valued on account of

their skins. The marmots of Switzerland, Savoy, and the Alps, differ materially from those of America, which are more thickly-covered with hair, and whose colour is a much finer grey. The skins of marmots are sometimes dyed brown or black, in the hair, in which state, as well as in their natural colour, they are made into muffs, trimmings for garments, &c.

The marmots of Kamtschatka are remarkable for the variety of their colours. The inhabitants of the country do not esteem the skins of these animals. They should never be purchased when they are cut or torn in any part, except immediately under the belly of the animal; for if they are thus injured, there will be found some difficulty in making use of them, especially for muffs.

MARQUE. *See* LETTERS OF MARQUE.

MARQUETRY, or INLAID-WORK, (GER. *Eingelegte, Arbeit.* DU. *Ingelegd werk.* DA. *Indlagd arboyde.* SW. *Inlagd arbete.* FR. *Marqueterie.* IT. *Tarsia.* SP. *Taracea.* PORT. *Embufido Tauxia.* LAT. *Vermiculatum opus,*) is a curious work, composed of several fine, hard, pieces of wood, of various colours, fastened in thin slices on a ground, and sometimes enriched with other matters, as silver, brass, tortoise-shell, and ivory; with these assistances, the art is now capable of imitating any thing, whence it is by some called the art of painting in wood.

The ground, on which the pieces are to be arranged and glued, is usually of well-dried oak or deal; and is composed of several pieces glued together, to prevent its warping. The wood to be used in marquetry is reduced into leaves, of the thickness of a line, or the 12th part of an inch, and is either of its natural colour, or stained, or made black to form the shades by other methods: this some persons perform by putting it in sand, heated very hot over the fire: others by steeping it in lime-water and sublimate; and others in oil of sulphur. The wood being of the proper colours, the contours of the pieces are formed according to the parts of the design they are to represent: this is the most difficult part of marquetry, and that which requires the most attention. The two chief instruments used in this work are a saw, and a wooden vice, which has one of its chaps fixed, and the other moveable, and which is open and shut by the foot, by means of a cord fastened to a treadle.

The whole is put into a press to dry, polished with the skin of the sea-dog, wax, and shave-grass, as in vaneering; only that, in marquetry, the delicate parts are touched up with a graver.

MARTEN. (GER. *Marder, Baummarder.* DU. *Marter, Boommarter.* DA. *Maar, Turnmaar.* SW. *Mård.* FR. *Martre.* IT. *Martora.* SP. and PORT. *Marta.* RUS. *Kunika.* POL. *Kuna.* LAT. *Martes.*) The marten is an animal of a very elegant appearance. Its general length, from nose to tail, is about a foot and a half, and the tail is ten inches long. The marten is of a blackish tawny colour, with a white throat; and the belly is of a dusky-brown; the tail is bushy, and of a darker colour than the other parts; the ears are moderately large, and rounded, and the eyes lively. It breeds in the hollows of trees, and brings forth from three to five young. It is met with in most parts of Europe.

The skin of the marten, especially that of the throat, is principally used in trimming the garments of females, and the official dresses of magistrates, &c. The other parts of the skin are made into muffs, &c. The nearer to the north this animal is found, the finer is the skin, and the more varied its colours; thus North America furnishes fur of this description, of every colour, from a perfect white to a deep black. America, Russia, Prussia, Poland, Norway, and the Levant produce the finest marten-skins.

MARTINGAL, a broad strap made fast to the girths and the belly of a horse, and running between the two legs, to fasten the other end under the noseband of the bridle.

MAS, or MACE, a sort of small weight, used in China, particularly on the side of Canton, for weighing silver. *See* CONDORIN.

MASLIN, signifies *mixed*, and when applied to bread, means bread of mixed flour, as of wheat and rye, or wheat and barley.

MASON, a person employed under the direction of an architect, in raising a stone-building.

MASSICOT, MASTICOT, or YELLOW LEAD, (GER. *Bleygelb.* DU. *Loodgeel.* DA. *Blyeguult.* SW. *Blygult.* FR. *Massicot.* IT. *Minio giallo.* SP. *Ancorea, Jenoli.* PORT. *Janolim, Masicote.* LAT. *Minium flavium,*) white-lead calcined over a moderate fire. Although it is called yellow lead, it is not only yellow, but white, and of a deep gold colour occasionally. It is employed in oil-painting, and in glazing pottery.

MAST, *Masts*, (GER. and DU. *Masten.* DA. and SW. *Master.* FR. *Mâts.* IT. *Alberi di nave.* SP. *Palos.* PORT. *Mastros.* RUS. *Matschti,*) in naval architecture, a large timber in a ship, for sustaining the yards, sails, &c.

In large vessels there are four masts, viz. the mainmast, foremast, mizenmast, and bowsprit. The mainmast is the principal one, standing in the middle of the ship: its length, according to some, should be $2\frac{1}{2}$ that of the midship beam. Others give the following rule for finding its length, viz. multiply the breadth of the ship, in feet, by 24; from the product cut off the last figure towards the right hand, and the rest will be the length required. Thus, suppose the

length of the midship-beam was 30 feet; then 30 × 24 = 720, from which cutting off the last figure, there remain 72 feet for the length of the mainmast; and as for the thickness of the mainmast, it is usual to allow an inch to every yard in length. *See* SHIP.

MASTERS OF SHIPS. Nothing more materially concerns the master of a ship, than to know what degree of responsibility is attached to his situation, and what privileges it invests him with. The master and owner are so intimately connected together, that many observations, which will be found under the article OWNERS OF SHIPS, are equally applicable to the one and the other, and will prove to be necessary knowledge for the master of a ship. The doctrine of marine insurances, too, he should be well acquainted with, in order that he may not, by his conduct, inadvertently prejudice his owner's claim on the underwriters.

Masters of ships responsible for goods committed to their charge.—The law makes no distinction between carriers *by land* and carriers *by water*; and, for whatever losses, that arise from the neglect of persons employed under them, they are answerable; whatever cases, therefore, are applicable to carriers by land, must be understood to be equally so to carriers by water, such as masters of ships or hoymen.

The masters of vessels laden with coals are directed, by 47 Geo. 3. sess. 2. c. 68. s. 24. to deliver on arrival at or to the westward of Blackwall, Gravesend, or moorings for the delivery in the port of London, a copy of the certificate originally delivered to them by the fitters or vendors, as enacted in the 9th year of Queen Anne.

The master of a ship is liable for goods of which the ship is robbed in the river.—The reasons are: 1. Because he is an officer known. 2. Because he receives his salary out of that which is paid for the freight. But the master may reimburse himself out of the mariners' wages for a loss happening by their neglect.

Masters are charged to carry goods against all events but the acts of God and the king's enemies.—The plaintiff put goods on board the defendant's hoy, who was a common carrier. Coming through bridge, by a sudden gust of wind, the hoy sunk, and the goods were spoiled. The plaintiff insisted that the defendant should be liable, it being his carelessness in going through at such a time; and thence inferred, the defendant was answerable for all accidents, which would not have happened to the goods in case they had been put in a better hoy. But the defendant was held not answerable, the damage being occasioned by the act of God: for, though the defendant ought not to have ventured to shoot the bridge, if the general bent of the weather had been tempestuous, yet this, being only a sudden gust of wind, has entirely altered the case: and no carrier is obliged to have a new carriage for every journey; it is sufficient if he provides one which (without any extraordinary accident) will probably perform the journey.

In the case of *Forward against Pittard*, 1 *Term R.* 27. the plaintiff had delivered goods to the defendant, who was a common carrier; and which goods were afterwards destroyed by accident of fire. The question was, whether the defendant was answerable for them.

Lord Mansfield said, "It appears from all the cases, for an hundred years back, that there are events for which the carrier is liable, independent of his contract. By the nature of his contract, he is liable for all due care and diligence; and for any negligence, he is sueable on his contract. But there is a farther degree of responsibility, by the custom of the realm; that is, by the common law, a carrier is in the nature of an insurer. It is laid down that he is liable for every accident, except by the act of God or the king's enemies: now, what is the act of God? I consider it to mean something in opposition to the act of man; for, every thing is the act of God that happens by his permission; every thing by his knowledge. But, to prevent litigation, collusion, and the necessity of going into circumstances impossible to be unravelled, the law presumes against the carrier, unless he shows it was done by the king's enemies, or by such act as could not happen by the intervention of man, as storms, lightning, and tempests.

If an armed force come to rob the carrier of the goods, he is liable, and the reason is, for fear it may give room for collusion, that the master may contrive to be robbed on purpose, and share the spoil.

And it has been said by Lord Kenyon, that there is a difference where a man is chargeable by the general law, and where on his own contract. Thus, as to common carriers, who are chargeable, by operation of law, for all losses, (except those arising from the act of God or the king's enemies,) they cannot discharge themselves from this responsibility by an act or agreement of their own. But, where a man is chargeable on his own contract, he may qualify it as he thinks fit. *Hyde v. Proprietors of the Trent Navigation. Trinity Term, 33* Geo. 3.

Notwithstanding, however, this observation of Lord Kenyon, the merchants of London agreed upon a new form for their bills of lading, in order to discharge themselves from the responsibility here mentioned. The difference between the new and former bills of lading consists in the introduction of an exception, which runs in these words: "*The act of God, the king's enemies, fire, and all and every other dangers and accidents of the seas, rivers, and navigation, of whatever nature or kind soever, save risk of boats, so far as ships are liable thereto, excepted.*"

It is, however, proper to observe, that, if no bill of lading be signed, then the master, or owner, is bound by the general law of the land, as above-mentioned.

Goods lost in a lighter.—If goods are lost after the owner of them has taken them from the ship into a lighter, it is his own loss; but it is otherwise, if the goods are sent from the ship by the ship's boat, which is considered as part of the ship and voyage. Yet, if the owner of any goods send his servant with them, the carrier or lighterman is not liable if they be lost; yet, *see Robinson* v. *Dunmare*, 2 *Bos. and Pul.* 416.

Passengers dying on board.—If any passenger die on board, the master is obliged to take an inventory of his effects; and, if no claim be made to them within a year, the master becomes proprietor of the goods, but answerable for them to the deceased's legal representatives. Bedding and furniture become the master's and his mate's; but the clothing must be brought to the mast-head, and there appraised and distributed among the crew.

Captain dying.—If a captain die, leaving money on board, and the mate, becoming captain, shall improve the money, he shall, on allowance for his care, account both for interest and profits.

Master to agree in writing with his seamen.—No master is to proceed on any voyage, for parts beyond the seas, without first coming to an agreement, in writing, with his mariners, for their wages: if he do so, he shall forfeit, for every mariner so taken without written agreement, five pounds. 2 Geo. 2. c. 36. s. 1.

Masters of merchant vessels to bring home seafaring persons.—British governors, ministers, and consuls, residing in foreign parts, are required to provide for seafaring men and boys, subjects of Great Britain, who, by shipwreck, capture, or other unavoidable accident, shall be in foreign parts, or who shall have been discharged there as unserviceable from the royal navy, and send them home as soon as conveniently may be, in any ship belonging to the royal navy, or in any merchant-ship; and every master of a merchant-ship homeward-bound, is required to take all such seafaring persons on board, (not exceeding four to each ten tons,) and bring them to some port in Great Britain. 32 Geo. 3. c. 33. This, and a previous act on the same subject, are amended by 53 Geo. 3. c. 85. which enacts, that every master of a merchant-ship homeward-bound shall bring home all seafaring subjects, not exceeding four to each 100 tons, who by shipwreck, capture, or other unavoidable accident, shall be in foreign parts, or who shall have been discharged, &c. upon arrival, if he produce to the navy-board a certificate from the governor, minister, or consul, residing where he shipped the men, of the number, names, &c. and his own affidavit, specifying the time he subsisted them, &c. he shall be allowed 1*s.* 6*d.* per diem, for all *above his own complement* of men.

Masters to keep an account of forfeitures to Greenwich Hospital.—The master of every vessel is required by the 2 Geo. 2. c. 36. to keep a regular account of the penalties and forfeitures due to Greenwich Hospital by the mariners' disobedience, to deduct the same from their wages, and to pay the amount thereof to the collector of the Greenwich Hospital duty, within three months after such deduction, upon pain of forfeiting treble the value thereof to the use of the said hospital.

MASTER and SERVANT. It would be as little useful, as it is practicable, here, to enter into the relations between master and servant under all their different aspects; but there are *many* views of the subject, under which mercantile men are even more interested in a qualified discussion of the subject than most other persons, and there are *others* in which all persons are concerned.

The different kinds of servants may be divided into menial servants, apprentices, journeymen, and labourers; there is also a higher species, whom the law denominates servants, although their employment is more in a ministerial, than a servile capacity; such as agents, brokers, factors, &c. whose functions and responsibility will be found under their respective heads.

Menial servants, are so called according to Johnson's definition, from their residing within the walls or house of their employer; and they are hired either in writing, or by a verbal declaration.

The most usual mode of hiring servants, of this description, is by a month's wages or a month's warning, which is the most equitable mode for both parties.

Where the hiring of a servant is general, at a certain yearly rate, this will be construed as a hiring for a year certain; and if such servant depart within the year, he will forfeit all claim to his wages upon the contract, but may, under circumstances, recover in an action for his work and labour.

But if a person retain a servant for a year, and so from year to year, so long as both parties shall agree, and the servant enter upon a second year, that operates as a new contract for that second year, and he must serve it.

If a female servant marry, she must, nevertheless, serve out her term, and her husband cannot take her out of her master's service.

The master may maintain an action against any person who has in any mode deprived him of the service of any of his domestics; and if any servant be disabled in the service of his master, the latter may maintain an action against the party.

The master also may bring an action

against any person seducing or enticing his servant away, and also against such servant for leaving his service; and where, without any enticement, a servant quit his service without just cause, an action will lie against any person retaining him with a knowledge of such departure.

In the enforcement of just and lawful commands, the master is also permitted to correct his servant, provided such correction be given in a reasonable manner.

A servant may justify assaulting another in defence of his master; and in case of any unlawful attack, either upon his person or property, a servant may justify assaulting the assailant, although death should therefrom ensue.

Where a servant acts in pursuance of any authority given him by the master, such master will be responsible.

If a servant retained for a year, happen within the time of his service to fall sick, or to be hurt or disabled by the act of God, or in doing his master's business, yet the master must not therefore put such servant away, nor take any part of his wages for such time. *Dalton, c. 58.*

By 32 Geo. 3. c. 56. the giving false or fictitious characters to servants offering themselves to be hired to others; the forging, altering, or effacing characters actually given, as well as falsely pretending not to have been hired in any previous service, are made offences punishable by fine of 20*l.* with the alternative of commitment to the house of correction for a time not exceeding three months.

The foregoing observations are general, and concern all masters in whatever situation of life they may be placed. Those which follow, more particularly concern mercantile men.

The acts of a servant are in many instances esteemed the acts of the master, by reason of the relationship between a master and a servant; for as in strictness every body ought to transact his own affairs, and it is by the favour and indulgence of the law, that he can delegate the power of acting for him to another, it is highly reasonable that he should answer for such substitute, at least civilly, and that his acts being pursuant to the authority given him, should be deemed acts of the master. *3 Bacon's Abr. tit. Mas. & Ser.*

Therefore if a servant sell a piece of cloth, and warrant it to be good, an action of deceit lies against the master. *Ibid.*

So if the servant sell wine to another which is corrupted, or is guilty of any like deceit, an action on the case lies against the master, though he did not command the servant to sell it to any particular person. *Ibid.*

Also the acts of a servant are deemed the acts of the master, in dealing and contracting for his master, in those things in which he has a general authority; as if a servant usually buys for the master on credit, and the servant buys some things without the master's orders; yet if the master were trusted by the trader, the master is chargeable, though the things never came to the master's use.

But if a man send his servant with ready money to buy meat or other goods, and the servant buys upon credit, the master is not chargeable. *Show. 95.*

So if the master hath forbid the tradesman to trust his servant, this shall excuse the master on evidence. *Brownl. 64.*

The master must also answer for torts and injuries done by his servant, in execution of his authority; thus where a pawnbroker's servant took a pawn, the pawner came and tendered the money to the servant, who said he had lost the goods, upon which the pawner brought trover against the master, and it was held well. *2 Salk. 421. 1 Ld. Raym. 738.*

So where the plaintiff, according to the common course of dealing, delivered to the defendant's servant an ingot of gold to assay; and it not being returned, brought an action against the master — *Pratt*, Ch. J. directed the jury, that the delivery to the servant was sufficient to maintain the action against the master, on proving a subsequent demand and refusal: so the plaintiff had a verdict. *1 Strange, 505.*

But a master is not liable in trespass for the *wilful act* of his servant, as by driving his master's carriage against another, done without the direction or assent of the master, but he is liable to answer for any damage arising to another *from the negligence or unskilfulness* of his servants acting in his employ. *M'Manus* v. *Crickett, Mic. Ter.* 41 Geo. 3. *1 East's Rep. 106.*

Masters are protected against the frauds of their servants, taking the term a servant, in its most comprehensive construction, by divers statutes.

By 21 Hen. 8, c. 7, made perpetual by 5 Eliz. c. 10, if a servant (*being of the age of eighteen years, and not apprentice*) shall have a casket, jewel, or money, or goods, or chattels of the master, delivered to him by the master to keep, and such servant withdraw himself from the master, and go away with such casket, jewel, money, goods, or chattels, to the intent to steal the same and defraud the master thereof, contrary to the trust and confidence in him put by his master; or else being in the service of his said master, without assent or commandment of his master, embezzle the same, or any part thereof, or otherwise convert the same to his own use, with like purpose to steal it, he shall be guilty of felony, if it be of the value of 40*s.* § 1, 2.

And by 39 Geo. 3. c. 85. If any servant or clerk, or any person employed for the purpose in the capacity of a servant or clerk

to any person whomsoever, or to any body corporate or politic, shall by virtue of such employment receive or take into his possession any money, goods, bond, bill, note, banker's draft, or other valuable security or effects, for or in the name or on the account of his master or employer, and shall fraudulently embezzle, secrete, or make away with the same, or any part thereof; every such offender shall be deemed to have feloniously stolen the same from his master or employer; and every such offender, his adviser, procurer, aider, or abettor, shall be liable to be transported for not exceeding fourteen years, at the discretion of the court.

By 52 Geo. 3. c. 63. every person with whom, as *banker, merchant, broker, attorney,* or *agent of any description whatever,* any ordinance, debenture, exchequer bill, navy, victualling, or transport bill, or other bill, warrant, or order for the payment of money, state lottery-ticket, or certificate, seaman's ticket, bank-receipt for payment of any loans, India, or other bond, or any deed, note, or other security for money, &c. or any power of attorney for the sale or transfer of any stock, &c. or any plate, jewels, or *other personal effects,* shall have been deposited, &c. embezzling, selling, negotiating, secreting, or *in any manner applying the same to his own use,* shall be liable to transportation for 14 years.

Beside these statutes too for the protection of *masters generally* from the embezzlement of their servants and agents, there are a prodigious number for the like purpose applicable only to *particular* trades. Masters in the silk trade are especially protected by 32 Geo. 3. c. 44.; in the woollen trade, by 14 Geo. 3. c. 25.; in the leather trade, by 13 Geo. 2. c. 8.; in the hat and fur trade, by 22 Geo. 2. c. 27., and 17 Geo. 3. c. 56.; in the cotton manufacture, by 39 & 40 Geo. 3. c. 90.; in the paper manufacture, by 36 Geo. 3. c. 111. *See further title* SERVANTS, 2 *Dick. Pract. Expos.*

By 58 Geo. 3. c. 51. (which recites the foregoing statutes, relative to the manner of paying wages to servants in money, and prohibiting them from paying the same in goods, &c.) the notes of the Bank of England, as well as of any licensed banker, are made legal tender for wages to servants, and a discharge to the master, on the consent of the servant to receive such in payment.

MASTICH, or MASTIC. (GER. DA. and SW. *Mastix.* DU. *Mastik.* FR. *Mastic.* IT. *Mastice.* SP. *Almastica, Almaciga.* PORT. *Almacega.* RUS. *Mastika.* POL. *Mastyks.* LAT. *Resina lentisina.*) The lesser turpentine-tree, and the lentiscus, afford the mastic of commerce. *See* LENTISCK and GUM.

It is used in fumigations, in the composition of varnishes, and is supposed to strengthen the gums. The tree which produces the mastic grows in several parts of Turkey, and the isle of Chio, and is brought to us in tears or small lumps from Smyrna and Aleppo.

There is a sort of black mastich brought from Egypt, which serves to sophisticate camphor.

MAT, (*Mats.* GER. and DU. *Matten.* DA. *Matter.* SW. *Mattor.* FR. *Nattes.* IT. *Stuoje, Stoje.* SP. *Esteras.* PORT. *Esteiras.* RUS. *Progoshki.* POL. *Maty,*) a texture usually formed of sedge, flags, or rushes.

The species of mats manufactured in this country are those which are commonly employed for domestic purposes; such as for spreading in halls, covering the floors, and sometimes benches in public buildings, &c. These mats are generally composed of the materials already mentioned; but there are likewise some which are made from old ropes, and from the hair of horses and other animals. They cannot properly be looked upon as articles of commerce, although they are occasionally exported in small quantities to America, and some parts of Europe. The mats justly entitled to rank as commercial commodities, are those of Russia, of which we annually import a vast number from Petersburgh and Archangel. The Russian mats are made from flags and sedge, and are generally of a tolerably close texture, and extremely durable. They are used for packing up household furniture, for covering trunks, cases, &c. destined for exportation, and are employed by gardeners to protect fruit-trees and plants from the inclemency of the weather. On board ship they are of essential service in the stowage of corn and other articles. In France and Spain there is a manufacture of mats entirely made from the article called sparto-grass.

In Spain and Portugal very elegant mats are manufactured from a species of thin reed, of a bright yellow colour. These mats are usually variegated with different colours, and their appearance has a very neat and pleasing effect.

Mats somewhat similar are brought from China, and some from our own possessions in India.

It is remarkable that there is scarcely a savage nation in which mat-making is not cultivated. Captain Cook, in his voyage round the world, found this to be the case among most of the untutored nations which he visited; and he describes the produce of this branch of industry as being chiefly used by the savages for sails to their canoes, or as defensive armour for their persons. On the coast of Senegal, and in several other parts of Africa, abundance of very neat mats is made by the negroes, who dye the substances which they employ in this manufacture with surprising dexterity. Painted or dyed mats are manufactured at Grand Cairo, and most of the sur-

rounding villages; and vast quantities of the article are sent thence to Turkey and the south of Europe.

The inhabitants of Corea, a vast country of Asia, manufacture peculiarly fine mats, which they principally employ as sails for their shipping.

MATCH, a kind of rope slightly twisted and prepared to retain fire for the uses of artillery, mines, fire-works, &c. It is made of hempen tow, spun on the wheel like cord, but very slack; and is composed of three twists, which are afterwards again covered with tow, so that the twists do not appear; lastly, it is boiled in the lees of old wines. This, when once lighted at the end, burns on gradually and regularly, without ever going out, till the whole is consumed: the hardest and driest match is generally the best.

MATE, *on board a ship*, is the second in subordination.

The mate of a merchantman takes an account of all the goods received on board, and usually passes a receipt for the same, prior to the bills of lading being signed, and he likewise takes an account of the delivery of all goods from on board the ship. He commands in the absence of the master, and shares the duty with him when at sea.

Mate of a ship of war, is generally appointed by the master. The number of these officers, whether in ships of war or merchantmen, are always in proportion to the size of the vessel. A first-rate man-of-war has six; an East Indiaman the same number; a frigate of 20 guns, and a small merchantman, only one; and the intermediate vessels in proportion to their sizes respectively. On board a man-of-war, the regulation of the watch, the keeping the log-book, examining the line and glasses, adjusting the sails, and attending to the cables, the stowage, the ballast, and the provisions, are duties incumbent on the mates.

All the assistants of the superiors on board, are denominated mates; the surgeon, the gunner, carpenter, boatswain, cook, &c. have their respective mates.

MATRASS, a chemical glass vessel made for digestion or distillation, being sometimes bellied, and sometimes rising gradually tapering into a conical figure.

MATRICE, or MATRIX, in dyeing, is applied to the five simple colours, whence all the rest are derived, or composed. These are the black, white, blue red, and yellow, or root-colour.

MATRICES, used by the letter-founders, are those little pieces of copper or brass, on one end of which are engraved, *en creux*, the several characters used in printing. *See* LETTER-FOUNDER.

MATRICES, *in coining*, pieces of steel, in form of dyes, on which are engraved the several figures, arms, characters, legends, &c. wherewith the species are to be stamped. *See* COINAGE, and ENGRAVING *on steel*.

MATT, *in a ship*, rope-yarn, junk, &c. beaten flat and interwoven; used in order to preserve the yards from galling or rubbing in hoisting or lowering them.

MAUND, an Indian weight.

MAXIMUM, the highest price of any article, as fixed by some law or regulation.

MAYOR, the chief magistrate of most borough towns in England. They are usually justices of the peace for, at least, their year of office. Certificates of the existence of persons, and numerous instruments to be transmitted to the colonies, and even to foreign kingdoms, are generally to be authenticated by the seal of the mayor of some corporation. The Mayor of London is invested with many powers and privileges by statute. *See titles* ATTACHMENT, *foreign*; EUROPE, article ENGLAND, LONDON, &c.

MEAD, (GER. *Meht, Meth.* DU. *Meede, Meedrank.* DA. *Möd, Möd.* SW. *Mjod.* FR. *Hydromel.* IT. *Idromele.* SP. *Aguamiel.* PORT. *Agua-mel.* RUS. *Lipez.* POL. *Miod.* LAT. *Hydromel,*) an agreeable liquor made of honey and water. Take four gallons of water, and as much honey as will make it bear an egg; add to this the rind of three lemons, boil it, and skim it well as it rises. Then take it off the fire, and add the three lemons cut in pieces: pour it into a clean tub or open vessel; let it work for three days; then skim it well, pour off the clear part into a cask, let it stand open till it ceases to make a hissing noise; then stop it up close, and in three months' time it will be clear and fit for bottling. Makers of mead for sale must take out an excise licence.

MEAL, (GER. *Mehl.* DU. and DA. *Meel.* SW. *Mjöl.* FR. and IT. *Farine.* SP. *Harina.* PORT. *Farinha.* RUS. *Muka.* POL. *Maka.* LAT. *Farina,*) the edible part of wheat, oats, rye, barley, and pulse of different kinds, ground into a species of flour. The difference between flour, properly so called, and meal, is, that the former is freed from the husky part, and other impurities of the species of corn whereof it is made, but the latter is not. Meal is denominated according to the kind of grain that affords it; such as oat-meal, rye-meal, barley-meal, &c. Scotland is famous for oat-meal; England, America, and Normandy in France, excel most in meal of wheat. *See* CORN.

MEASURES. *See* WEIGHTS AND MEASURES.

MECHOACAN, (GER. *Mechoakana, Weisse Rhabarber.* DU. *Mechoakana.* DA. *Hvid jalapperod.* SW. *Hvit purgerrot.* FR. *Mechoacan, Macadossin, Rhubarbe blanche.* IT. *Mechiocan.* SP. *Mechoacan, Tucnache.* PORT. *Mechoacão, Feticucu, Batatas de purga.* LAT. *Mechoacana,*) or, as it is sometimes called, *white rhubarb*, is a root of a

plant of the convolvulus kind, brought to us from the province of Mechoacan, in South America. It likewise grows in many other parts of America; and in great abundance, according to Savary, in the island of Hispaniola or Hayti. The best sort is in compact, white slices, having a rough bark, and its internal substance equable, without any appearance of fibres. It has a sweetish taste, with a small degree of acrimony. M. Geoffroy is of opinion that mechoacan is one of the safest and best purgatives; and Hoffman orders from the quantity of half a drachm to a drachm of it to be given to children.

MEDIN, a small Egyptian silver coin, equal to three aspers, value $1\frac{2}{3}d.$ sterling, current at Cairo, Alexandria, Sayd, &c.

MEDAL, a piece of metal in the form of a coin, with some peculiar stamp thereon, destined to preserve to posterity the portrait of some distinguished personage, or the memory of some illustrious action. Italy, Germany, France, and the Levant, abound in dealers in these commodities.

MEDITERRANEAN PASS. The nature of a Mediterranean pass is this; in the treaties that have been made with the Barbary states, it has been agreed, that the subjects of the king of Great Britain should pass the seas unmolested by the cruisers of those states; and for better ascertaining what ships and vessels belong to British subjects, it is provided, that they shall produce *a pass*, under the hand and seal of the lord high admiral, or the lords commissioners of the admiralty. In pursuance of these treaties, passes are made out at the admiralty, containing a very few words, written on parchment, with ornaments at the top, through which a scolloped indenture is made; the *scolloped tops* are sent to Barbary, and being put in possession of their cruisers, the commanders are instructed to suffer all persons to pass who have passes that will fit these scolloped tops. The protection afforded by these passes is such, that no ships, which traverse the seas frequented by these rovers, ever fail to furnish themselves with them; whether in the trade to the East Indies, the Levant, Spain, Italy, or any part of the Mediterranean; and from the more particular need of them in the latter, they, no doubt, obtained the name of *Mediterranean passes*. For the accommodation of merchants in distant parts, blank passes, signed by the lords of admiralty, are lodged with the governors abroad, and with the British consuls, to be granted to those who comply with the requisites necesary for obtaining them.

As this piece of security is derived wholly from the stipulations made by the Crown with a foreign power, the entire regulation and management of it has been under the direction of his Majesty, who, with the advice of his privy-council, has prescribed the terms and conditions on which these passes shall be granted. Among others are the following: they are to be granted for none but British-built ships, or ships made free, navigated with a master and three-fourths of the mariners British subjects, or foreign protestants made denizens. Bond is to be given in the sum of 300*l.* if the vessel is under one hundred tons, and in 500*l.* if it is of that or more, for delivering up the pass within twelve months, unless in the case of ships trading from one foreign port to another; and such passes need not be returned in less than three years.

It has been found expedient, at the conclusion of a war, and sometimes during a peace, to recall and cancel all passes that have been issued, and to issue others in a new form. This has been done for two reasons. First, That these useful instruments by various means, either accidental or fraudulent, came into the hands of foreigners, who, under cover of them, carried on in security a trade which otherwise would belong to British subjects, and which had been purchased by the crown, at the expense o keeping up this sort of alliance. Secondly, That the Barbary states complained, that, adhering to the rule of fitting the other part of the indenture to the passes, they were obliged to suffer ships to pass that did not belong to British subjects. By stat. 4 Geo. 2. c. 18. it is made felony, without benefit of clergy, to forge, counterfeit, or alter Mediterranean passes; and such offences committed out of the kingdom may be prosecuted in any country.

FORM OF A MEDITERRANEAN PASS, as prescribed by an order of council dated 28th August, 1776.

By the commissioners for executing the office of lord high admiral of Great Britain and of Ireland, and of all his majesty's plantations

Suffer the ship to pass with her company, passengers, goods, and merchandise, without any let, hinderance, seizure, or molestation, the said ship appearing to us by good testimony to belong to the subjects of his majesty, and to no foreigner.

Given under our hands and seals at the office of admiralty. (L. S.)
To all persons (L. S.)
whom these may concern. (L. S.)
By command of their lordships.

Form of a bond to be given at any of the ports of Great Britain or Ireland before a Mediterranean pass be delivered for any ship or vessel built in these kingdoms, or in any of his majesty's foreign governments or plantations, or for any foreign ship or vessel made free, and qualified to have such pass granted, as the same is prescribed by an order of council dated 28th August 1776.

Know all men by these presents, that we are

holden and firmly bound to our sovereign Lord George the Third, by the grace of God, of Great Britain, France, and Ireland, king, defender of the faith, &c. in pounds of good and lawful money of Great Britain, to be paid to our said lord the king, his heirs, and successors; to which certain payment well and truly to be made we bind ourselves, and each of us, for the whole, our, and each of our heirs, executors, and administrators, firmly by these presents.

Sealed with our seals, dated the day of in the year of the reign of our said lord the king, and in the year of our lord 18 .

The condition of this obligation is such, that whereas the above bounden hath received a pass, purporting to be a Mediterranean pass, signed by the right honourable the commissioners for executing the office of lord high admiral of Great Britain and so forth, for the called the of whereof he the said is actually master, bearing date the . Now if the said , or, in case of his death or inability, the person who shall succeed him as master of the said shall deliver into the admiralty office, upon her return from her present intended voyage into the port of London, or to the proper officers of the customs at any other port of great Britain or Ireland, where she shall come in order to her unloading: or in case the said shall not return to Great Britain or Ireland, within the term of three years from the date hereof, and during all that term shall remain, and be the property of his majesty's subjects, then if the master of the said for the time being, do, at the expiration of the said term of three years, deliver, or cause the said pass to be delivered, unto the governor or commander in chief of one of his majesty's foreign governments or plantations, or unto one of his majesty's consuls in the Mediterranean or elsewhere, in order to its being by such governor or commander in chief, or consul, returned and transmitted to the commissioners for executing the office of lord high admiral of Great Britain: and also, if the said master for the time being do and shall, when and as often as the said shall go into any foreign port or place, within the reach or district of any of his majesty's consuls, deliver, or cause the said pass to be delivered, unto such respective consul or consuls, or his or their deputy or deputies, upon his or their demanding the same in writing, in order to the said pass being retained in the possession of such respective consul or consuls, or his or their deputy or deputies, until the said shall have received the usual clearances, and be ready to depart from such port or place, at which time the said pass is to be returned for the use of the said ship: or in case the said shall happen to be taken by an enemy or pirates, or be cast away and shipwrecked, by means whereof the said pass shall be inevitably lost or destroyed; then the above obligation to be void, and of none effect. But if the said master for the time being shall neglect to deliver, or cause the said pass to be delivered, into the admiralty office, upon her return from her present intended voyage into the port of London, or to the proper officers of the customs at any other port of Great Britain or Ireland, where she shall come within the said term of three years, in order to her unloading; or in case the said ship shall not return to England within the said term, then unto the governor or commander in chief of one of his majesty's foreign governments or plantations, or unto one of his majesty's consuls in the Mediterranean, or elsewhere, before the expiration of that term; or if the said master for the time being shall neglect or refuse to deliver the said pass to any of his majesty's consuls, or their deputies abroad, upon demand in writing being made thereof in manner above-mentioned (to prove which demand and refusal, or neglect, a certificate thereof in writing, under the hand of the respective consul, or his deputy, is to be deemed a sufficient evidence); or if the said pass shall be sold, lent, or otherwise disposed of, to any person whatsoever, so as that the same shall not be actually and constantly made use of for the service of the said called the for which it is granted, so long as the master thereof for the time being shall be a British subject; then the above obligation shall be and remain in full force, virtue, and effect.

There is some difference in the time for delivering up passes in different trades. Thus, for ships trading to the ports of France, Spain, and Portugal, on this side the Streights' mouth, the condition is for delivering up the pass within twelve months, either to the admiralty, or the custom-house officer at the port of unloading in Great Britain and Ireland.

In bonds given in the plantations, the condition is for delivering up the pass within twelve months to the governor of that plantation.

For ships in the East India trade, the condition is for delivering it up at the return from the voyage, without any limitation of time.

Passes for ships belonging to Gibraltar, are different from all others in the wording, and in the ornament at the top; and they are granted by the commissioners for executing the office of lord high admiral at that place. The condition of the bond given on obtaining such passes, is for delivering them up to such commissioners within twelve months, or at the end of the voyage, if the ship return sooner.

MEMORANDUM signifies, in general,

merely a note to assist memory; but its legal and mercantile significations are more extensive. Sometimes it means the substance of, and substitute for, a more formal instrument; as "a memorandum of an agreement:" sometimes the adjunct to, restriction or explanation of, the instrument to which it is affixed, or on which it is indorsed; as "a memorandum on a policy of insurance." In the last-mentioned sense, these memoranda have frequently become the intricate subjects of adjudications in our courts of law. It has been decided, that the memorandum upon a policy of insurance controuls the general words of the policy, so far as it extends. *Browning* v. *Elmsly*, 7 *T. R.* 216.

MERCER is a term well understood, but from use and habit only; for it is by no means what the lexicographers in general explain it to be; viz. "*a seller of silk.*" It is sometimes confounded with *haberdasher*; but that application of it is little less incorrect; for a mercer is not a person who deals *only* in *small articles* of traffic, but who deals *in small quantities* of *most* articles of wearing apparel. It is something between the merchant who deals in gross, and the haberdasher of small wares; although the two callings are sometimes united in the same person, especially out of the metropolis.

MERCERIES are those articles in which the mercer deals, and are generally understood to mean the more considerable articles of wearing apparel, sold by retail.

MERCHANDISE, (Ger. and Du. *Waaren.* Da. *Varer.* Sw. *Varor.* Fr. *Marchandise.* It. *Mercanzie.* Sp. *Mercanzias.* Port. *Mercancias.* Rus. *Towarii.* Pol. *Towar,*) all sorts of goods which may be bought or sold. For enumerations of the species of merchandise which give rise to different branches of trade throughout the world, *see* EUROPE, ASIA, AFRICA, and AMERICA.

MERCHANT, is a wholesale dealer in all sorts of merchandise, who exports and imports from different parts of the world, deals in exchange, and buys and sells goods in their original packages, without breaking bulk.

The mercantile profession is very ancient, and generally esteemed noble and independent; in France, by two decrees of Lewis XIV. the one in 1669, and the other in 1701, a nobleman was allowed to trade both by land and sea, without any disparagement to his nobility; and we have frequent instances of merchants having been ennobled in that country, in regard of the utility their commerce has produced to the state. In many other places, more especially in the republics of Venice, Holland, and Genoa, the value of commerce has been justly appreciated; and in Great Britain there is not a higher or a more enviable character in the community, than that of an honourable, upright, intelligent merchant.

Merchant is so comprehensive a term, that it is impracticable to lay down any instructions that shall be universally applicable; nor is it within the scope of a book of this description to enter minutely into the *arcana* of each particular branch of trade; but there are some rules applicable to *all* mercantile pursuits, and others which are too prominently so in particular trades, of more than ordinary importance in this kingdom, that it would be improper to omit them.

Previously to a man's professing the title of a merchant, he ought to treasure up such a fund of useful knowledge, as may enable him to carry on, with ease to himself, an extensive commerce, without risking such losses and disgusts, as ill-concerted undertakings of magnitude will naturally expose him to. To reduce this necessary science to a proper regulation, we shall recommend the following particulars to his acquirement.

1. A proper and correct style of writing, such as is best adapted to epistolary correspondence.

2. A thorough knowledge of arithmetic and book-keeping.

3. An acquaintance with the order and forms of invoices, sales, policies of insurance, bills of exchange, &c.

4. A general idea of commercial geography, including a knowledge of the commodities which the different trading nations of the world furnish.

5. A knowledge of the weights, measures, and monies of every country on the face of the globe.

6. A thorough acquaintance with the routine of custom-house, and banking business.

7. A knowledge of the price and condition of freighting and insuring ships and merchandise; of the articles permitted or prohibited, as well entering, as going out of the kingdoms and states in different parts of the world; of mercantile terms, usages, and institutions: of the goodness, value, and distinctive qualities of all necessaries for the construction and repairs of shipping; of the wages commonly allowed to captains, officers, and sailors, and the manner also of engaging with them.

8. A merchant should be well acquainted with such of the European languages as are most in vogue: viz. *the Spanish*, which is used in Spain, Portugal, in many parts of the East, and on the coast of Africa, from the Canaries to the Cape of Good Hope; *the Italian*, understood on all the coasts of the Mediterranean, and in many parts of the Levant; *the German*, which is understood in almost all the northern countries; and *the French*, which may justly be denominated the universal language of modern times.

9, and lastly. The merchant ought above all things to acquire an easiness of manner, a suavity of address, and a gentlemanly deportment, without which the finest talents

and the most valuable mental acquirements, are oftentimes incapable of realising the brilliant expectations which they induce their possessor to form.

General Cautions in the Management of Trade and Commerce.

Trade must become more or less troublesome, in proportion as it is more or less extensive; hence merchants ought to appropriate different maxims and considerations for the conduct and management of their affairs. Those, for instance, who are engaged in the merchandise of our own manufactories, or confine their trade to the consumption of one city only, incur less risks, and carry on their business with more facility, than such as dispose of their goods, not only in the place of their residence, but also to dealers, or retailers, in other parts of the kingdom, or abroad.

Wherever, therefore, any considerable manufactories are established, there are also generally merchants who supply them with the necessary materials for their works, which the latter dispose of, and in payment take the manufactured goods, which they afterwards dispatch in other places, or on the spot, in order to supply commissions given them. Some artificers, indeed, are sufficiently opulent to procure the ingredients they want for the supply of their manufactories from the first hands; yet there are others, whose capital being less extensive, are obliged to sell their goods to the first that may enquire for them.

Merchants, then, must regulate themselves in their dealings with these three classes of men, as times and seasons shall dictate; for when particular commodities are scarce, and in request, they must buy of all upon the best terms possible, and in proportion to the advantages that may present themselves. On the contrary, when commerce stagnates, and a large stock of goods is lying on hand, it will be necessary to act with circumspection, and the observance of the following maxims in their purchases, may, in such cases, essentially promote their interests.

1. When the price of goods is beginning to rise (which usually proceeds either from the value of the materials being considerably augmented on account of their scarcity, or the stock of manufactured articles being inadequate to supply a brisk demand), it is natural for such as are complete to increase in value, in proportion to their want and scarcity; but it would be prudent in him who would buy under such circumstances, to examine the causes that produce this augmentation; and if (for instance) the goods are of silk, to enquire whether the crop of that commodity has been good or bad, (though if the season has been moist and rainy at the place of its growth, he may be assured of the latter) and that the scarcity of the merchandise proceeds from a deficient supply of the principal material.

The same remark will apply to the manufactories of cloth, and other woollens, when wools are scarce and risen in price; and also to linens, where the crops of hemp and flax have failed: and indeed it is applicable to every kind of material, which compose the manufactures of the different sorts of merchandises, because (as already intimated) the scarcity of these augments their price, and consequently that of the commodities, in the manufacture of which they are consumed.

Where, indeed, the augmented price of merchandise proceeds from a scarcity of the materials, it not only must continue in that state for a long time, but also it daily and gradually rises, and in this case affords to the merchant no room for deliberation; who ought immediately to purchase and to make his bargain, to receive, however, at a subsequent certain time the quantity he judges he may have occasion to vend.

If the rise of goods be produced by there being few in the market, and a great demand for them, and not by a want of the materials which compose them, the buyers ought to act with deliberation in their purchase; as it is highly probable that this augmentation will only be temporary: for, when manufacturers find their commodities in growing request, they engage more deeply in the manufacture; and the consequent abundance occasions a cheapness, in the same manner as a scarcity before produced the reverse. It is peculiarly necessary to attend to these considerations, in order to make successful purchases.

2. The second maxim necessary to be observed in the buying of merchandise is, that the trader be extremely circumspect in his language, in order that his anxiety to have the goods he is treating for may not appear. Nor should he slight or undervalue them, in order to be thought not to want them, as this cunning only serves to embarrass the mind of the manufacturer, and make him more firm and tenacious under the uncertainty, whether this be a feint or not. The correct, as well as most prudent, way, is to act with sincerity and frankness, accompanied, however, with prudence. Workmen prefer to deal with characters of this description, rather than with those who resort to mean and petty subterfuges.

3. A third object of consideration is, whether the merchandise has diminished in price from a higher degree to which it had before attained, or whether it augmented in price from a lower one, at which it was, by reason of a dulness in trade, or by the previous too great abundance of the manufactured article. This will call forth all the judgment and skill of the purchasers.

If it be at the height of its dearness, and should afterwards fall, it will in this

case be improper to buy, because it is certain, that if the cause, which had produced so high a price, ceases, it will daily diminish, till it returns to the point of its just value. On the contrary, if the goods are at their lowest value, and the price begins to rise, it is then a time to buy, because it is certain that it will daily augment, so long as the cause which gave room for its augmentation shall continue. These hints will not appear paradoxical to those who have had much experience, for many merchants have greatly lost or gained, according as they have opportunely taken their measures, in conformity with these rules.

4. The fourth maxim in the purchase of goods, is both to know and reflect, where they will meet the best sales, and then to suit their quality to the taste of the inhabitants.

5. The fifth is to buy of the poorest workmen; because they not having the means to lay up their manufactures, must sell cheaper than those will who are more powerful and opulent, and who can keep their goods till a fit opportunity offers for a more advantageous sale.

6. The sixth maxim is, not to be drawn in to engage beyond your capital by the tempting bait of a cheap purchase, and from a wrong calculation of your ability to pay at the time agreed on; as a failure of punctuality herein will occasion a loss of credit among the manufacturers, not to be recovered. To a neglect of this important point, perhaps most of the bankruptcies may be attributed which fill the columns of our daily newspapers.

7. The seventh maxim is not to employ, as factors at the fabrics, any individuals who act as merchants, and sell the materials to the manufacturers: for they always buy the goods dearer than others who have nothing to sell, because they give a part in payment, and very often, to recover from their debtors, they take of them merchandises in payment, which are neither so good, nor handsome, as those bought with ready money.

Lastly, Where the buyer has a partner, one of them should be on the spot for two reasons: first, because being interested in the trade, he is more diligent, and takes better care of what he does, than a factor, who often regards nothing more than his own interest, and who, having commissions from several merchants, favours whomsoever he pleases: secondly, because affairs are transacted more secretly, and frequently opportunities offer for good purchases, which one commissioned does not dare to engage in, though on such adventures large profits are frequently to be made.

These maxims are also strictly applicable in the purchase of all other commodities; and if carefully attended to, will lead the merchant in the steps he ought to tread, so as to secure success: it only remains now to offer a few suggestions to aid him in the proper *conducting of his sales.*

1. The merchant should avoid many words, and much circumlocution in his dealings; such conduct having the appearance of a petty chapman, or retailer, rather than that of a merchant. The principal object of attention, therefore, in sales on trust, is, that his debtor be one known for his punctuality and honesty, and also for dispatching large quantities of goods, as these motives should induce a preference to be given to one so qualified, (though with less profit,) rather than to another with inferior credit, and a more contracted trade.

2. If the merchandises dealt in are such as are dependent, in some sort, for their value, on the caprices of fashion, the seasons ought to be consulted for advantageous sales; so that, if those proper for the winter are in request towards its close, it is not reasonable to expect so much at that time as in the beginning; neither is it consistent with the owner's interest to keep them, as he may have no other offers till the returning year, and he then risks their continuance in fashion; so that it will be prudent to embrace any tolerable offer under these circumstances that is made to him.

3. The merchant ought not to trust too much to any one person: for in the event of a failure, it may straiten him, and in the end bring him to the same misfortune. Prudence, therefore, will direct him to disperse his effects into many hands; so that, if one or two miscarry, he may be less sensible of his loss, and better able to support it: this is a very necessary maxim to be observed by those who have large dealings, as the sufferings by contrary practice are innumerable, and there is no one article of misconduct that has involved more in ruin.

4. A merchant should not inconsiderately engage with young men, who have little more to recommend them to credit, than their descent from opulent parents, as a credit trust *on this account* is the product of a very false maxim; because if they do otherwise than well, their parents will seldom pay their debts (as the creditor may have fondly flattered himself): neither is it reasonable to expect it, any more than to think they should incommode themselves, or injure the fortunes of their other children, merely to support a son who may have been reduced by gaming, or other imprudence.

5. Should it happen that debtors omit to pay what they owe, at the times agreed on, nothing is more unworthy, as well as imprudent, than for the creditors to oppress them with an extravagant interest: for though necessity may apparently oblige them to submit, it is a sure canker to their fortunes, which too often at last involves both the debtor and the creditor in ruin. These strictures may perhaps be thought irrelevant in a country where the wisdom of

the legislature has effected all that is practicable to prevent oppressive and usurious contracts: but we know how frequently are these salutary regulations completely frustrated by the evasive arts of designing and depraved characters.

6. Never lend to any persons on an unjustifiable security; for although it is both reasonable and prudent for a merchant to take pledges or securities from his debtors, he should be cautious of what they consist: for instance, if they are composed of merchandise, their colours, fashions, &c. may change, or the quality may suffer by keeping, so that while he imagines he has the value of what is owing him in hand, he may be very essentially mistaken. And in these cases of lending or selling, on trust, and taking pledges instead of notes for security, the seller or lender should add to the above precaution, that of making the terms of the deposit very clear and apparent, in case of a failure of the debtor, and a consequential claim of the goods by the other creditors, as a joint property; otherwise he may be accused of endeavouring to secrete the bankrupt's effects; and if he has not adopted those prudent steps which he ought to have taken in his dealings, he may be obliged to give up what he received and esteemed as a security, besides suffering in his reputation, from his inability to justify what he asserted and pretended. It will therefore be very proper to have all such affairs transacted in the presence of witnesses, or at least to have all the goods that are pledged, particularly specified in the note or obligation given for the trust or loan, by which means the inconveniences above-mentioned will be effectually obviated or avoided.

7. A merchant should always endeavour to dispose of such goods as are decaying, damaged, or growing unfashionable, as soon as he conveniently can; and if money cannot be procured for them, he should barter them for other goods, on the best terms possible; taking, however, every necessary precaution already noticed, as in the original purchase of goods, and further avoiding the paying any ready money in the transaction; for, in dealings of this description, the receiver will derive the chief advantage. As deceits are very commonly practised in these sorts of negotiations, he ought to know where, and on what terms, he can get rid of his new effects, otherwise he may risk losing more by them than his old ones. But above all, he should avoid giving any share of ready money in the bargain, if possible, as he that parts with it is sure to have less advantage in these uncertain dealings, than he that receives it.

8. Lastly, a merchant should never sell any of his goods in small parcels, unless the most absolute necessity require it: such a conduct derogates from his character, and will, on the whole, occasion him a loss of respectable customers.

These may perhaps appear to inexperienced persons obvious, as well as trite and homely, maxims; but to the non-observance of some, or all, of them, most of the failures which are continually occurring are to be traced. It is presumed therefore that they are not superfluous, or inopportune.

MERCHANTABLE COMMODITIES, are goods in their perfect state, free of mixture, or damage, of any ways injured in quantity or quality.

MERCHANTMAN, a ship or vessel employed in a merchant's service. *See* SHIP.

MERCURY. (Ger. *Quicksilber*. Du. *Kwikzilver*. Da. *Qveksölv*. Sw. *Quicksilver*. Fr. *Argent vif, Mercure*. It. *Argento vivo, Mercurio*. Sp. *Azogue, Mercurio*. Port. *Azougue, Mercurio*. Rus. *Rtut*. Pol. *Zywe srebro, Rtec, Frtecz*. Lat. *Hydrargyrum, Argentum vivum, Mercurius*.) Mercury is a metallic substance, fluid at the common temperature, having the appearance and brilliancy of melted silver; its specific gravity is 13.568. It becomes solid at 39° below zero of Fahrenheit, and is then malleable. It is volatile at 600°. It combines with all the other metals, except iron; and the combinations are termed *amalgams*, to distinguish them from the compounds resulting from the combinations of the other metals with each other, which are called *alloys*.

Mercury is found in Spain, in various parts of Germany, in China, and in great abundance in South America. It is sometimes found in a fluid, metallic state; but most frequently in combination with sulphur, termed *cinnabar*. It is also found amalgamated with various metals.

Mercury is used in various forms in several of the arts. An amalgam with tin is employed in silvering the backs of glass mirrors; and the amalgam of zinc is the best preparation for promoting the excitement of electrical machines. An artificial combination of mercury with sulphur, forms the beautiful pigment called *vermilion*. Its uses in medicine are various, and of the highest importance.

METALS, are a class of bodies distinguished by the following characters: — brilliancy, colour, opacity, density, hardness, elasticity, ductility, malleability, tenacity, fusibility, power of conducting caloric, and electricity.

Metals were formerly divided into *noble* or *perfect*, and *imperfect metals*. The perfect metals were platina, gold, silver, mercury; and the property on which this character was founded, was that of their being susceptible of being reduced from the state of oxide by exposure to heat. The other metals were called imperfect, because, to reduce them to the metallic state, the addition of some combustible body was necessary.

They were also divided into *metals* and *semi-metals*. Among the former were included, those which were malleable and ductile; the latter comprehended those which possessed neither of those properties. The classification now generally adopted is founded on the principle of their relative attraction for oxygen. They may thus be arranged under five heads.

The *first* embraces those which neither absorb oxygen, nor decompose water, at any temperature; their oxides are reducible at a heat below redness. Those are gold, silver, platinum, palladium, rhodium, iridium.

The *second*, those which, when heated to a certain temperature, absorb and retain oxygen, and, at a higher temperature, they again give it off: those are osmium, mercury, lead, nickel.

The *third* absorb oxygen even when at a temperature above redness: they are incapable of decomposing water at any temperature; such are, arsenic, molybdenum, chrome, tungsten, columbium, antimony, manium, cerium, cobalt, titanium, bismuth, copper, tellurium, and selenium.

The *fourth*, are those which absorb oxygen even at a high temperature; and when heated to redness are capable of decomposing water. Those are iron, tin, zinc, manganese.

The *fifth* absorb oxygen, and rapidly decompose water at all temperatures; as potassium, sodium, barium, strontium, calcium, magnesium.

A *sixth* class may be formed of those substances, which by analogy are considered metallic, but of which the oxides have not hitherto been reduced; those are silicium, aluminum, zirconium, ittrium, and glucium.

Metals are found in the clefts of rocky strata, in veins, or in indeterminate masses in beds, or interspersed throughout other substances. They are either *native*, or in a pure metallic state; *alloyed*, being in combination with each other, in the form of a *calx*, or oxide; or in combination with sulphur; or in the state of crystals, as when united to acids. The different processes employed for obtaining metals in their pure form, are *pounding, washing, roasting, amalgamation, reduction*, and *refinement*.

METHEGLIN. *See* MEAD.

MEZZOTINTO, a kind of graving, so named, as nearly resembling paint, the word importing half-painted. *See* ENGRAVING.

MICA. This stone forms an essential part of many mountains, and has been long known under the name of *glacies Mariæ*, and (improperly) under that of Muscovy glass. It consists of a great number of thin laminæ adhering to each other, sometimes of a very large size. Specimens have been found in Siberia nearly 2½ yards square. It is sometimes crystallised; and is frequently found in plates or scales of no determinable figure or size. Its colour, when purest, is silver white or grey, but it occurs also yellow, greenish, reddish, brown, and black. Mica is fusible by the blow-pipe into a white, grey, green, or black enamel; and this last is attracted by the magnet. Spanish wax rubbed with it becomes negatively electric.

Mica has long been employed as a substitute for glass. A great quantity of it is said to be used in the Russian marine for panes to the cabin-windows of ships; it is preferred, because it is not so liable as glass to be broken by the agitation of the ship. It is also used in our navy for lanterns, for the use of the powder-rooms.

The white and yellow micas when reduced to powder, are used to sand writing, by the name of gold or silver sand.

MICHAELMAS. The feast of St. Michael the arch-angel, kept on the 29th day of September, is one of the four quarter-days into which the year is divided, is that *from* which especially demises of land take place throughout the country, and *on* which the rents arising from all species of property generally become due and payable. It regulates the commencement of one of the law-terms, and several of the great fairs throughout the kingdom, particularly those for the sale of cheese, and hops.

MIDSHIP is a term of distinction applied by shipwrights to several pieces of timber, which lie on the broadest part of the vessel.

MIDSHIPMEN, officers on board a ship, whose station, when on duty, is on the quarter-deck, the poop, &c.

They are to mind the braces, pass the word of command from the captain, and other superior officers, and sometimes assist in navigating the ship, stowing, rummaging, &c. The number of midshipmen is always in a certain proportion to the size of the ship. A first-rate man of war has 24, and all the ships of inferior size in proportion. No person can be appointed lieutenant who has not previously served two years in the royal navy as a midshipman, or as a mate, beside having been at sea at least four years in actual service.

MIDSUMMER-DAY is the 24th day of June, the feast of St. John the Baptist. It is one of the four quarter-days of the year, on which rents become payable, &c. &c.

MILE, the usual measure of roads in England, being 8 furlongs, or 1760 yards. *See* WEIGHTS and MEASURES.

MILITIA, *British*, presents an article which ought not to be omitted even in a Commercial Dictionary, since the obligations connected with it attach universally to mercantile men, without any of those exemptions which are, at least, partially extended to persons in most of the other walks of life. The model on which the present militia system was erected, had its origin in certain statutes passed immediately

after the restoration of Charles II., for raising and equipping, what were then denominated "trained bands," in the different counties of the kingdom. The substance of such of those provisions as were found beneficial, were engrafted, with many new regulations, into the present scheme of a militia, within the first few years of the present reign; viz. by statutes 2 Geo. 3. c. 20. and 9 Geo. 3. c. 42. The enactments of these two statutes have been altered, modified, and amended, by a great variety of successive ones, as dictated by progressive emergencies. The 42 Geo. 3. c. 90. is that by which the *old established* militia force is now principally governed, (with some few amendments by subsequent statutes, especially by 43 Geo. 3. c. 50.; 56 Geo. 3. c. 64., and 57 Geo. 3. c. 57. For all which, and the general effect of them, see 2 and 3 *Dick. Pract. Expos. title,* MILITIA). By virtue of the system established under these acts, every male in the kingdom between the ages of 18 and 45, with the exception of those who are specifically exempted, are rendered liable to serve in the militia, either in person, or by substitute. The persons exempted are peers, officers in the army and navy, resident members of the universities, clergymen of the establishment, licensed teachers not of the establishment, peace-officers, articled clerks, and apprentices; persons serving in other military capacities, in the navy, dock-yards, forts, wharfs, powder-mills, magazines, and storehouses belonging to His Majesty; persons free of the watermen's company; and *poor men* having more than one child born in wedlock.

By a statute of 48 Geo. 3. amended by several subsequent ones, and especially 52 Geo. 3. c. 33., (2 and 3 *Dick. Pract. Expos. title,* MILITIA, *Local,*) a new species of internal military force was directed to be raised, under the denomination of *Local Militia,* in contradistinction to that, the laws of which we have been epitomising, and which now took the name of the *old militia.*

The scheme of this more recent military establishment is as comprehensive as that of its predecessor, with respect to the general description of persons whom it embraces, the exemptions being at the same time nearly similar.

The only observations on these laws which appear necessary to be added here, are, that the obligation imposed by the *old militia* system partakes of a pecuniary, as much as of a personal, complexion; inasmuch as the individuals on whom the burden of serving may fall by the ballot directed, may execute the duty by deputy, having the liberty of finding substitutes respectively, on such terms as they can obtain them. But in the *Local Militia,* by (sect. 35. of) the before mentioned 52 Geo. 3. c. 33., substitutes are specifically prohibited under the alternative punishment of fine, or imprisonment, with additional service, and a prohibition against insurance or other method of contributing toward the payment of such fines, under a penalty of 50*l.*

MILK is a fluid secreted by the female of all those animals denominated mammalia, and intended evidently for the nourishment of her offspring.

The milk of every animal has certain peculiarities which distinguish it from every other milk. But the animal whose milk is most made use of by man as an article of food, and with which, consequently, we are best acquainted, is the cow.

It seems scarcely to claim insertion as an article of domestic commerce, and yet it may be difficult to assign a reason why it should not. Suffice it, however, to observe, that it is calculated, that there is a consumption of somewhat more than 60,000,000 of quarts annually, in the metropolis only, of cows' milk, or what passes for it.

Asses' milk is also not an unprofitable article of consumption; and the demand for it increases with the advance of luxury, late hours, crowded rooms, and thin clothing.

The use of skimmed, or blue, milk has become an essential article in wine-coopering science. It is adapted to the clarifying of spirits, and white wines, and to the discharging, or rather carrying off, the colour of such red wines as have been manufactured from white grapes, and coloured by artificial means.

MILL is a term now applied to all edifices enclosing machines whose action depends on a circular motion, at least in colloquial language. This, however, is rather a metaphorical, than a logical application of the term; for it was originally confined to those machines alone by which corn is ground. Mills, in the enlarged sense of the word, however, are now protected by numerous statutes, which we will first advert to, and afterwards enumerate those which apply to each particular description of mill, as the consideration of them respectively occurs. By 9 Geo. 3. c. 29., if any person shall unlawfully, riotously, and tumultuously, and with force, demolish or pull down, or begin to demolish and pull down any wind saw-mill, *or other mill,* or any water-mill, *or other mill,* or any works thereto belonging; or engines belonging to mines, or waggon-ways, or fences, by act of parliament, they shall be guilty of felony, *sans* clergy.

By 41 Geo. 3. c. 24. damages for the same shall be recoverable against the hundred, according to rules prescribed by 1 Geo. 1. c. 5. By 43 Geo. 3. c. 58. burning mills in order to defraud third persons, is made also felony *sans* clergy. — Lastly, by 52 Geo. 3. c. 130. the provisions of these former acts are extended to all erections, buildings, or engines, used or employed in *any* trade, manufactory, or branch thereof. *See further, title* MINES, *and title* ENGINES.

We now come to consider, first, the construction of mills generally; secondly, the purposes to which mills are applied.

There are several constructions of mills, according to the various modes of applying the moving power, as water-mills, wind-mills, &c.

In water-mills, the momentum of the water is the moving power; and the attrition of the two stones in grinding is the force to be overcome. Of these mills there are two kinds, viz. those where the force of the water is applied above the wheel, and those where it is applied before the wheel; the former being called overshot, and the latter undershot mills; and to these we may add a breast-mill, where the water strikes against the middle of the wheel.

Few people are ignorant that corn is ground by two mill-stones, placed one above the other, without touching. The lower, or nether mill-stone is immoveable; but the upper one turns upon a spindle. The opposite surfaces of the two stones, which act to grind the corn, are not plane or flat; but the upper one is hollow, and the under one swells upwards; each of them being of a conic figure, whose axis indeed is very short in proportion to the diameter of its base; for the upper one, being six feet in diameter, is hollowed but about one inch at its centre, and the lower one rises but about three-fourths of an inch. These two mill-stones come nearer and nearer towards their circumference, whereby the corn that falls from the hopper has room to insinuate itself between them as far as two-thirds of the radius, which is the place where it begins to be ground, and where it makes the greatest resistance that it is capable of; the space between the stones being in that place but about two-thirds or three-fourths of the thickness of a grain of corn. But as the millers have the means of raising or sinking the upper stone a little, they can proportion its distance from the lower one, according as they would have the flour finer or coarser.

The circular motion of the upper mill-stone brings the corn out of the hopper by jerks, and causes it to recede from the centre towards the circumference; where being quite reduced to flour, it is thrown out of the mill by the centrifugal force of the stone, through a hole provided on purpose.

As the water acts upon an overshot-mill both by impulse and weight, so does it likewise upon a breast-mill, or that where the water comes upon the breast or middle part of the wheel: and here, though the weight of the water is not so great as in the overshot-mill, being contained in the buckets of the lower quarter only; yet the impulse of the water is much greater, the height of the water being increased nearly the semi-diameter of the great wheel, all other things being equal. If the height of the water remains the same, the aperture of the penstock, or flood-gate, must be enlarged to nearly twice the area, that the force may be the same; so that to produce the same effect, twice as much water is necessary for a breast-mill as for an overshot one, every thing else being the same.

As to the undershot-mill, it is evident that there can be only the impulse from the water; and therefore the height of the water remaining the same, there must be a larger aperture of the penstock for the discharge of a greater quantity of water in the same time, in order to produce the same effect, as in the overshot or breast-mill: whence a greater expense of water will be made here than in any other mill, and can only be supplied for a constancy by a river; and where this can be had, the undershot is the easiest, cheapest, and most simple structure a mill is capable of.

Mr. Smeaton has considered the best methods of constructing all these mills from machines and models made on purpose; but, conscious of the inferiority of models to practice, did not venture to give his opinion without having seen them actually tried, and the truth of his doctrines established by experience.

Having described the machines and models used for making his experiments, he observes, that, with regard to power, it is most properly measured by the raising of a weight; or, in other words, if the weight raised is multiplied by the height to which it can be raised in a given time, the product is the measure of the power raising it; and, of consequence, all those powers are equal, whose products made by such multiplication are equal: for if a power can raise twice the weight to the same height, or the same weight to twice the height, in the same time that another can, the former power will be double the latter; but if a power can only raise half the weight to double the height. or double the weight to half the height, in the same time that another can, the two powers are equal. This, however, must be understood only of a slow and equable motion, without acceleration or retardation; for, if the velocity is either very quickly accelerated, or retarded, the *vis inertiæ*, in our author's opinion, will produce an irregularity.

To compute the effects of water-wheels exactly, it is necessary to know, in the first place, what is the real velocity of the water which impinges on the wheel. Secondly, the quantity of water expended in a given time; and, thirdly, how much of the power is lost by the friction of the machinery.

1. With regard to the velocity of the water, Mr. Smeaton determined by experiments with machinery, that with a head of water 15 inches in height, the velocity of the wheel is 8.96 feet in a minute. The

area of the head being 105.8 inches; this multiplied by the weight of a cubic inch of water, equal to .579 of an ounce avoirdupoise, gives 61.26 ounces for the weight of as much water as is contained in the head upon one inch in depth; and by further calculations, derived from the machinery made use of, he computes that 264.7 pounds of water descend in a minute through the space of 15 inches. The power of the water, therefore, to produce mechanical effects in this case, will be 264.7 × 15, or 3970. From the result of the experiment, however, it appeared that a vast quantity of the power was lost; the effect being only to raise 9.375 pounds to the height of 133 inches: so that the power was to the effect as 3970 to 9.375 × 135 = 1266, or as 10 to 3.18.

This, according to our author, must be considered as the greatest single effect of water upon an undershot-wheel, where the water descends from a height of 15 inches; but as the force of the current is not by any means exhausted, we must consider the true proportion betwixt the power and effect to be that betwixt the quantity of water already mentioned, and the sum of all the effects producible from it. This remainder of power, it is plain, must be equal to that of the velocity of the wheel itself multiplied into the weight of the water. In the present experiment, the circumference of the wheel moved with the velocity of 3.123 feet in a second, which answers to a head of 1.82 inches; and this height being multiplied by 264.7, the quantity of water expended in a minute, gives 481 for the power of the water after it has passed the wheel; and hence the true proportion betwixt the power and the effect will be as 3849 to 1266; or as 11 to 4.

As the wheel revolved 86 times in a minute, the velocity of the water must be equal to 86 circumferences of the wheel; which, according to the dimensions of the apparatus used by Mr. Smeaton, was as 86 to 30, or as 20 to 7. The greatest load with which the wheel would move was 9 lb. 6 oz. and by 12 lb. it was entirely stopped. Whence our author concludes, that the impulse of the water is more than double of what it ought to be according to theory; but this he accounts for by observing, that in his experiment the wheel was placed not in an open river, where the natural current after it has communicated its impulse to the float, has room on all sides to escape, as the theory supposes, but in conduit, to which the float being adapted, the water cannot otherwise escape than by moving along with the wheel. It is observable that a wheel working in this manner, as soon as the water meets the float, receiving a sudden check, it rises up against the float like a wave against a fixed object; insomuch that, when the sheet of water is not a quarter of an inch thick before the float, yet this sheet will act upon the whole surface of a float whose height is three inches; and, consequently, was the float no higher than the thickness of the sheet of water, as the theory also supposes, a great part of the force would have been lost by the water dashing over the float.

Mr. Smeaton next proceeds to give tables of the velocities of wheels with different heights of water; and from the whole deduces the following conclusions: 1. The virtual or effective head being the same, the effect will be nearly as the quantity of water expended. 2. The expense of water being the same, the effect will be nearly as the height of the virtual, or effective head. 3. The quantity of water expended being the same, the effect is nearly as the square of the velocity. 4. The aperture being the same, the effect will be nearly as the cube of the velocity of the water. Hence, if water passes out of an aperture in the same section, but with different velocities, the expense will be proportional to the velocity; and, therefore, if the expense is not proportional to the velocity, the section of the water is not the same. 5. The virtual head, or that from which we are to calculate the power, bears no proportion to the head-water; but when the aperture is larger, or the velocity of the water less, they approach nearer to a coincidence; and, consequently, in the large openings of mills and sluices, where great quantities of water are discharged from moderate heads, the head of water and virtual head determined from the velocity, will nearly agree; which is also confirmed by experience. 6. The most general proportion betwixt the power and effect is that of 10 to 3; the extremes 10 to 3.2, and 10 to 2.8. But it is observable, that where the power is greatest, the second term of the ratio is greatest also; hence we may allow the proportion subsisting in great works to be as three to one. 7. The proportion of velocity between the water and wheel is, in general, about five to two. 8. There is no certain ratio between the load that the wheel will carry as its proper maximum, and what will totally stop it; though the proportions are contained within the limits of 20 to 19, and 20 to 15; but as the effect approaches nearest to the ratio of 20 to 15, or of 4 to 3, when the power is greatest, either by increase of velocity, or quantity of water, this seems to be the most applicable to large works; but as the load that a wheel ought to have, in order to work to the best advantage, can be assigned by knowing the effect that it ought to produce, and the velocity it ought to have in producing it, the exact knowledge of the greatest load it will bear is of little consequence in practice.

Practical rules for the construction of mills. —1. Measure the perpendicular height of the fall of water, in feet, above that part of the wheel on which the water begins to act, and call that the height of the fall.

2. Multiply this constant number 64.2882 by the height of the fall in feet, and the square root of the product will be the velocity of the water at the bottom of the fall, or the number of feet that the water there moves per second.

3. Divide the velocity of the water by three, and the quotient will be the velocity of the float-boards of the wheel, or the number of feet they must each go through in a second, when the water acts upon them so as to have the greatest power to turn the mill.

4. Divide the circumference of the wheel in feet by the velocity of its floats in feet per second, and the quotient will be the number of seconds in which the wheel turns round.

5. By this last number of seconds divide 60, and the quotient will be the number of turns of the wheel in a minute.

6. Divide 120 (the number of revolutions a mill-stone four feet and a half diameter ought to have in a minute) by the number of turns of the wheel in a minute, and the quotient will be the number of turns the mill-stone ought to have for one turn of the wheel.

7. Then, as the number of turns of the wheel in a minute, is to the number of turns of the mill-stone in a minute, so must the number of staves in the trundle be to the number of cogs in the wheel, in the nearest whole numbers that can be found.

By these rules, the following table is calculated to a water-wheel 18 feet diameter, which may be a good size in general.

THE MILL-WRIGHT'S TABLE.

Height of the fall of water.	Velocity of the fall of water per second.		Velocity of the wheel per second.		Revolutions of the wheel per minute.		Revolutions of the mill-stone for one of the wheels.		Cogs in the wheel, and staves in the trundle.		Revolutions of the mill-stone per minute, by these staves and cogs.
Feet.	Feet.	100 parts of a foot.	Feet.	100 parts of a foot.	Revolutions.	100 parts of a rev.	Revolutions.	100 parts of a rev.	Cogs.	Staves.	Revolutions. 100 parts of a rev.
1	8.02		2.67		2.83		42.40		254	6	119.84
2	11.34		3.78		4.00		30.00		210	7	120.00
3	13.89		4.63		4.91		24.44		196	8	120.28
4	16.04		5.35		5.67		21.16		190	9	119.74
5	17.93		5.98		6.34		18.92		170	9	119.68
6	19.64		6.55		6.94		17.28		156	9	120.20
7	21.21		7.07		7.50		16.00		144	9	120.00
8	22.62		7.56		8.02		14.96		134	9	119.34
9	24.05		8.02		8.51		14.10		140	10	119.14
10	25.35		8.45		8.97		13.38		134	10	120.18
11	26.59		8.86		9.40		13.76		128	10	120.32
12	27.77		9.26		9.82		12.22		122	10	119.80
13	28.91		9.64		10.22		11.74		118	10	120.36
14	30.00		10.00		10.60		11.32		112	10	118.72
15	31.05		10.35		10.99		10.98		110	10	120.96
16	32.07		10.09		11.34		10.58		106	10	120.20
17	33.06		11.02		11.70		10.26		102	10	119.34
18	34.02		11.34		11.02		9.98		100	10	120.20
19	34.95		11.65		12.37		9.70		98	10	121.22
20	35.86		11.95		12.68		9.46		94	10	119.18
1	2		3		4		5		6		7

To construct a mill by this table, find the height of the fall of water in the first column, and against that height, in the sixth column, you have the number of cogs in the wheel, and staves in the trundle, for causing the mill-stone, four feet six inches diameter, to make about 120 revolutions in a minute, as near as possible, when the wheel goes with one-third part of the velocity of the water. And it appears by the 7th column, that the number of cogs in the wheel, and staves in the trundle, are so near the truth for the required purpose, that the least number of revolutions of the mill-stone in a minute is 118, and the greatest number never exceeds 121; which is according to the speed of some of the best mills.

One of the most usual communications of

motion in machinery, is by means of toothed wheels acting on each other. It is of the greatest consequence to have the teeth so formed, that the pressure by which one of them urges the other round its axis is constantly the same. This is by no means the case when the common construction of a spur-wheel, acting in the cylindrical staves of a lantern, or trundle, is used. The ends of teeth should never be formed of parts of circles, but of a particular curve, called the epicycloid, which is formed by moving the circle, called the generating circle, round the circumference of another circle, while it turns also round its own centre; then any point will describe an epicycloid.

Emerson observes, that the teeth of wheels ought not to act upon each other before they arrive at the line which join their centres; and though the inner or under sides of the teeth may be of any form, yet it is better to make both sides alike, which will serve to make the wheel turn backwards. The more teeth that work together the better; at least one tooth should always begin before the other has done working. The teeth ought to be so disposed, as not to trouble or hinder one another before they begin to work.

If the cogs of a wheel and rounds of a trundle could be put in as exactly as the teeth are cut in the wheels and pinions of a clock, then the trundle might divide the wheel exactly, that is to say, the trundle might make a given number of revolutions for one of the wheel, without a fraction. But as any exact number is not necessary in mill-work, and the cogs and rounds cannot be set in so truly as to make all the intervals between them equal, a skilful millwright will always give the wheel what he calls a hunting-cog; that is, one more than what will answer to an exact division of the wheel by the trundle. And then, as every cog comes to the trundle, it will take the next staff, or round, behind the one which it took in the former revolution; and by that means will wear all the parts of the cogs and rounds which work upon one another equally, and to equal distances from one another, in a little time.

MILLS, *Corn*, as being of the most general importance. By 36 Geo. 3. c. 85. every person keeping a mill for grinding corn, shall have in such mill a true balance, with proper weights; and any persons legally appointed to examine weights and measures, may examine the same, and in default thereof, such miller shall forfeit 20*s*. Millers shall weigh the corn brought to be ground, if required, and also again after it is ground, and on refusal so to do, shall forfeit 40*s*.; and shall also return the whole weight (making certain reasonable allowances for waste, &c.) and instead of taking toll of the same, shall accept a money payment, if required, under a penalty of 5*l*.; and further, shall put up in some conspicuous place in the mills, a table of their prices in money; and also of the toll or multure which they demand respectively for grinding, under a penalty of 20*s*. for every offence against these provisions.

MILLS, *Cotton and Woollen*. The 42 Geo. 3. c. 73. regulates the management and employment of poor apprentices in mills of these descriptions, and in manufactories. It directs that every such edifice shall, at least twice in every year, be white-washed throughout with quick-lime and water, and that the apartments shall be sufficiently ventilated. It then regulates the mode of clothing, and the hours of working the apprentices; the instructing them in reading and writing, &c.; the attending to them on Sundays; the obtaining medical assistance for them in sickness; it directs the appointment of visitors, and inflicts penalties on the masters or managers of these establishments misbehaving.

MILLS, *Bark*, like most other mills, are worked sometimes by means of horses, at others by water, and at others by wind. One of the best mills we have seen described for these purposes is that invented by Mr. Bagnall, of Worsley, in Lancashire: this machine will serve not only to chop bark, to grind, to riddle, and pound it, but to beam or work green hides and skins out of the mastering, or drench, and make them ready for the ouse, or bark liquor; to beam sheepskins and other skins for the skinner's use; and to scour and take off the bloom from tanned leather when in a currying state.

MILL, *Foot*, is a mill for grinding corn or any other substance, moved by the pressure of the feet of men, or beasts. In some foot-mills a horse or an ox is fixed to a stall upon a floor above a vertical wheel; and a hole is made in the floor, in the place where the hind feet of the animal should stand; thus admitting those feet to press upon the run of a wheel, and cause the wheel to turn upon its axle, and give motion to the whole mill.

MILL, *Hand*, or Horse-Mill, is that worked by the hand, or by horses, &c. There is a long beam or lever for moving it, so attached that it may receive many men or horses, to drive several mills at once. There is the cog-wheel, placed horizontally, with pins fixed, not on its plane, but on the outside, at the circumference of the joints. There are also the trundle-head, the support, the iron axis, and the drum, where the mill-stones are inclosed.

MILL, *Fulling*, a machine moved by water, which raises, and lets fall, large wooden pistons in peals or troughs, in order to full and scower woollen stuffs. *See* FULLING.

MILL, *Forge*, a machine turned by water, which works one or more huge hammers, to beat or hammer iron into bars, anchors, and other massive works.

MILL, *Gunpowder*, is that used to pound and beat together the ingredients whereof gunpowder is composed.

MILL, *Sawing*, is a machine turned by water, which saws several planks or boards at the same time. *See* SAWING-MILL.

MILL, *Sugar*, serves to bruise the sugar canes, and express the juice or liquor contained in them. *See* SUGAR-MILL.

MILL, *Coiner's*. *See* COINAGE.

MILL-BOARDS, the thickest sort of pasteboard, usually employed by book-binders as covering for books.

MILL-COG, the denticulations on the circumference of the wheels, by which they lock into other wheels.

MILL-DAM, the mound by which the water is kept up to raise it for the mill.

MILLET. (Ger. *Hirse*. Du. *Geerst, Geers, Gierst*. Da. *Hirse*. Sw. *Hirs*. Fr. *Millet, Mil*. It. *Miglio, Panicastrello*. Sp. *Mijo*. Port. *Milho, Painço*. Rus. *Proszo*. Pol. *Proso*. Lat. *Milium, Panicum miliaceum*.) Millet is a native of India; but is now commonly cultivated in many parts of Europe, as an esculent grain. It rises with a reddish stalk three or four feet high. The top of the stalk is terminated by a large loose panicle which hangs on one side, having a chaffy flower, which is succeeded by a small round seed. There are two varieties, one with white, and the other with black, seeds; but they do not differ in any other particular. This plant is greatly cultivated in the Oriental countries, whence it is annually brought to us. It is seldom cultivated in Britain, unless in small gardens. The species of millet which Linnæus denominates *holcus sorghum*, is cultivated in Malta, and in several parts of Italy, especially in Campania, or Compagna di Rana, where the inhabitants make it into a sort of bread, which has an uncommonly sweet flavour. This grain is, according to Pliny, heavier than any other, and swells more in baking. The common millet is grown in abundance in France, and is generally sown ridge for ridge, in the same fields with rye. In order to free their millet from its chaff, the French pound it in a wooden mortar, or pass it between mill-stones, which they keep sufficiently asunder to prevent the grains from being crushed. In the southern parts of France, especially at Bourdeaux, they prepare from the winnowed millet-seed, boiled in milk, a very favourite mess, not unlike rice-milk; they also make the seed into cakes, pastry, &c. The Africans consume large quantities of millet-seed, which they prepare for use by roasting it. The Tartars and Cossacks likewise derive their chief article of sustenance from this seed, which they mix with mare's milk, or with the blood drawn from the crural vein of the horse. Among the Arabians, there is a peculiar species of millet known, which they call *dourra* (*holcus durra*). Its seed is large, flat, and remarkably white, and it is made into bread, which is baked under hot cinders. The Arabians chew the stalks which produce this kind of millet, and extract from them, by pressure, a highly saccharine juice. With the Arabian millet-seed the inhabitants of Corfu feed their pigeons.

In Great Britain the common millet-seed is used as an ingredient in puddings. The seeds ripen in August, when the plant must be cut down, and the seeds beaten out. If not protected from birds, they will devour the seed as soon as it begins to ripen. The stalks of common millet are considered wholesome fodder for cattle.

MILLING, in the manufactures, is the same as fulling, which *see*.

MILLION is the number of ten hundred thousand, or a thousand times a thousand.

MILREA, Milree, or Milrei, a Portuguese money of account. It is so called, as consisting of a thousand reis, value *5s.* 7½*d.* British money. *See* MONIES, *App*.

MILL-STONES, (Ger. *Mühlsteine*. Du. *Moolensteenen*. Da. *Mollstene*. Sw. *Quarnstenar*. Fr. *Pierres meulières*. It. *Mole Macine*. Sp. *Muelas de molino*. Port. *Mós do moinho*. Rus. *Schernowoi kamen*. Pol. *Mlinski kamien*. Lat. *Molaris lapis*,) the large circular stone, which, when put in motion by machinery, grinds corn and other articles. The diameter of the common mill-stones is from five to seven feet, and their thickness varies from twelve to eighteen inches. These stones were usually imported from Rouen and other parts of France, the burr-stones of that country being found more durable than our own. There is, however, a large quarry of this kind of stone at Conway, in North Wales, equal to any imported from foreign countries. Good mill-stones usually last 35 or 40 years; and when they have been employed for a long time, so as to be considerably diminished, they are *edged*, or fresh cut, in order to communicate to their surface a figure contrary to that which they originally bore; and afterwards the upper mill-stone is made the lower or bed-stone.

MINE, a place under ground, whence metals, minerals, or precious stones are dug up.

For gold and silver mines, the richest and most celebrated are in South America; iron mines are most abundant in France, Russia, Sweden, &c.; copper mines are chiefly in Sweden and Denmark; lead and tin mines abound most in England; quicksilver mines in Hungary and Spain; diamond mines in Golconda; and salt mines in Poland, &c.

Metallic mines are generally dug for in mountains, and as the metallic veins always run either horizontal or oblique, they are easiest found on the sides of eminences.

The metallic veins are commonly encompassed with a sort of stone peculiar to the mine, and accompanied with several strata of clay, gravel, rock, &c.

By all of which the miners know when they approach a vein. They discover that there is a mine in a mountain by the mineral stones that fall from it; the mineral taste of the waters; the quality of the exhalation; the difference between the earth over the mines, and that of the neighbouring parts; the frost lying on the adjacent places, when it thaws about the mines. And that the ground producing little grass, and that but pale, is an indication of a mine.

All mines of gold or silver belong to the king by virtue of his prerogative; but persons having mines of copper, tin, lead, &c. shall enjoy the same, although claimed to be royal mines. 5 W. and M. c. 6.

Tin, copper, iron, lead, and coal, mines, are those with which Great Britain chiefly abounds. Tin is found in Cornwall and Devonshire, and the mines and miners are under a particular code of laws, called the Stannary laws: copper abounds in the western, southern, and northern extremities of the kingdom; lead in the northern; iron in the midland counties; and coals, to some degree or other, in almost every part of the island, except a small portion of the eastern coast, where none have yet been discovered.

The last-mentioned mineral is of such high importance to the common comforts of life, as well as to the prosecution of most of our manufactures, that the mines, engines, &c. for the supply of them, are protected by several statutes. By 10 Geo. 2. c 32. setting fire to coal mines is made felony *sans* clergy.

By 13 Geo. 2. c. 21. inundating them is made punishable by treble damages.

9 Geo. 3. c. 29., and 39 & 40 Geo. 3. c. 77., and lastly 56 Geo. 3. c. 125., in extension of the two former acts, protects all engines, and other erections belonging to coal-mines, as well as the roads and rail-ways to them, under the heaviest penalties. 2 and 3 *Dick. Pract. Expos. titles* Coals and Mines.

MINERAL. Every substance, which does not possess organization, or is not the immediate product of some organized body, belongs to the mineral kingdom. Among the numerous variety of materials, which demand the attention, and exercise the ingenuity, of the chemist and the manufacturer, some are compounded of such principles, and formed under such circumstances and situations in the earth, that it is difficult to distinguish them without recurring to the test of experiment. Others are formed with considerable regularity as to the proportion of their principles, their colour, fracture, specific gravity, and crystallised figure. Every practical mineralogist is naturally disposed to avail himself of the external figure and obvious characters of bodies, to distinguish them from each other; and we daily see instances of great skill in this method of discrimination. It happens unfortunately, however, for the acquisition of this branch of knowledge, that the differences depend upon circumstances, which, for the most part, are scarcely communicable by mere description, without the exhibition of specimens. Hence it has, in many instances, happened, that chemists have obtained possession of quantities of minerals, the names of which they could not, with any degree of correctness, ascertain, until they had made some experiments to determine their component parts. Much industry has been employed with success in simplifying the experiments with re-agents, and with the blow-pipe, for this purpose. Thus it has happened that mineralogy has been assiduously cultivated by two different descriptions of men. The one have noted the figures, measured the angles, described the colours, transparency, opacity, texture as ascertained by fracture, hardness, and the like evident properties; the other have passed slightly over these indications, and have attended chiefly to such component parts as chemical analysis exhibits. The best system for the classification of minerals must be that in which the external characters, as well as the component parts, are noticed. The components parts or principals of minerals afford the great outlines for classing them under general species and varieties; and their external appearances, when not sufficiently decisive to the observer, will always be useful to point out the experiments he must make to ascertain their place. The modern systems are grounded on considerations of this nature.

MINERALIZER. Metallic substances are said to be mineralized, when deprived of their usual properties by combination with some other substance. The commonest mineralizers are sulphur, arsenic, and carbonic acid. Oxygen is as usual as any, but is not usually reckoned among mineralizers. Arsenic is likewise excluded from mineralizers by some writers, because, say they, it is always united to metals in its metallic state. The sulphuric, and muriatic, acids are less common mineralizers. The phosphoric acid exists in the green lead ore, and less evidently in some of the ores of iron. Lead is found mineralized likewise by the molybdic, and chromic, acids. Carbonic acid exists in many of the calciform ores.

MINIUM. Red lead, or minium, may be made directly from lead, and also from litharge, which can be had cheaper from various processes where lead is employed But the latter red lead is not so good as the former, on account of the scoria of other substances mixed with the litharge. The makers of flint-glass, who use much red lead in the composition of their glass, find,

that it does not flux so well as that made from the direct oxidation of the metal, as practised in the county of Derby, where no less than nine mills or furnaces are kept on this operation. These furnaces are very like a baker's oven, with a low vaulted roof, and two party-walls, rising from their floor, which leave a middle space, where the pit-coal is burned: the flame, being drawn over the party-walls, strikes on the roof, and is thence reflected on each side, by which the lead there is kept melted. The surface of lead, by its exposition to air, becomes instantly covered with a dusky pellicle, which is successively removed; the greater part of the metal is thus converted into a yellowish-green powder, which is afterward ground fine in a mill, and washed; the heterogeneous particles of lead, still remaining, are separated by passing the wash through sieves; the yellow colour becomes uniform, and is called massicot, by the painters. The yellow oxide, being well dried, is thrown again into the furnace, where it is constantly stirred in a continual heat; so that in about 48 hours, this oxide acquires a vivid red, inclining to orange colour, and is known by the name of minium, or red lead. The red lead made in France is of a considerably worse quality than what is made in England or Holland. A ton of lead generally gives twenty-two hundred weight of minium. It is said, that at Nuremberg the increased weight of red lead amounts to one-fifth of the metal; this may probably depend on the method employed, as Watson thinks. Neumann says, that the best Venetian minium is made from ceruse, or white lead. *See* LEAD.

MINIVER, among furriers, is the skin taken off the belly of the squirrel.

MINT, the place in which the public money is coined. *See* COINAGE.

The officers of the mint are, 1. The warden of the mint, who is chief; he oversees the other officers, and receives the bullion. 2. The master worker, who receives the bullion from the warden, causes it to be melted, delivers it to the moneyers, and when it is coined, receives it again. 3. The comptroller, who is the overseer of all the inferior officers, and sees that all the money is made to the just assize. 4. The assay-master, who weighs the gold and silver, and sees that it is according to the standard. 5. The auditor, who takes the accounts. 6. The surveyor of the melting, who, after the assay-master has made trial of the bullion, sees that it is cast out, and not altered after it is delivered to the melter. 7. The engraver, who engraves the stamps and dyes for the coinage of the money. 8. The clerk of the irons, who sees that the irons are clean and fit to work with. 9. The melter, who melts the bullion before it is coined. 10. The provost of the mint, who provides for, and oversees all the moneyers. 11. The blanchers, who anneal and cleanse the money. 12. The moneyers, some of whom forge the money, some shear it, some round and mill it, and some stamp or coin it. 13. The porters, who keep the gate of the mint.

MIROBOLANS, (Ger. *Myrobalanen.* Du. *Myrobalaanen.* Da. *Myrabolaner.* Sw. *Mirobalaner.* Fr. *Myrobolans, Mirobolens, Mirabolons.* It. *Mirabolani.* Sp. and Port. *Mirabolanos.* Rus. *Myrobalain,*) a small purgative fruit, of considerable utility in pharmacy. This drug is divided into divers species, namely, the *lemon-coloured,* the *black,* the *kebuli,* the *belerin* or *golden,* and the *Indian* mirobolans.

The yellow-coloured mirobolan is of a reddish-yellow, of an astringent, disagreeable flavour, in figure resembling a plum, and inclosing a small kernel, somewhat like that of a white pine-apple.

The second kind is black, sometimes shaded with green, about the size of a gall-nut, and may easily be broken into pieces.

The kebuli is very like the lemon-coloured mirobolan, but it is darker, larger, and of a more acrid taste.

The belerin is about the size of a nutmeg, externally of an orange-colour, yellow internally, and of an astringent taste.

The Indian mirobolan is somewhat long, about as thick as the top of a child's fore-finger, black externally and internally, containing no nut, extremely hard, and of a bitterish astringent taste.

Mirobolans are brought from India, and are principally gathered in the vicinity of Goa, Bengal, and on the coast of Coromandel. The natives of India make use of them in tanning skins, and making ink. For the latter purpose they principally employ the black mirobolan.

MIRROR, a speculum, looking-glass, or any polished body, whose use is to form the images of distinct objects by the reflection of the rays of light.

Mirrors are either plane, convex, or concave. The first sort reflects the rays of light in a direction similar to that in which they fall upon it, and therefore represent bodies of their natural magnitude. But the convex ones make the rays diverge much more than before reflection, and therefore greatly diminish the images of those objects which they exhibit; while the concave ones, by collecting the rays into a focus, not only magnify the objects they show, but will also burn very fiercely when exposed to the rays of the sun; and hence they are commonly known by the name of burning mirrors.

Any kind of metal, when well polished, will reflect very powerfully; but of all others, silver reflects the most, though it has always been too expensive a material for common use. Gold is also very powerful; and all metals, or even wood, gilt and polished, will act very powerfully as burning mirrors. Even polished ivory, or straw

nicely plaited together, will form mirrors capable of burning, if on a large scale. *See* LOOKING-GLASS.

MISPECKEL, an ore of iron, consisting of that metal mineralized by arsenic. It is called *speiss* by the Bohemians. Its colour is generally of a bright white, resembling a mixture of silver and tin, sometimes, though seldom, variegated like a pigeon's neck, and is not easily altered by exposure to the air. Its form is either granular, cuspidated, cuneiform, prismatic, or rhomboidal. It is magnetic neither before nor after calcination, is soluble in acids, affords arsenic by distillation in the proportion of 30 or 40 per cent. and sometimes contains a small proportion of copper and silver. It is frequently mixed with other metallic ores, and often found in indurated clay, quartz, spar, schoerl, &c.

A marcasite found near Dublin, called Irish diamond, is of this species.

MISTLETOE, (Ger. *Mistel.* Du. *Meerentakken.* Da. *Mestertjene.* Sw. *Mistel.* Fr. *Gui, Guy.* It. *Vischio.* Sp. *Liga, Muerdago.* Port. *Visgo, Visco.* Rus. *Oméla.* Pol. *Jamiel, Jemiola.* Lat. *Viscum album,*) a plant always produced from seed, which is not to be cultivated in the earth, but will grow upon trees. The Mistletoe thrush, which feeds upon the berries of this plant in winter, conveys the seed from tree to tree; for the viscous part of the berry which surrounds the seed, sometimes fastens it to the bird's beak, which he strikes at the branches of a neighbouring tree, and so leaves the seed sticking by its viscous matter to the bark, which, if it lights upon a smooth part, will fasten itself, and the following winter put out.

Mistletoe will grow upon almost any tree. It was once famous in pharmacy, particularly for convulsions, apoplexy, palsy, and vertigo, but has lost much of its reputation of late years.

MITE, a small coin formerly current, equal to about one-third of a farthing.

It also denotes a small weight used by the moneyers. It is equal to the twentieth part of a grain, and is divided into twenty-four doits.

MITTS, or Mittens, a sort of glove without fingers. *See* GLOVES.

MIZEN, in the sea language, is a particular mast or sail. The mizen-mast stands in the sternmost part of the ship. Its length is, by some, accounted the same with the height of the main-top-mast, from the quarter-deck; or half the length of the main-mast, and half as thick. The sail which belongs to the mizen-mast, is called the mizen-sail: and when the word mizen is used at sea, it always means the sail.

MOCHA, or Mocho Stone. The agate, when it contains arborizations, or small figures of trees or moss, is called the Mocha-stone.

MOGGIO, an Italian measure of corn, equal to 4053 cubic inches English.

MOHAIR. (Ger. *Mohr.* Du. and Da. *Moor.* Sw. and Fr. *Moire.* It. *Moerro.* Sp. *Mue, Muer.* Port. *Chamalote, Melania.* Rus. *Obür.* Pol. *Mora.*) The mohair goats are a variety of the common goats, being famous for their soft and silvery white hairs, the like of which is not to be found in any place but Angora. *See* GOAT.

The hair is commonly brought, ready spun, to Europe, and being woven into camlets and other manufactures, particularly by the English, is afterwards exported to all parts of the world, and even to those places whence the yarn was originally brought. *See* CAMLET.

MOHAIR-YARN, (Ger. *Kamelgarn.* Du. *Turks garen, Stain van Angora.* Da. *Kameelgarn.* Sw. *Kamelgarn.* Fr. *Lame fille de chevron.* It. *Filo d'Angora, Filo di Capra.* Sp. *Hilo d'Angora.* Port. *Fio d'Angora.* Rus. *Garuss,*) mohair spun into thread. *See the preceding article.*

MOIDORE, or Moeda, a Portuguese gold coin, value 1*l.* 7*s.* sterling. *See* MONIES, *Appendix.*

MOLASSES, or Melasses, the gross fluid matter that remains of sugar after refining, which no boiling can bring to a consistence more solid than syrup. It has lately been discovered, that molasses may be obtained by boiling the juice expressed from the sweeter kinds of apples, and evaporating three parts out of four. The spirit distilled from molasses is milder than that from corn, and is much used in making liqueurs.

MOLE. (Ger. *Maulwurf.* Du. *Mol.* Da. *Muldverp.* Sw. *Mullvad.* Fr. *Taupe.* It. *Talpa, Talpe.* Sp. *Tapo.* Port. *Toupeira.* Rus. *Krot.* Pol. *Kret.* Lat. *Talpa.*) The fur of this little animal has long been employed by hatters as a substitute for beaver. They mix a small quantity of mole-hair with the more precious stuff; but they very seldom cover a hat entirely with it. The skin of the mole is generally black, though, like those of other animals of a blackish hue, it is sometimes found perfectly white, or cream-coloured. The radiated mole is a native of North America. It is somewhat smaller than the common mole, and is of a dusky or blackish colour.

MONCHA, or Monka, a corn measure, used at Madagascar, for measuring husked rice, &c. and contains about six pounds weight of that grain.

MONEY. In the earliest ages, the ordinary way of traffic, no doubt, was by exchanging one commodity for another: but in process of time it was found necessary to have some common standard, according to which all other things should be estimated. The first account we have of money, is in the time of Abraham, who paid four hundred shekels for a burying-place. Money being a common measure for reducing mer-

chandise to a balance, the Greeks called it νομισμα, whence the term *Numismatics.* It was called *pecunia* by the Latins, either because the wealth of those days consisted in cattle (*pecus*), or, according to Pliny, that their coin was first stamped with the figure of a *cow;* they also called it *moneta,* because when the Romans wanted money, Juno *admonished* them to use justice, and there should be no want of money; hence she received the title of Juno Moneta, and money was coined in her temple. In process of time, money was made a goddess, called *Dea Pecunia,* under the figure of a woman holding a balance in one hand, and a cornucopia in the other. Numa Pompilius made money of wood, and of leather. The first silver money coined by the Romans was in the year of Rome 484, and their first golden coinage in 546. Among the ancient Britons iron rings, or iron plates, were used for money; among the Lacedæmonians, iron bars quenched in vinegar. Seneca observes that anciently stamped leather was current as money; a circumstance which occurred in England in the time of the barons' wars; and the Hollanders coined great quantities of pasteboard in 1574. In all nations where commerce has made any progress, the precious metals, or something to represent them, and professedly exchangeable for them, have been adopted. These precious metals have either been divided into small pieces, to answer the purpose of exchange, or have been made into coins of denominated value. *See title* COIN.

The impression on coins has been various in different ages and countries.

As to the figure of the coin, it is either round, as in England; multangular or irregular, as in Spain; square, as in some parts of the East Indies, or nearly globular, as in others.

Money, at present, is either *real* or *imaginary.* Real money includes all coins, whether of gold, silver, copper, or the like; such as guineas, pistoles, ducats, &c. &c. Imaginary money, or money of account, is that which never existed, or at least which does not exist in real specie, but is a denomination invented, or retained, to facilitate the stating of accounts, by keeping them still on a permanent basis, not to be changed like currency, which the authority of the sovereign sometimes raises, or depresses, according to the exigencies of the state: of this kind are pounds, livres, marks, &c. For an account of the monies of the world, *see Appendix.*

MONEYERS, are officers of the Mint, who work gold, and silver, money, and answer all the weight and charges.

MONEY-SCRIVENER, is one who is "*a dealer in money, receiving other men's monies or estates into his trust or custody;*" at least such is the description given by one of the statutes of James I. respecting bankrupts; and these persons are recognized accordingly by stat. 12 Ann. c. 6. against usury.

MONOPOLY, is an allowance from the king, by his grant, commission, or otherwise, to any person or persons, bodies politic or corporate, of, or for, the sole buying, selling, making, working, or using, of any thing, whereby any person or persons, bodies politic or corporate, are sought to be restrained of any freedom or liberty they had before, or hindered in their lawful trade. 3 *Inst.* 181. But it seems that the king's charter, empowering particular persons to trade to, and from, such place is void, so far as it gives such persons an exclusive right of trading, and debarring all others; and it seems now agreed, that nothing can exclude a subject from trade but an act of parliament. *Raym.* 481.

According to its general acceptation, the word monopoly imports the act of unlawfully buying up a particular commodity, with the intent of having the exclusive privilege of selling it at an advanced price, or setting up an exclusive right, by an individual, to the prejudice of the public at large. By common law, this is a punishable offence.

MONSOONS. *See* TRADE-WINDS.

MOORING, in the sea language, is the laying out the anchors of a ship in a place where she can ride securely. Mooring across is laying out on each side; and mooring along, is to have an anchor in a river, and a hawser on shore. When ships are laid up in ordinary, or are under orders for fitting for sea, the moorings are laid out in harbours; and consist of claws, pendant chains, cables, bridles, anchors, swivels, jews-harps, buoys, and chains.

MOOSE-SKINS, the American *elk-skins. See* ELK.

MORDANT, or Mordicant, in dyeing, signifies those substances which are employed for the purpose of macerating the stuffs, and rendering them capable of imbibing the tinging matter. *See* DYEING.

MORESCO, or Morisco, a kind of carving, painting, &c. done in the manner of the *Moors;* where several grotesque pieces and compartments are promiscuously intermingled, not containing any perfect figure, but a wild resemblance of birds, beasts, trees, &c. They are also called *Arabesques,* particularly when used in embroideries, damask-work, &c.

MORLING, or Mortling, is that wool taken from the skin of a dead sheep, either dying of the rot, or killed, called in some counties mort-wool.

MOROCCO, or Maroquin, (Ger. *Saffian.* Du. *Levantsch leér.* Da. and Sw. *Saffian.* Fr. *Maroquin.* It. *Marrocchino.* Sp. *Marroqui.* Port. *Marroquim.* Rus. *Safian.* Pol. *Szafian.* Lat. *Caprina aluta,*) a fine kind of leather prepared of the skin of an animal of the goat-kind, and imported from the Levant, Barbary, &c.

The name was probably taken from the kingdom of Morocco, whence the manner of preparing it was borrowed, which is this: the skins being first dried in the air, are steeped in water three days and nights; then stretched on a tanner's horse, beaten with a large knife, and steeped afresh in water every day: they are then thrown into a large vat in the ground, full of water, where quicklime has been slaked, and there lie fifteen days; whence they are taken, and again returned every night and morning. They are next thrown into a fresh vat of lime and water, and shifted night and morning for fifteen days longer; then rinsed in clean water, and the hair taken off on the leg with the knife, returned into a third vat, and shifted as before for eighteen days; steeped twelve hours in a river, taken out, rinsed, put in pails, where they are pounded with wooden pestles, changing the water twice; then laid on the horse, and the flesh taken off; returned into pails of new water, taken out, and the hair-side scraped; returned into fresh pails, taken out, and thrown into a pail of a particular form, having holes at bottom: here they are beaten for the space of an hour, and fresh water poured on from time to time; then being stretched on the leg, and scraped on either side, they are returned into pails of fresh water, taken out, stretched, and sewed up all around, in the manner of bags, leaving out the hinder legs, as an aperture for the conveyance of a mixture described below.

The skins thus sewed are put in lukewarm water, where dogs' excrements have been dissolved. Here they are stirred with long poles for half an hour, left at rest for twelve hours, taken out, rinsed in fresh water, and filled by a tunnel with a preparation of water and sumac, mixed and heated over the fire till ready to boil; and, as they are filled, the hind legs are sewed up to stop the passage. In this state they are let down into the vessel of water and sumac, and kept stirring for four hours successively; taken out and heaped on one another: after a little time their sides are changed, and thus they continue an hour and a half till drained. This done, they are loosened, and filled a second time with the same preparation, sewed up again, and kept stirring two hours, piled up and drained as before. This process is again repeated, with this difference, that they are then only stirred a quarter of an hour; after which they are left till next morning, when they are taken out, drained on a rack, unsewed, the sumac taken out, folded in two from head to tail, the hair-side outwards, laid over each other on the leg, to perfect their draining, stretched out and dried; then trampled under foot by two and two, stretched on a wooden table, what flesh and sumac remains scraped off, the hair-side rubbed over with oil, and that again with water.

They are then wrung with the hands, stretched, and pressed tight on the table with an iron instrument like that of a currier, the flesh-side uppermost; then turned, and the hair-side rubbed strongly over with a handful of rushes, to squeeze out as much of the oil remaining as possible. The first coat of *black* is now laid on the hair-side, by means of a lock of hair twisted and steeped in a kind of black dye, prepared of sour beer, wherein pieces of old rusty iron have been thrown. When half-dried in the air, they are stretched on a table, rubbed over every way with a paumelle, or wooden-toothed instrument, to raise the grain, over which is passed a light couche of water, then sleeked by rubbing them with rushes prepared for the purpose. Thus sleeked, they have a second couche of black, then dried, laid on the table, rubbed over with a paumelle of cork, to raise the grain again; and, after a light couche of water, sleeked over anew; and to raise the grain a third time, a paumelle of wood is used.

After the hair-side has received all its preparations, the flesh-side is pared with a sharp knife for the purpose: the hair-side is strongly rubbed over with a woollen cap, having before given it a gloss with barberries, citron, or orange. The whole is finished by raising the grain lightly, for the last time, with the paumelle of cork; so that they are now fit for the market.

Manner of preparing red morocco. — After steeping, stretching, scraping, beating, and rinsing the skins, as before, they are at length wrung, stretched on the leg, and passed after each other into water where alum has been dissolved. Thus alumed, they are left to drain till morning, then wrung out, pulled on the leg, and folded from head to tail, the flesh inwards.

In this state they receive their first dye, by passing them after one another into a red liquor, described hereafter. This they repeat again and again, till the skins have got their first colour; then they are rinsed in clean water, stretched on the leg, and left to drain twelve hours; thrown into water through a sieve, and stirred incessantly for a day with long poles; taken out, hung on a bar across the water all night, white against red, and red against white, and in the morning the water stirred up, and the skins returned into it for twenty-four hours.

The following is the quantity and proportions of the ingredients required for the red colour, for a parcel of 36 skins:

Cochineal, 130 drams
Round suchet (crocus indicus) 45 ditto.
Gutta gamba, 15 ditto.
Gum arabic, 10 ditto.
White alum pulverized, 10 drams.
Bark of the pomegranate tree, 10 ditto.
Citron juice, 2 ditto.
Common water, 120lbs.

The alum is gradually added to the other

articles, which are thrown into a copper where they should be boiled for about two hours, till one-tenth part of the water be consumed.

The *yellow* colour is communicated to morocco in a manner similar to the preceding; the common Avignon or yellow berries being substituted for cochineal, and employed in similar proportions.

The only difference between the processes of dyeing *red* and *yellow* is, that the former is tinged with the colouring matter before it is worked or polished with the wooden instruments, whilst the latter is dyed after having been so polished

The Turks also manufacture *black, green,* and *blue* morocco; but these are not only destitute of lustre, but are extremely perishable.

The chief places, in which morocco leather is prepared, are Morocco in Africa, Astracan and Diarbekar in Turkey, which were the original seats of the manufacture. Besides these there are imitations of this species of leather prepared from goat, and sheep, skins, at Nicosia in the island of Cyprus, in Provence in France, in different parts of Spain, in Russia, and now at several towns in Great Britain and Ireland. The general name for morocco-skins, in the markets of Macedonia and Greece, is cordovans.

It is now manufactured to a considerable extent in London and its vicinity.

MORPHINE. The substance thus named by the French chymists is an alkaline salt obtained from opium, and which, in combination with a peculiar acid termed *meconic,* constitutes the narcotic principle of opium. It is in the form of greyish crystals, and is so powerful, that not more than an eighth or a quarter of a grain can, in general, be safely exhibited as a dose. It is, in many respects, preferable to opium as a medicine; being devoid of those irritating qualities dependent on the resinous matter contained in the latter substance.

Alkaline salts of the same species have been obtained from various other vegetable substances; as the alpine-laurel, nux vomica, St. Ignatius's beans, and ipecacuanha, all of which possess the principal medicinal qualities of the substances from which they are obtained, in a concentrated degree.

MORSE, or Sea Cow. (Ger. *Wallross.* Du. *Wallrus.* Da. *Hualros.* Sw. *Vallrus.* Fr. *Morse, Vache marine.* It. *Vacca marina.* Port. *Vacca marinha.* Rus. *Morsch.* Lat. *Rosmarus.*) This animal is an inhabitant of the African seas, especially about the coasts of the Cape of Good Hope. Its teeth are exceedingly white, and are preferred to those of the elephant, from their hardness, and keeping their colour to any length of time. On this account they are much employed by dentists in the formation of artificial teeth. The skin of the morse is uncommonly durable and hard, and is, therefore, oftentimes used by the natives of Africa, as covering for their huts, shields, &c. The fat of the animal is employed as a substitute for butter at the Cape of Good Hope.

MORTALITY, *Bills of,* are accounts or registers of the number of births, marriages, and deaths, in any particular district. Such have been established for the special purpose of ascertaining the progress of population, at different periods, in various places in the kingdom; but, *colloquially* at least, and even *statutably,* the expression, without particular appropriation, is supposed to refer only to a certain district about the metropolis. Such a register was established there in 1728; but so ill are the limits to which the operation was designed to extend, or to which it does actually extend, defined, that even in proceedings at law against offences, of which this locality is made an essential characteristic by statute, (as *ex. gr.* the acts against bakers for selling light bread,) it has been found impossible to ascertain them with precision.

MORTAR, is a word of diversified application. It signifies that cement of lime, sand, and water, with which stones and bricks are bound together, in order to erect edifices; it also, with some additional epithet descriptive of its particular application, signifies those cements which serve to ornament the insides of buildings, and commonly known by the names of *drawing, stucco,* &c.

In *chemistry,* it is used for a vessel somewhat resembling an inverted bell, made of brass, copper, marble, and many other hard substances, in which matters are bruised and pounded.

In the *art military,* it signifies a piece of ordnance for the throwing of shells, shot, &c. *See titles* BOMBS, CANNON, &c.

MORTGAGE, signifies a pawn of land or tenement, or any thing immoveable, laid or bound for money borrowed, to be the creditor's for ever if the money is not paid at the day agreed upon; and the creditor holding land and tenement upon this bargain, is called tenant in the mortgage. He who pledges this pawn, or gage, is called the mortgagor, and he who takes it the mortgagee.

The last and best improvement of mortgages seems to be, that in the mortgage-deed of a term for years, or in the assignment thereof, the mortgagor should covenant for himself and his heirs, that if default is made in the payment of the money at the day, then he and his heirs will, at the costs of the mortgagee and his heirs, convey the freehold and inheritance of the mortgaged lands to the mortgagee and his heirs, or to such person or persons (to prevent merger of the term) as he or they shall direct and appoint; for the reversion, after a term of fifty or a hundred years, being little worth, and yet the mortgagee for want thereof con-

tinuing but a termor, and subject to a forfeiture, &c. and not capable of the privileges of a freeholder; therefore when the mortgagor cannot redeem the land, it is but reasonable the mortgagee should have the whole interest and inheritance of it to dispose of it as absolute owner. *3 Bac. Abr. 633.*

Although after breach of the condition, an absolute fee-simple is vested at common law in the mortgagee; yet a right of redemption being still inherent in the land, till the equity of redemption is foreclosed, the same right shall descend to, and is invested in such persons as had a right to the land, in case there had been no mortgage or incumbrance whatsoever; and as an equitable performance as effectually defeats the interests of the mortgage, as the legal performance does at common law, the condition still hanging over the estate till the equity is totally foreclosed; on this foundation it has been held that a person who comes in under a voluntary conveyance, may redeem a mortgage; and though such right of redemption is inherent in the land, yet the party claiming the benefit of it, must not only set forth such right, but also show that he is the person entitled to it. *Hard. 465.*

But if a mortgage is forfeited, and thereby the estate absolutely vested in the mortgagee at common law, yet a court of equity will consider the real value of the tenements, compared with the sum borrowed. And if the estate is of greater value than the sum lent thereon, they will allow the mortgagor, at any reasonable time, to recall or redeem the estate, paying to the mortgagee his principal, interest, and costs. This reasonable advantage allowed to the mortgagors, is called the equity of redemption. *2 Bl. 159.*

It is a rule established in equity, analogous to the statute of limitation, that after twenty years' possession of the mortgagee, he shall not be disturbed, unless there are extraordinary circumstances; as in the case of femes coverts, infants, and the like. *3 Atk. 313.*

Mortgages are subject to stamp duties, but not being, like bills of exchange, and many other things noticed here, the subjects of daily transactions among mercantile men, and also the distinctions and exceptions being somewhat voluminous, we forbear from giving them.

MOSAIC, or Mosaic-work. Under the name of mosaic-work are included such performances as relate to inlaid work; as tablatures of stone, wood, metals, &c. What we are now treating upon is that which represents not only all sorts of figures in their proper colours, attitudes, and shapes, as large as those that are lasting ornaments in churches and other public edifices, but also in small, and fit to grace the cabinets of the great and curious, and imitate a picture painted in miniature.

The ancients, who practised this art with much skill and exactness, have left a variety of their performances, which are found not only in Spain, Italy, &c. but also in England. Those remaining at Rome are the finest, in the temple of Bacchus, now that of St. Agnes; and there are also curious pieces to be seen at Venice, Pisa, Florence, and other places.

The modern artists have improved very much in this performance, as is known to every traveller who has visited St. Peter's, and the palace of Borghese at Rome, St. Mark's at Venice, and the church of St. Felicia at Florence.

Such figures are composed, joined, and cemented together of various coloured stones; but since nature has scarcely, at least not sufficiently, supplied the proper shades requisite for a masterly performance, that defect has been made up by counterfeiting those colours, by art, in glass; which is done in the following manner:

The glass materials are put in the crucibles or melting-pots, and being in fusion, such a colour is added as you would make your shades with, beginning with the lightest. Having mixed it well, and taken out the quantity you think proper with an iron ladle, put it on a smooth marble, flatting it with another to a proper thickness; then cut it quickly into small pieces, laying them, when cold, in a box for use: add more colour, and proceed as before, repeating it till you come to the deepest shade. If you would gild them, wet them on one side with gum-water, and lay leaf-gold upon them; and in an iron-shovel, covered with pieces of other glass, heat them red-hot in the mouth of a furnace, then take them out, and when cold, the gold will be so fixed and firm that nothing can hurt it.

When you begin to work, lay a thick ground against the ceiling or wall, with plaster, and having your design ready drawn and painted, on blue or brown paper, fasten part of it upon the wet plaster, and with a pair of small plyers, take up the small stones, and press them in their proper places; forming the figures and shades in their respective colours, as you are directed by your painted model. In this manner is done the history of "Our Saviour's walking with Peter on the sea," in St. Peter's church at Rome.

MOTHER-OF-PEARL, (Ger. *Perlmutter.* Du. *Paarlemoer.* Da. *Perlemor, Perlamoder.* Sw. *Perlmo.* Fr. *Nacre.* It. *Madreperla.* Sp. *Madre de perlas, Concha de nachar.* Port. *Madrepola.* Rus. *Schemtsékufhnaja rakowina.* Pol. *Mercica perlowa.* Lat. *Mater perlarum.*) is the shell of the mytilus margaritiferus, or pearl-bearing muscle. It has the shell compressed and flat, nearly orbicular, the base transverse, and imbricated with dentated coats. It dwells in the ocean of either Indies. On the other

side it is exquisitely polished, and of the whiteness and water of pearl itself. It has also the same lustre on the outside, after the external laminæ have been taken off, by aqua fortis and the lapidary's mill. Mother-of-pearl is used in inlaid works, and in several toys, &c.

MOULD, in the mechanic arts, is a cavity cut, with intent to give its form or impression to some softer matter applied therein. In melting the mineral or metal glebe dug out of the earth, the miners or workmen have each their several moulds to receive the metal as it comes out of the furnace; but these are different according to the diversity of metals and works.

In gold mines they have moulds for ingots; in silver mines for bars; in copper and lead mines for pigs or salmons; in tin mines for pigs or ingots; and in iron mines for sows, anvils, chimney-backs, cauldrons, pots, boilers, and various merchandise of iron.

The following are the principal compositions and descriptions of moulds used in the mechanic arts:

Moulds of founders of large works, such as statues, bells, guns, &c. are of wax, supported withinside by what is called *a core*, and covered on the outside with a cap or case.

It is in the space which the wax occupied, which is afterwards melted away to leave it free, that the liquid metal runs, and the work is formed, being carried through a great number of little canals, which cover the whole mould.

Moulds of founders of small works are frames full of sand; it is in these frames, which are likewise filled with sand, that their several works are fashioned, into which, when the two frames whereof the mould is composed are rejoined, the melted brass is run.

Moulds of letter-founders. — These are partly of steel, and partly of wood; the latter, strictly speaking, serve only to cover the real mould which is within, and to prevent the workman, who holds it in his hand, from being incommoded by the heat of the melted metal.

Only a single type or letter can be formed at a time in each mould.

Moulds for paper-makers.—These are little frames composed of several brass or iron wires fastened together by another iron wire still finer.

Each mould is of the bigness of the sheet of paper intended to be made, and has a rim or ledge of wood to which the wires are fastened.

These moulds are usually called frames or forms.

Moulds for glaziers. — These are of two kinds, both serving to cast their lead: in the one the lead is cast into long rods or canes fit to be drawn through the vice, and the grooves formed therein; this they sometimes term ingot mould. In the other they mould those little pieces of lead a line thick and two lines broad, fastened to the iron bars. These may be also cast in the vice.

Moulds for goldsmiths. — The goldsmiths use the bones of the cuttle-fish to make moulds for their small works, which they do by pressing the pattern between two bones, and leaving a jet or hole to convey the silver through, after the pattern has been taken out.

Moulds for masons. — The mason's mould is a piece of hard wood, or iron, hollowed withinside, answerable to the contours of the mouldings or cornices, &c. to be formed. This is otherwise called a *caliber*.

Moulds for plumbers are the tables whereon they cast their sheets of lead. These they call simply *tables*, besides which they have other real moulds, whereon they cast their pipes without soldering.

Moulds for tallow-chandlers are of two kinds; the first for the common dipped candles, being the vessel wherein the melted tallow is disposed, and the wick dipped.

These are made of wood of a triangular form, and supported on one of its angles, so that it has an opening at top of nearly a foot; the other used in the fabric of mould-candles is of brass, pewter, or tin.

Each candle has here its several mould.

Mould among gold-beaters, a certain number of leaves of vellum, or pieces of guts cut square, of a certain size, and laid over one another, between which they put the leaves of gold and silver, which they beat on the marble with a hammer.

Gold-beaters have four kinds of moulds, two whereof are of vellum, and two of gut; the smallest of those of vellum consists of forty or fifty leaves, the largest contains a hundred; for the other, each contains five hundred leaves.

The moulds have all their several cases, consisting of two pieces of parchment, serving to keep the leaves of the mould in their place, and prevent their being disordered in beating.

MOUNTAIN-WINE, a rich, sweet white-wine, which is produced in the neighbourhood of Malaga in Spain. *See* WINE.

MOUNTAIN BLUE, an ore of copper of a blue colour, most frequently of a loose pulverulent form, but sometimes indurated and even crystallized, but then it is mixed with quartz. According to Proust it differs from the green carbonat only in containing a large proportion of water, the simple loss of which changes its colour from blue to green.

MOUNTAIN GREEN is likewise a carbonat of copper, generally found in a loose and friable state, rarely crystallized and indurated, often mixed with calcareous earth and iron, and some arsenic. *See* MALACHITE.

MOUTH GLUE, (Ger. *Mundleim.* Du. *Mondlym.* Da. *Mundlim.* Sw. *Munlim.* Fr. *Colle à bouche.* It. *Colla da bocca.* Sp. and Port. *Cola de boca,*) a preparation of the common glue, so called, because it dissolves in the mouth, and then becomes fit for use. It is made of the finest common glue, which they break into small pieces, and soften by steeping in cold water for two days. They decant the water that swims above, and then melt the softened glue with a gentle heat. When it is very fluid, they incorporate therewith half its weight of ground sugar, of which the solution is assisted by a continual movement. This is run on a marble that has been rubbed with a linen cloth, which has imbibed good olive-oil. This plate is left to cool and congeal for four or five days; it is then extended on a towel doubled into four; it is covered again with another towel, and the whole charged with a plank on it. By this means it is not only flattened and rendered more compact, but all the oil is pressed out that might have been taken up from the marble. This pressure is renewed; and they cause the towels to be warmed, in order to produce more speedily the desired effect. It is then cut into small tablets or plates. These little cakes are dried, in replacing them between hot cloths, and loading them as before; this is repeated until the glue is dry and brittle. It is useful for various purposes in which a delicate cement is desirable.

MOZO, a measure in Spain and Portugal.

MUCILAGE, a general term used to denote a substance soluble in water, whether hot or cold, with which it forms a transparent, adhesive, or gluey mass. When obtained from vegetables, it is distinguished by the name of *gum;* that from animal substances, is called *glue* or *gelatine.*

MUCKEN, or Macken, a Flemish measure.

MUFF, (*Muffs.* Ger. *Muffen.* Du. *Moffen.* Da. and Sw. *Muffer.* Fr. *Manchons.* It. *Mannicotti.* Sp. *Manguitos.* Port. *Manguitos, Regalos.* Rus. *Muftii.* Pol. *Rekawie,*) an article of dress, used chiefly by ladies for keeping the hands and arms warm. They are made of the skins of the bear, fox, Angora-goat, &c. They are principally manufactured at London, and are sold from one guinea up to twenty, according to the quality and description of the skin. *See* FUR.

MUID, a dry measure in France for corn, pulse, salt, lime, coals, &c. The muid of charcoal contains twenty mines, sacks, or loads.

Muid is also a liquid measure for wine, &c. used in France. It is divided into two demi-muids, four quarter muids, eight half quarter muids. *See* WEIGHTS AND MEASURES.

MULCTS, fines laid on ships or goods, for the maintenance of consuls, garrisons, &c.

MULE, an animal bred between a jack-ass and a mare; one of the most useful known, for draught, or burden. Those of Italy, and Spain, particularly the latter, are the finest in the world, and indeed so valuable that the exportation of them is prohibited. They have been bred in some of the West India islands of a large size, and are found extremely useful in the plantations. They are much more hardy, as well as safe-footed, than horses, and are kept upon provender that horses will not thrive upon.

The term mule is also, with us, applied metaphorically to a machine used in the manufacture of cloth.

MULLER, or Mullar, denotes a stone flat and even at the bottom, but round at top, used for grinding various articles on a marble. The apothecaries use mullers to prepare some of their testaceous powders; and painters for their colours either dry or in oil.

MUM, a kind of malt liquor, much drunk in Germany, and formerly in England. The name commonly occurs in the statutes relating to exciseable liquors.

Take sixty-three gallons of water that has been boiled into a third part, brew it with seven bushels of wheatened malt, one bushel of oat malt, and one bushel of ground beans; when it has worked or fermented a while in a hogshead not too full, put into it of inner rind of fir three pounds, tops of fir and birch one pound, *carduus benedictus* three handfuls, flowers of *rosu solis* a handful or two; burnet, betony, marjoram, penny-royal, wild thyme, of each a handful and a half; of elder flowers, two handfuls; seeds of cardamom bruised, thirty ounces; barberries bruised, one ounce. When the liquor has done working, fill it up; and at last, put into the hogshead ten new-laid eggs, stop it up close, and at two years' end it will be fit for use.

MUNDIC, *maxy,* a kind of marcasite, found in the tin mines, generally of a dark brown colour. The miners use no other vulnerary, but washing their wounds in water that runs from the mundic ore.

MURAIS, or Morais, a measure for rice and corn, used by the Portuguese at Goa, containing twenty-five paras, each para weighing twenty-two Spanish pounds.

MUSCADINE, a rich wine of the growth of Provence, Languedoc, and other parts of France. *See* WINE.

MUSCOVY-GLASS, consists of broad, elastic, flexible, transparent leaves, and differs externally from mica, only in being softer, and more soapy to the touch. It is capable of being split into laminæ of the two or three hundredth part of an inch thick, and the plates naturally exhibit a strong electric state, affording sparks, when

torn asunder in the dark, even though previous friction be carefully avoided.

MUSHROOM STONE, a stone used in Italy for producing mushrooms, by keeping it moistened with water in a cellar. There appear to be two kinds of it; one found in the chalk-hills near Naples, resembling a white stalactite, intermixed with fine roots of shrubs; the other is a hardened turf from some volcanic mountains near France. To render these stones more productive, and prevent their quality of producing mushrooms from being exhausted, it is necessary to moisten them with water, in which mushrooms have been washed.

MUSK, (Ger. *Bisam, Moschus.* Du. *Muskus.* Da *Desmer.* Sw. *Desman.* Fr. *Musc.* It. *Muschio.* Sp. *Almizele.* Port. *Almiscar.* Rus. *Muskus.* Pol. *Pizmo.* Lat. *Moschus,*) a very strong-scented substance, found under the belly of the male of a species of goat, called *moschus mociferus.* After killing the animal, the peasants cut off the bag containing the musk. It is about the size of a hen's egg, and is situated nearer to the organs of generation, than the navel. In its original state, it is nothing more than putrid blood, which coagulates in this bag. The largest bladder does not furnish above half an ounce of musk, and that of the common size seldom more than a quarter of an ounce. Musk affords such a strong smell that it becomes disagreeable, if not kept at a distance, or weakened by the admixture of other substances. It is likewise so fixed and permanent, that at the end of several years it seems to have lost no part of its pungency. It comes to us dry, with a kind of unctuosity, of a dark reddish, or rusty blackish, colour, in small round grains, with very few hard black clots, and perfectly free from any sandy, or other visible foreign, matter. If chewed, and rubbed with a knife on paper, it looks smooth, bright, yellowish, and free from bitterness. Laid on red-hot iron it catches flame, and burns almost entirely away, leaving only an exceedingly small quantity of light greyish ashes: if any earthy substances have been mixed with the musk, the quantity of the residuum will readily discover them. The best and greatest quantities of musk come from Thibet, whence they are carried for sale to Patna, the chief town of Bengal.

A carnivorous quadruped, met with in China, and the East, and West, Indies, called a civet or musk cat, but bearing a greater resemblance to a fox or a marten than a cat, produces musk in abundance. Several of these animals have been brought into Holland, and afford a considerable branch of commerce, especially at Amsterdam. It is not necessary to kill the civet-cat in order to obtain its musk, which in summer is squeezed out of its pouch every other day, and in winter twice a week. The quantity produced at once is from two scruples to a drachm or more. The juice thus collected is much purer and finer than that which the animal sheds against shrubs or stones in its native climates.

The species of musk-cat which inhabits Siberia yields a very inferior sort of musk, having the flavour of castor. This animal is a diminutive of the beaver, and is also to be met with in North America.

Musk is much used as a perfume; the Italians make it an ingredient in perfumed oils, and thus obtain the whole of its scent; for oils dissolve the entire substance of musk. As a medicine, musk is held in high estimation in the East, and has been introduced into very general use among Europeans, especially in those disorders which are commonly termed nervous: and in convulsive cases it is often given in large doses with great success.

MUSK-SEED, (Ger. *Bisamkörner.* Du. *Muskuszaad.* Da. *Desmerkorn.* Sw. *Desmanskorn.* Fr. *Ambrette, Grain musquee.* It. *Granelli d'ambretta.* Sp. *Ambarilla.* Port. *Ambaralhi.* Pol. *Ziarka pigmowe.* Lat. *Abelmoschi grana,*) is the seed of a plant which grows in Egypt, the West Indies, and in Gallam, a kingdom of Africa. This seed yields an odour precisely similar to that of real musk, and is accordingly employed with success in the composition of several species of perfume. The Italian perfumers consume vast quantities of it, and in France it is customary to form it into necklaces, bracelets, and other toys, for the use of children. The musk-seed brought from the island of Martinico is accounted better than any other. This seed ought to be chosen fresh, plump, dry, perfectly clean, and of a strong odour. *See* AMBER-SEED.

MUSKET, (*Muskets.* Ger. *Flinten.* Du. *Musketen.* Da. *Flinter, Musketer, Musqueter.* Sw. *Bössor.* Fr. *Fusils, Mousquets.* It. *Schioppi, Moschetti.* Sp. *Escopetas.* Port. *Espingardas, Mosquetes,*) the sort of gun or fire-arm generally used by foot-soldiers. The length of the *regulation musket,* or that which is in use among the regular army, is fixed at three feet eight inches from the muzzle to the pan.

MUSKETOON, a kind of short thick musket, whose bore is the thirty-eighth part of its length.

MUSLIN, (Ger. *Musselin, Nesseltuch.* Du. *Neteldoek.* Da. *Netteldug.* Sw. *Nätteldukk.* Fr. *Mousseline.* It. *Moussolina.* Sp. *Moselina.* Port. *Cassa, Caça, Musselina.* Rus. *Kissea.* Pol. *Muslin,*) is derived from the word *mousale* or *mouseln,* a name given to it in Mesopotamia, where large quantities are made. It is a fine thin sort of cotton cloth, which bears a downy nap on its surface. Formerly all muslins were imported from India; but at the present day very considerable quantities are manufactured at Manchester, Glasgow, Paisley, &c. which

for fineness and durability are little inferior to those of the East; and it is a singular fact, that we now export large quantities of muslin, of British manufacture, to India, because we can afford to sell them at a price inferior to what they can be manufactured for there. British muslins, nevertheless, acquire a yellowish cast, after they have been repeatedly washed; whilst the genuine Indian muslins retain their original whiteness. This is supposed to arise from the cotton composing the former being spun by machinery, the latter by the hand. Muslins are of various qualities and descriptions, according to which they are named. The most considerable of these species are noticed under their proper heads. In general muslins are perfectly plain, but they are not unfrequently ornamented with raised and open work; and are oftentimes painted, printed, and dyed.

MUST. (Ger. and Du. *Most.* Da. and Sw. *Must.* Fr. *Moût.* It. *Mosto.* Sp. *Musto.* Port. *Mosto.* Rus. *Melodoe winoe.* Pol. *Moscz.* Lat. *Mustum.*) The juice of the grape previous to the commencement of fermentation. The word is likewise occasionally used to denote other saccharine juices in the same state.

MUSTARD, (Ger. *Mustert, Senf.* Du. *Mostert.* Da. *Senep.* Sw. *Mostert.* Fr. *Moutarde.* It. *Mostarda.* Sp. *Mostaza.* Port. *Mostarda.* Rus. *Gortschiza.* Pol. *Musztarda.* Lat. *Sinapis,*) is a plant of which there are seventeen species, three of which are natives of Great Britain; the *sinapis alba, nigra,* and *arvensis.* The alba or white mustard, which is frequently cultivated as a salad-herb, for winter and spring use, produces white seeds, employed for making the sauce called mustard.

The nigra, or common mustard, is frequently found growing naturally, but it is also cultivated in fields, for its brown seed.

The arvensis grows on arable land in many parts of Great Britain. The seed of this is sold under the name of Durham mustard-seed. The white, and brown, are commonly imported from Holland, though always inferior to that of English growth. Brown is more valuable than white, and is chiefly used for pickling.

Mustard, by its pungency, stimulates the solids; and hence it is recommended for exciting appetite, assisting digestion, promoting the fluid secretions, and for the other purposes of the acrid plants called antiscorbutic. It imparts its taste and smell in perfection to aqueous liquors, and by distillation with water yields an essential oil of great acrimony. To rectified spirit its seeds give out very little either of their smell or taste. Subjected to the press, they yield a considerable quantity of mild and insipid oil, which is as free from acrimony as that of almonds. They are applied as an external stimulant to benumbed or paralytic limbs, to parts affected with rheumatic pains, and to the soles of the feet, in the low stage of acute diseases for raising the pulse.

Flour of mustard is the name given by traders to the seed of mustard, reduced by grinding to the state of an impalpable powder.

Mustard is much cultivated about Wisbeach. A good crop will yield five or six coombs per acre, and it sells from 8*s.* to 21*s.* a bushel. It is, after being in full blossom, subject to a fly, which damages it greatly.

In newly-inclosed marsh or fen land, mustard is often the chief crop. They sow a quarter of a peck of seed per acre, from Candlemas to the end of March; hand-hoe the plants once or twice, as wanted, thinning and setting them out at nearly equal distance. The crop is reaped the beginning of September, and tied in sheaves, leaving it three or four days on the stubble: it is stacked in the field, and these stacks are called *pies.* If it get rain in the field, it turns grey, and loses half its value. It is threshed in the autumn, being left for a sweat, which improves the colour. A good crop amounts to six or seven coombs an acre, and the common price at Lynn is about 20*s.* a bushel; but is sometimes so low as 7*s.* 6*d.* to 10*s.* a bushel. The common practice near Wisbeach, is to sow four crops in succession; the second is usually as good as the first: and after four years' mustard, they have a crop of wheat and then fallow. In old cultivated lands, four or five coombs is a good crop.

MUTUAL DEBTS. Where two traders are indebted to each other, one debt may be set off against the other, and in cases of bankruptcy, mutual credits, as well as mutual debts, may be set off.

MUTUAL PROMISE, is where one man promises another to pay money, or do some other act, and he, in consideration thereof, promises to do a certain act, &c. Such promises must be binding, as well on the one side as the other; and both made at the same time. 1 *Salk.* 21.

MYRIAD, the number of ten thousand.

MYRRH, (Ger. *Myrrhen.* Du. *Mirrhe.* Da. *Myrre.* Sw. *Myrha.* Fr. *Myrrhe.* It. and Sp. *Mirra.* Port. and Lat. *Myrrha,*) a gum resin, brought from the East Indies, and likewise from Alexandria, Smyrna, and Aleppo.

This gummy resin is liable to great abuses; the larger masses in particular are frequently no other than some artificial composition, skilfully incrustated on the outside with a solution of myrrh. Some report that bdellium is nearly allied to myrrh, and not easily to be distinguished from it; the differences, however, are sufficiently obvious, bdellium being darker coloured, and less transparent, than good myrrh, internally soft and tenacious, (which myrrh never is), yielding a quite different smell, and wanting its bitterness.

Of the tree which produces myrrh we have no certain account; according to Bruce, it belongs to the *genus mimosa,* and grows in Abyssinia and Arabia.

Grand Cairo is the great staple for the myrrh-trade; but by far more considerable quantities are brought from Arabia Felix, than from Ethiopia and Abyssinia; and the quality of the latter, distinguished also by the name of Troglodite myrrh, was always more valued.

MYRTLE-BERRY is the fruit of the myrtle. We are supplied with it from the southern part of Europe. These berries are a strong astringent, and in that capacity were formerly much used in pharmacy. They are now used in perfumery, affording an agreeable essence. They will also yield a blue colour for dyeing, and would be useful in tanning thin leather, where a sufficient quantity can be procured at a moderate expense.

MYRTLE-WAX. This substance, obtained from the *myrica cerifera,* has in part the tenacity of bees' wax, without its unctuosity, and along with it, in some degree, the brittleness of resins. Its colour is a pale green. Specific gravity about 1.015. It melts at 109°; and, at a temperature sufficiently high, burns with a peculiarly clear, white flame, producing little smoke, and emitting an agreeable aromatic smell. Water has no action upon it. About four-fifths of it are soluble in 20 times its weight of alcohol at a boiling heat; but it is deposited by cooling, and standing a few days. Oil of turpentine softens it, and by the assistance of heat dissolves it. Caustic potash by boiling converts it into a soap. The mineral acids act upon it, though feebly. From all its habitudes it appears to be a fixed vegetable-oil rendered concrete by the addition of oxygen.

MYSTERY, in its commercial application, means any trade or art which requires *skill*; and therefore the previous preparation of an apprenticeship before it can be exercised. In this sense it is frequently to be met with in our statutes.

N, The thirteenth letter of the alphabet. As a numeral it stands for 900; and with a dash over it thus, $\overline{N}$, stands for 900,000. N. or N°. stands for *numero,* or number; and N. B. for *nota bene,* note well, or observe well. N. P. for *Notarius Publicus,* or Notary Public.

NAIL, a measure of length, containing the sixteenth part of a yard.

NAILS, (Ger. *Nägel, Spiker.* Du. *Spykers.* Da. *Spiger, Söm.* Sw. *Spikar.* Fr. *Cloris.* It. *Chiodi, Chiovi, Aguti.* Sp. *Clavos.* Port. *Cravos, Pregos.* Rus. *Gwosdi.* Pol. *Gozdzie,*) are small spikes of iron, brass, &c. which being driven into wood, serve to bind several pieces together, or to fasten something upon them. There are various sorts of nails: as *back and bottom nails,* which are made with flat shanks to hold fast, and not open the wood; *clamp-nails,* for fastening the clamps in buildings, &c.; *clasp-nails,* whose heads clasping and sticking into the wood, render the work smooth, so as to admit a plane over it; *clench-nails,* used by boat and barge-builders, and proper for any boarded buildings that are to be taken down; because they will drive without splitting the wood, and draw without breaking; of this there are many sorts; *clout-nails*; used for nailing on clouts to axle-trees; *deck-nails,* for fastening of decks in ships, doubling of shipping, and floors laid with planks; *dog-nails,* for fastening hinges on doors, &c.; *flat-points,* much used in shipping, and proper where there is occasion to draw and hold fast, and no inconvenience of clenching; *jobent-nails,* for nailing thin plates of iron to wood, as small hinges on cupboard-doors, and the like; *lead-nails,* for nailing lead, leather, and canvas, to hard wood; *port-nails,* for nailing hinges to the ports of ships; *pound-nails,* which are four-square, much used in Norfolk, Suffolk, and Essex, and scarcely any where else, except for paling; *ribbing-nails,* for fastening ribs of ships in their places; *rose-nails,* which are drawn four-square in the shank, and commonly in a round tool, as all common two-penny nails are; in some countries all the larger sort of nails are made of this shape. *Rother-nails,* which have a full head, and are chiefly used in fastening rother-irons to ships; *round-head-nails,* for fastening on hinges, or for any other use where a neat head is required; these are of several sorts; *scupper-nails,* which have a broad head, and are used for fastening leather and canvas to wood; *sharp-nails,* having sharp points and flat shanks, and are much used, particularly in the West Indies, for nailing soft wood; *sheathing-nails,* for fastening sheathing-boards to ships; *square-nails,* which are used for hard wood, and nailing up wall-fruit; *tacks,* used for fastening paper to wood, the middle size, for wool cards, upholsterers, pump-makers, &c. There is scarcely a town or village in Great Britain in which *nails* are not forged; but the prin-

cipal seats of this useful branch of the manufactures are at Birmingham, Wolverhampton, Dudley, Sheffield, and a small district in the county of Derby. This manufacture is of great importance, from the consumption of the commodity in all the mechanic arts and trades. It was the subject of a patent in 1808, the object of which was intended to expedite the operation, but the Americans are said to exceed us much in the whole of this manufacture.

NAINSOOKS, a species of Bengal muslins.

NALI, or HALI, an East Indian weight. *See* GUPPAS.

NANKEEN, or NANKING, (GER. *Nanking.* DU. *Nankings linnen.* DA. and SW. *Nanking.* FR. *Toile de Nankin.* IT. *Nanquino.* SP. *Nanquina,* PORT. *Nanquin,*) a species of cotton cloth closely woven. It takes its name from Nanking a city of China, where the reddish thread of which the stuff is made, was originally, and still is, spun. This manufacture has been carried to the highest pitch of perfection in the East Indies, where vast quantities of white, pink, and yellow nankeens are made. At Manchester, and in other parts of Great Britain, these articles are imitated with success; though the British nankeens are inferior, it must be allowed, to those of India, but time may bring them to the same perfection. The Indian nankeens are not only more durable, but hold their colour much longer than the British; which can scarcely undergo three washings without being altered. The cotton employed by the Orientals in the manufacture of nankeen, is *naturally* of a reddish colour, whereas we are obliged to impart the proper hue to our material by means of dyeing; this will serve to account for the durability of colour in the one commodity, and the weakness in that of the other.

The nankeens imported into England by the East India Company come under the general denomination of piece-goods; their qualities are various, and there is generally abundance of them in the market. Nankeens are mostly used in England in the formation of trowsers, and waistcoats, for men's wear, during the summer, and for women's pelisses, &c. In some of the more southern parts of Europe, and in the warmer countries of Asia and America, as also in the British settlements in Africa, nankeen is worn by both sexes, the whole year round, and constitutes the chief part of their external attire.

Cotton has a very strong affinity for oxide of iron, so that if it be immersed in a solution of any salt of iron, it assumes a chamois colour, more or less deep, according to the strength of the solution. The action of the air on the oxide of iron deepens the colour, and if the shade were at first deep, the texture of the stuff is liable to be corroded by it. To prevent this, the cotton should be immersed in the solution cold, carefully wrung, and immediately plunged into a ley of potash, mixed with a solution of alum, After having lain in this four or five hours, it is to be wrung, washed, and dried.

To give a nankeen-colour, prepare the cotton yarn by boiling it five hours in a mixture of water made grass-green with sheep's dung, and a solution of white soap; twice more, an hour each time, with half the quantity of soap; and a fourth time in a ley of pot or pearl ashes, one pound to twenty of yarn, another hour. Then pass it through iron, to every gallon of which, half a pound of red chalk or ruddle in powder must be added, the liquor being poured off clear, after it has stood four hours to settle, and immerse it in an alkaline lixivium. When the proper colour has been obtained, for which this operation may be repeated, if necessary, dry it, as after each of the former processes, then put it into a warm lixivium, in which it is brought to a scald. It is afterwards to be soaked an hour in water, made almost as sour as lemon-juice, with sulphuric acid, and then washed and wrung twice. Lastly, it is to be boiled slowly an hour in a solution of white soap, one pound to ten of the yarn.

NANQUE, the smallest weight used at Madagascar for weighing gold and silver; it is equal to six grains.

NAPHTHA. (GER. and DU. *Bergbalsam.* DA. *Biergbalsom.* SW. *Bergbalsam.* FR. *Napthe.* IT. SP. and PORT. *Nafta.* RUS. *Nefti.* POL. *Kley ognisti.* LAT. *Naphtha.*) A fine thin, fragrant, colourless oil, which issues out of white, yellow, or black clays, in Persia or Media, is known by this name. It burns with a blueish-yellow flame; is as inflammable as ether; and, like it, extracts gold from aqua regia. It is not decomposed by distillation; and yet, if long exposed to the air, it changes colour, thickens, and degenerates into petrol. Its smell is very different from that of vegetable oils; it dissolves resins and balsams; but neither gum resins, nor caoutchouc. It dissolves the essential oils of thyme and lavender; but is insoluble in spirit of wine and ether. Its specific gravity is 0.708.

NAPLES YELLOW. (GER. *Napelgelb, Neapolitanisch gelb.* DU. *Napels geel.* DA. and SW. *Neapelgult.* FR. *Jaune de Naples.* IT. *Giallolino.* SP. *Amarillo de Napoles.* PORT. *Amarello de Napoles.* RUS. *Spelt Neapolitanskaja.*) According to Professor Beckmann, this colour is prepared by calcining lead with antimony and potash in a reverboratory furnace. The proportions are different, but the antimony appears never to exceed four-fifths of the lead, or be less than half: and the potash varies from two-fifths of the weight of the metals to an eighteenth. Sometimes also common salt is added.

NARD, *Indian*, or SPIKENARD, (GER. *Spikanarden, Indianische, Narden.* DU. *Spikanard, Indische Spikanard.* DA. *Spikenardes, Indisk Spikrod.* SW. *Spikanarde.* FR. *Nard Indien, Spicanard.* IT. *Spigo nardo.* SP. *Espicanardi, Nardo-Indiano.* PORT. *Epicanardo, Nardo Indiano.* RUS. *Spikanard.* POL. *Spikanarda.* LAT. *Nardus, seu Spika Indica.*) consists of a number of slender, brittle filaments, supposed by some to be the root, by others the pedicle of the leaves of a plant of the grass or rush kind; but which are properly the head of a root: for Pomet mentions and figures a specimen, which had great part of the root adhering. According to Sir William Jones, it is a species of valerian. Spikenard has a very strong, not agreeable, smell and taste, scarcely to be concealed by a large admixture of other substances. In the Theriaca Cœlestis, a mixture of many drugs of strong smells and tastes, spikenard enters, but in a small quantity, into the composition, and yet prevails over all the rest. It contains but a small proportion of essential oil.

NASARA, a silver money, struck at Tunis, of a square figure.

NATIONAL DEBT, is a debt due by any whole political community, as represented by their legislature and government. It can be contracted only by the authority of the sovereign power of the community, for purposes which are referable to the good of the whole. A dissolution of the political combination of the state, virtually abolishes, perhaps with injustice, the rights of those to whom the debt of the nation is due. No unauthorised act of any individuals of the nation, can contract a debt, which it shall be incumbent on the community to pay.

It is only since the æra of the Revolution in 1688, that the British legislature and government have succeeded in forming to themselves that stability of national credit, which gives them the command of the opulence almost of the whole world, and which has enabled them to contract national debt, to an amount, of which it is hardly possible to think without astonishment. In the case of the national debt of Great Britain, the system of public credit, and of providing for public exigencies by borrowing, has been carried to such a pitch, and has been so completely unfolded in almost all its possibilities and relations, that in considering it alone, we may easily acquaint ourselves with all that is necessary to be known concerning this subject.

It is impossible that national debt, where a legislature and government have credit to contract, can have a speedy tendency, which has been ascribed to it, to ruin the nation; otherwise, Britain must, long ere this time, have been utterly undone by the weight of its public debts.

In truth, the scheme of providing for the public exigencies by contracting national debt, rather than by exacting at once from the state the whole sum which is wanted, is, a plan for taking one pound from me to-day, out of ten pounds which I possess, and for charging me with an annual rent of sixpence upon the nine pounds left me, instead of taking away my whole ten pounds at once and burthening me with no annual charge whatever.

The rise of the present system of national debt in England was gradual and experimental. Neither the wishes nor the abilities of the people could have supplied those moderate sums which were requisite for the wars of William the Third; if the plan of borrowing upon the credit of the taxes of future years, had not been adopted. A part, the people were not unwilling to advance. What remained to them was a capital, by the prudent and industrious use of which, they were enabled to provide the other payments against the stipulated time, without any farther diminution of their capital.

The expenditure of the national debt contracted in the reign of king William, and of his successor queen Anne, was attended with one peculiar disadvantage. It was consumed chiefly in wars on the continent, the necessaries for which were supplied by the Dutch, and by the other trading, manufacturing, and agricultural people of the continent, not in any great proportion, by the British nation. The agriculture, manufactures, and trade of Britain had not then risen to a pitch of greatness, at which all money expended in war, must, for the greater part, be paid for articles of their produce. Very much of that money which was borrowed to be spent in the wars of king William and queen Anne, was utterly lost to the nation in consequence of the manner in which it was laid out. Nevertheless, the raising of it by loan, rather than by direct exaction, left still so much more of capital, than would otherwise have been left in the hands of those who wanted it the most; that, at the end of a few years, the nation felt itself to have been little, if at all, impoverished by the debt and expense.

In every subsequent period of the British funding system, the case has been still the same. While only interest was to be paid, instead of a capital, abstracted at once from the peasant, the artisan, the farmer, the landholder, the merchant, these different persons were enabled to augment the capital which remained to them in such a manner, that there was soon, above its original amount, a surplus more than adequate to that which they were to pay in perpetual interest. Had their capital been taken away at once, no second such contribution could have been obtained, no loan could ever after have been raised.

Besides, in the progress of British affairs,

such have been the changes in our agriculture, manufactures, and trade, that almost all money, laid out by the British government, whether in naval equipments, military expenditure, or subsidies, must quickly find its way back into the strong boxes of our merchants, into the pockets of our artisans, peasantry, and sailors. It is almost all to be laid out upon the produce of British industry. This order of things has been continually confirmed and extended in the progress of the eighteenth century. Its direct tendency has been, to render all our public expenditure, and in particular, that which is supplied by the contracting of national debt, less injurious to the general prosperity of the empire, than it would otherwise necessarily prove.

Had we raised by direct exaction all that has been necessary for the public expense in the course of the present century, our traders, agriculturists, manufacturers, must have been without capital; we could have had no happy influence in the political system of Europe; we should have had few or no establishments of splendour and luxury dispersed over the land. On the contrary, as things now are, the surplus wealth of the whole nation, above what would be sufficient to pay off the property of foreigners, is, most probably greater, undoubtedly not less, than if we had never experienced any necessities of public expenditure, such as to demand either loans or extraordinary exactions.

Why, then, have the loans of the present war been procured on terms less favourable than those on which the loans of the American war were obtained? Why were the terms of the loans of the American war more disadvantageous than those of the war which preceded it?

It is true, that in the course of this period, the interest upon the public loans has gradually risen from the rate of not much more than 1-30th per cent. to little less than 1-18th per cent. But, in the case of many of these loans, the bargain with the lenders has been more or less favourable, in consequence of temporary and accidental causes, unconnected with the real advantages or disadvantages of this mode of providing for extraordinary public expenditure. Such were the popularity or unpopularity of a war or a minister, a good or bad harvest, the humours of a few monied men, transient errors of public opinion, in regard to the true nature of funding, &c. &c. As to all else, the increasing weight of the interest upon the successive loans to the public, has, undeniably, its origin from the increase of our national prosperity. Trade continues to be profitable during war. An immense capital is employed in manufactures which were before unknown. A prodigious additional capital is applied to the works of agriculture, since the farmer is now no longer a poor, naked peasant, but, in truth, a thriving manufacturer and merchant. Canal-companies, insurance-companies, and so many others, present to the monied men, a multiplicity of other advantageous ways of investing their property, so sure and so lucrative, as to come into competition with the funds created by the government. These are the true general causes of the gradual enhancement of the interest upon the public loans.

But, what then, are the direct and immediate commercial utilities of the public funds?—1. In the first place, the general sense of the public necessities, for the sake of which those funds were created, has ever tended to excite to new industry, to restrain to new frugality, and thus to command that improved activity and discretion by which alone the general wealth can be, at any time, increased. 2. The creation of these funds has, from time to time, called forth into a circulation, in which it redoubles, or even farther multiplies itself, money which might have otherwise been uselessly locked up, or perhaps transferred to other countries and nations. 3. Funding is, virtually, the sale of a right to a certain part of the annual produce of the lands, industry, and trade of the country, to those who become proprietors of the stock. It therefore contributes, in the happiest manner, to the reciprocal communication between labour and capital, money-wealth, and wealth-in-land, of their respective advantages. The interests of the land-holders, the possessors of money-capital, and the labourers, were never, in any other country, so well associated, and, as it were, amalgamated together, as in Great Britain. This is, in a great measure, the effect of the existence of the public funds of the national debt. 4. We could not possess any great reservoir of money and commercial credit equal to money, upon the faith of less than national security. We could have no great national bank, in any degree, adequate to the commercial necessities of the British empire, upon any other foundation, than that of the plighted faith of our legislature and government. If it were possible that the whole capital of the British national debt, could have been squandered away, without contributing to either improvement or defence, yet could, in all other respects, have remained such as it is at present; even in that case, the commercial advantages which have been stated, as resulting from the existence of this national debt, are, perhaps, sufficiently great, to make us desire rather to bear, than to be wholly free from it. 5. Beside that part of the public funds which has formed a basis for our banking system, the rest of the stock is, likewise, an admirably useful engine of commerce. It is, in truth, a sort of money which does not necessarily pass in continual circulation, yet is ever ready to be put, with

little difficulty, into a moderate circulation, whenever the necessities of trade shall demand an increase in the quantity of our circulating medium. The national debt of Great Britain, in the hands of the stockholders, is, virtually, a bank of lands, industry, and moveable wealth. I can sell or purchase stock, as is demanded by the trade in which I am concerned, so much more conveniently, at all times, than either houses, lands, furniture, even goods in my warehouse, that, as a medium for commerce, it approaches very near to the ready utility of money in my pocket, or in the care of my banker. The merchant, the farmer, the man of a liberal profession, in all ordinary states of our affairs, finds it as convenient to have his pecuniary property in the stock, as in any other possible form. On great emergencies of trade, it is easier to convert stock, than land, or other possessions, into a state in which it may be used, either at home or abroad, for the support of commercial credit.

Thus is stock a sort of middle property between lands, and goods, on the one hand, and money on the other, which affords, without labour, the income of an estate, yet is transferable in trade, little less conveniently than ready money.

It is generally supposed, that the facility with which a British administration can borrow money for the public expenditure, renders this government much more profuse than that of any other nation. But that is an erroneous inference. The government, that has a sort of commercial credit to maintain, must, of necessity, be much more cautious in its expenses, than one which depends for its revenue upon mere authority and force.

On the whole, then, it may be concluded, that of all modes of providing for extraordinary public expenditure, that by loan is the least disadvantageous; that it is eminently favourable to commerce; that it has a tendency to beget frugality; that it can have place only where there are wise laws, reasonable freedom, and a stable constitution; that while a nation shall continue in other respects flourishing, and *while national debt shall be contracted only for necessary defence, or public improvement,* this debt can never ruin a nation, nor embarrass its government. While we defend the *uses*, however, of the system generally, let us not be understood to defend its *abuses*. To pay the interest of the debt contracted by a very long succession of these loans, must require heavy taxes; and the weight of those taxes may at length bear too hard upon agriculture, commerce, and industry. There must be a limit to expenditure, beyond which it must cease to be beneficial; but the numberless successive predictions, that the crisis was approaching when ruin would ensue, and our wealth, power, and consequence having survived them all, operates as a caution not to give too much credit to despondency. At the same time, Mr. Pitt's declaration from the treasury-bench, that the crisis had actually arrived, when taxation upon produce had reached its *ne plus ultra*, (and he proved the sincerity of his conviction, by demanding a portion of the principal, under the denomination of property-tax,) is sufficient to operate as a powerful admonition to those who hold the public purse. We shall conclude this article with observing, that at the commencement of the year 1822, the national funded debt of the United Kingdom stood, in round numbers, 800,000,000, the annual interest of which amounts, according to a similar mode of estimating, to 30,000,000. *See titles* FUNDS, REVENUE, and SINKING FUND.

NATRON. *See* SODA.

NATURALIZATION is when an alien-born is made the king's natural subject. Hereby an alien is put in the same state as if he had been born in the king's liegeance, except only that he is not capable of being a member of the privy council or parliament, and of holding any office or grant. No bill for a naturalization can be received in either house of parliament, without such disabling clauses in it; nor without a clause disabling the person from obtaining any immunity in trade thereby, in any foreign country, unless he shall have resided in Great Britain seven years after the commencement of the session in which he is naturalized, or restored in blood, unless he has received the sacrament within one month before bringing in of the bill, and unless he also takes the oaths of allegiance and supremacy in the presence of the parliament. 1 *Black.* 374. *See* ALIEN.

NAVAL STORES, as pig-iron, bar-iron, hemp, pitch, tar, resin, turpentine, anchors, cables, cordage, masts, yards, bowsprits, oars, oakum, ochre, sheet-copper, or other naval stores, are prohibited to be exported without leave of the privy council, under penalty of forfeiture and double the value. *See* CORDAGE, and STORES OF WAR.

NAVIGATION, the art or act of sailing, or conducting a vessel from one place to another, in its primary sense. Technically used, the term comprehends the science of constructing most advantageously; loading, and otherwise managing most judiciously; and conducting most safely, expeditiously, and commodiously, vessels to their destined situation.

LAWS RELATIVE TO NAVIGATION.

These are so multitudinous, and embrace such a prodigious number of divisions of the general subject, viz. the commerce carried on by means of navigation, as well illicit, as lawful; the vessels themselves, the registering of them, the owners, the passengers, the ma-

riners, the pilots, the merchandize, the insurance, the forfeiture, &c. &c. as renders it entirely impracticable to attempt giving even the merest elements of so diversified a science under any one head, or title, or even under any small number of such, by any arrangement of matter, however well divided or methodized: we must therefore, to avoid obscurity on the one hand, and tautology on the other, beg to refer the reader to the specific titles, under which his own judgment will direct him to look for much of the information on these separate subjects, and reserve the columns, dedicated to the illustration of this particular article, for the introduction only of those statutes which bear an *immediate* reference to it.

An ordinance, for the encouragement of the shipping and navigation of this nation, originated during the usurpation under the authority of Cromwell. The regulations it contained were, however, found so beneficial, that the principle of this law was adopted by the 12th Car. 2. c. 18. under the title of "An act for the encouraging and encreasing of shipping and navigation," commonly known under the denomination of "The English Navigation Act." By this statute, (explained, altered, and so modified, as to meet the fluctuating circumstances of the nation, by several subsequent statutes, especially 13 & 14 Car. 2. c. 11.—15 Car. 2. c. 7. —22 & 23 Car. 2. c. 11.—4 Geo. 3. c. 16.—19 Geo. 3. c. 48.—22 Geo. 3. c. 78.—26 Geo. 3. c. 60.—27 Geo. 3. c. 19.—34 Geo. 3. c. 68.—50 Geo. 3. c. 21.—54 Geo. 3. c. 48.—and 58 Geo. 3. c. 27.) no goods of foreign growth, production, or manufacture shall be brought into any ports of Great Britain, but in English shipping; nor shall any commodities be shipped, or brought from any places or countries, but only from those *of their growth, production, or manufacture; or from those ports where such commodities usually are first shipped for transportation*, and from no other place, under penalty of forfeiture of such goods, and the ship or vessel carrying them. Modified by 7 Ann. c. 8. as to certain articles.

No fish-victuals, wares, goods, commodities, or other things whatsoever, shall be laden on board any vessel whereof any stranger shall be owner or master, and whereof the whole of the mariners shall not be British subjects, to be carried from one port or creek of the United Kingdom, or any other port or creek thereof, on pain also of forfeiture of vessels and goods. *See* 10 & 11 W. 3. c. 24. s. 14. as to anchovies.

No ship shall be entitled to a certificate of registry, unless she shall be British-built; nor shall such ship be entitled to the privileges of a British-built ship, unless she be *legally navigated*, the import of which term is, that if she be a foreign trader, she shall be manned by a master, and at least *three-fourths* of her crew British subjects; and if she be a coaster, that the master and all the mariners are British subjects, and remain so during the whole of the voyage, under penalty, in both cases, of forfeiture.

No goods or commodities of the growth, production, or manufacture of Muscovy, and no masts, timber, or boards, foreign salt, pitch, tar, rosin, hemp or flax, raisins, figs, prunes, olive oils, or any sort of corn, grain, sugar, pot-ashes, vinegar, brandy, currants, or any commodities of the growth, produce, or manufacture of Turkey, shall be imported into Great Britain, in any ship but such as belong to the people of these countries respectively, or in British-built ships, whereof the master and three-fourths of the mariners are English.

No foreign-built vessel shall be entitled to the privileges of British shipping, unless the owner thereof be a British subject; and shall make oath before the chief officer of the customs, at the port nearest to his place of abode, that such ship was *bonâ fide* purchased for a valuable consideration, expressing the sum, time, place, and persons, from whom the same was purchased; and the names of the persons who are part-owners thereof, all of whom shall be liable to the above-mentioned oath; and no foreigner, directly or indirectly, hath any part, share, or interest therein, and upon such oath he shall receive the usual certificate, under the hand and seal of the officer, whereby such ship or vessel shall for the future pass, and be deemed as a ship belonging to the said port; and the officer shall keep a register of such certificate, and return a duplicate thereof to the chief officers of the customs of London. Commodities of the Streights and Levant seas, and India goods loaden in English shipping, from the usual places of loading them, to the southward and eastward of the Cape of Good Hope, navigated by a master and three-fourths of the mariners British subjects, may be imported, although loaded from places not of the very growth, &c. of such imported produce. See 6 Geo. 1. c. 14.

British subjects may also import in ships lawfully navigated from Spain or Portugal, the Azores, Madeira, or Canary islands, all goods of the growth, produce, or manufacture of those countries.

No sugars, tobacco, cotton-wool, indigo, ginger, fustic, or other dyeing woods, of the growth, produce, or manufacture of the English plantations in Asia, Africa, or America, shall be shipped or transported to any place or port except from some one of the English plantations to another, or to some British port direct, under penalty of forfeiture of ship and cargo.

Merchants loading ships for any of the British plantations abroad, shall give bond and surety to the chief officer of the customs of the port whence such vessel shall sail, or to the governors of any foreign planta-

tion, that the regulations contained in these acts relative to the direct importation or exportation of goods between Great Britain and her colonies, shall be strictly complied with, under penalty of forfeiture of such bond, and of the cargo and vessel so illegally laden and transported. *See* 7 & 8 Wm. 3. c. 22. — and 8 Ann. c. 16.

No ship shall be more than three days coming from Gravesend to her port of discharge, unless hindered by contrary winds or other accident.

No ship to clear inwards or outwards, without making the proper entries at the custom-house, under penalty of search by the officers of the customs, who may seize a l such prohibited or uncustomed goods as may be found on board.

No goods shall be imported or exported to or from the British plantations in Asia, Africa, or America, except in British bottoms belonging to the said plantations, and whereof the master and three-fourths of the mariners are British subjects, under penalty of forfeiture of the vessel and cargo.

No foreigner shall exercise the trade of a merchant or factor in any of the plantations, under penalty of forfeiture of his goods and chattels.

The lords of the treasury, and commissioners of the customs, are impowered to appoint custom-house-officers in all port-towns in the plantations.

Governors, appointed by the proprietors of any colony, must be approved by the crown, and take the oaths of office before they enter upon their respective governments. *See* 7 & 8 W. 3. c. 22.

Foreigners inhabiting any British plantations for seven years, must be deemed British subjects, on taking the oaths and receiving the sacrament; or if they are Quakers, they make their affirmation; and if Jews, they may leave out the words "*on the faith of a Christian, &c.* in such oaths.

Persons importing from the plantations any wood, plank, timber, &c. wrought or unwrought, may import the same, free of all duties.

The produce of the British plantations are as follows, viz. rice, pitch, tar, turpentine, train-oil, whale-fins, sugar, molasses, rum, ginger, tobacco, indigo, pimento, cocoa or chocolate, nuts, drugs, balms, deer and other skins, furs, masts, yards, rosin, logwood, fustic, walnut-tree, mahogany, manchineel, cedar, citron-water, raw silk, pig-iron, potashes, aloes, Peruvian bark, tortoise-shell, bullion and foreign coin, tamarinds, coffee, horn, sarsaparilla, snake-root, and cochineal.

By several statutes passed in the year 1822, our navigation laws have been materially altered. By the first of these statutes, 3 Geo. 4. c. 41., the provisions of various acts of parliament, *prior to the reign of Charles the Second*, relating principally to the importation and exportation of different articles, and the enumeration of which acts occupy eighteen pages of the quarto edition of the statutes, are all repealed.

By 3 Geo. 4. c. 42. (reciting that it is expedient to repeal certain provisions, relating to *the countries from whence, and the ships in which goods and merchandise* shall be imported into any part of the United Kingdom, in order that other regulations might be declared concerning the same,) so much of the 12 Car. 2. c. 18. as relates to the importation of goods of Asia, Africa, and America, in British ships *only*, is repealed. s. 1.

By the 2d section, so much of the 12 Car. 2., whereby it is enacted, that no goods or commodities of foreign growth or manufacture, which are to be brought into Great Britain in English-built shipping, navigated by English mariners, shall be shipped or brought from any place or country, but from those of the said growth or manufacture, or from those ports where the said goods and commodities can only be, or are usually shipped for transportation, is repealed.

The 3d and 4th sections repeal parts of 12 Car. 2. which relate to the importation of Russian and Turkish goods, and goods of Spain, &c.

The 5th section repeals the corresponding parts of 27 Geo. 3. c. 23. (I.) which extended the 12 Car. 2. to Ireland.

The 6th section repeals so much of the 13 & 14 Car. 2. as prohibits the importation of any sort of wine (other than *Rhenish*) spicery, grocery, tobacco, pot-ashes, pitch, tar, salt, rosin, deal boards, fir timber, or olive oil, from the Netherlands or Germany.

The 7th section repeals so much of the 13 & 14 Car. 2. as excludes foreign-built ships, manned and owned by English, from the privileges of British ships.

The rest of the act repeals parts of different acts of parliament, which, since 12 Car. 2. have from time to time been passed, and relate to the importation of particular articles from certain places.

We now come to what may, in contradistinction to these repealing statutes, be called the enacting act on this subject, namely, 3 Geo. 4. c. 43. By section 1. of this act, goods of Asia, Africa, and America, shall be imported into the United Kingdom, from any place whatever, in British-built ships, or ships entitled to the privileges of British-built ships *only*, under penalty of forfeiture, &c. except as otherwise specially provided for.

By section 2. all such goods imported into the United Kingdom from any place in Europe, shall be imported for exportation only, except in cases otherwise specially provided.

Sections 3. 4. & 5. allow the direct importation of goods of Spanish America, and the Spanish West Indies, from place of growth, in ships of the country, under certain provisoes, and whilst equal privileges are granted to British ships by those places.

By section 6. certain enumerated European goods may be imported in British ships, or in ships of the country or port of export in Europe only.

Section 7. provides that other goods or merchandize the growth or manufacture of Europe, may be imported in any ship, or from any place whatsoever, as heretofore.

Section 8. The products of the Turkish dominions may be imported in British vessels, or in vessels of the built of any place within the dominions of the Grand Seignior, wholly owned by the people of such place, and navigated by a master and three-fourths, at least, of the mariners thereof of such place, and such goods may be imported for consumption in the United Kingdom.

Section 9. Raw silk and mohair yarn of Asia, exported from the Turkish dominions, and from Malta and Gibraltar, and also all goods of Morocco imported into Gibraltar directly from any part of the dominions of the Emperor of Morocco, not to the southward of Mogadore, in British ships, and also all diamonds and jewels from any place whatever, may be imported in British ships, for consumption in the United Kingdom; and all such diamonds shall pass inwards without warrant or fee.

Section 10. The Island of Malta and its dependencies is deemed and taken, for all purposes whatever, to be in Europe.

Section 11. Ships registered as British ships before the 1st May 1786, may, on warrant of the Treasury, be registered and privileged as British-built ships.

Section 12. British-built ships sold to foreigners shall be deemed to be foreign ships, of the country of the purchasers, if in Europe; but such, although they again become the property of a British subject, shall not be deemed British ships again, otherwise than by capture and legal condemnation.

Section 13. provides that nothing in this act shall repeal such part of 12 Car. 2. as relates to bullion, or to goods taken by way of reprisal.

Section 14. enacts that the act shall not affect the acts regulating the intercourse between Great Britain and Ireland. 39 & 40 Geo. 3. c. 67. 40 Geo. 3. (I.)

By section 17. this act is not to repeal the American trade acts, 49 Geo. 3. c. 59. and 59 Geo. 3. c. 54., but those acts, however, are not to restrain the importation from the United States in British ships.

There are also provisoes for the Portuguese trade acts, the acts regulating the trade with the East Indies, and for other acts of the same nature.

By chapters 44 & 45. of 3 Geo. 4. very important alterations are made in the laws regulating the trade of the British colonies. The first of these acts regulates the trade between his majesty's possessions in America and the West Indies, and other places *in America and the West Indies*. The 1st section of this statute repeals about 26 acts of parliament on this subject.

By section 3. it is enacted, that the articles mentioned in schedule B. annexed to the act, may be imported from any foreign country on the continent of North or South America, or from any foreign island in the West Indies, into the ports mentioned in schedule A. of the act, either in British ships, or in ships of the country, of the growth, &c. provided that if imported in foreign, &c. ships, they be shipped *direct* from the place of the growth, &c.

By section 4. of the same act, it is lawful to export, in any British ship, &c., or in any such foreign, &c. ship, &c. as mentioned in the 3d section, from any of the ports enumerated in schedule A. of the act, any article of the growth, produce, or manufacture of any of his majesty's dominions, or any other article legally imported into the said ports, provided that the said articles, when exported in any such foreign, &c. ship, shall be exported direct to the country or state in America, or the West Indies, to which such ship or vessel belongs as aforesaid, and on certain bonds and securities, &c. &c. being given.

The 5th section provides, that for ten years from the passing of the act, foreign vessels which have been engaged in lawful trade with the said colonies before the act, shall not be excluded from the trade allowed by the act, by reason of their not being of the built of the country to which they belong.

Section 14. allows any article enumerated in schedule B. legally imported under the act, to be exported in any British ship, owned and navigated according to law, to any other British island, colony, or plantation in America or the West Indies, provided that upon the importation thereof into any such other British island, &c., proof shall be produced that the duties have been first paid in the colony into which the articles have been first imported; and every article so imported, shall be allowed to be exported to any part of the United Kingdom, under the rules and restrictions of 12 Car. 2. c. 18. 22 & 23 Car. 2. c. 26., & 20 Geo. 3. c. 10.

Section 15. reciting it to be the intention of the act that the privileges thereby granted to foreign ships shall be confined to the ships of such countries as give like privileges to British ships in their ports in America and the West Indies, enacts that his Majesty may, by order in council, prohibit trade and intercourse under the authority of this act, with any country in America or the West Indies, if the privileges thereby granted to foreign ships are not allowed to British ships trading to and from such country.

The principal remaining part of the act regulates the details of the trade.

Statute 3 Geo. 4. c. 45. regulates the trade between his majesty's possessions in America and the West Indies, and *other parts of the world*.

Section 1. of this statute, repeals various old statutes on the subject.

Section 2. allows the exportation from any of the said colonies, &c. in any British-built ship, &c. owned, &c. any articles, the growth, produce, or manufacture of the colonies, &c. or which have been legally imported into the colonies, &c. *direct* to any foreign port in Europe, or in Africa, or to Gibraltar, Malta, Guernsey, Jersey, Alderney, or Sark.

Section 3. enacts that such articles shall be entered and shipped in the presence of the officers of customs, and within the limits of a port where a custom-house is established; but nothing in this act shall alter the existing regulations for lading and shipping the produce of the fisheries of the said colonies, &c.

Section 4. provides that goods not agreeing with the entry, or shipped without entry being made, shall be forfeited, and the owner shall forfeit double their value.

Section 5. prohibits ships clearing out from the colonies from taking on board any other articles than such as are allowed to be on board and exported by this act, on pain of forfeiture, and the master and shipper of such goods to forfeit double the value.

Section 8. allows the exportation in any British-built ship, &c. owned, &c. from any foreign port in Europe, or in Africa, or from Gibraltar, &c. &c. &c. (as in 2d section,) to any of his majesty's colonies, plantations, or islands, in America or the West Indies, the articles enumerated or described in the schedule A. annexed to the act.

The four subsequent sections of this statute regulate the duties to be paid on the articles upon importation into the colonies; the appropriation of the net proceeds of such duties in colonies where there are no general courts or assemblies, and the mode of ascertaining the value of such articles as are subjected to an *ad valorem* duty.

Section 13. provides that if any imported article charged with duty by this act, be also liable to the payment of colonial duties, of an equal or greater amount, then the duties imposed by this act shall not be payable on such articles; but if the colonial duty be less, then the difference only between the amount of the duty payable by this act and the colonial duty, shall be collected.

Section 16. enacts that any person prosecuted under this act, may plead the general issue, and give this act and the special matter in evidence; and if a verdict shall pass against the prosecutor, then the defendant shall have treble costs.

For other details of the regulations of the trade, &c. the reader is referred to the act.

On the subject of navigation, generally, little more remains to be added, but the substance of a few decisions of the courts on points relating to, or immediately arising out of, the navigation acts.

Importation and Exportation. — It has been repeatedly held, that a ship merely coming within the limits of a port, by stress of weather, or other such cause, *without any intention to break bulk*, is not an importation within any of the navigation laws, either to raise a claim for custom dues, or to occasion any forfeiture. *Reeves, 2d. edit.* p. 198. 200.

So respecting exportation also, it has been decided, that goods shipped cannot be considered as exported, until the ship has cleared the limits of the port. *Attorney General* v. *Pougett, E.* 1816.

British Subjects. — Information *qui tam* in exchequer, by one *Scot*, setting forth that he had seized the ship Constant in the port of London, as forfeited, because the ship was not belonging to the people of Great Britain, as the true owners, the master and three-fourths of the mariners not being English, nor the built of the country of which the goods were the growth, product, or manufacture. The port where such goods only can be, or are most usually first shipped for transportation, and whose master and three-fourths of the mariners, at least, were of that country or place, whereby, &c. &c.

A special verdict found, that the ship was Russia built, and set sail from Riga for London with the goods in the information, which were the product of that country, that the ship was Russia-built, that the master was born out of the dominions of the empress of Russia, but has been admitted a burgher of Riga, and has continued to reside there several years, and traded from thence nine years before the seizure; that there were eleven mariners on board, of whom four were born in Russia, that a fifth was born in Ireland, and there bound apprentice to the master, and went with him to Riga, and sailed with him the present and several former voyages; that the other six mariners were born out of the dominions of Russia, but had resided at Riga, each several years; and that *Riga* is a port *where the goods seized can only be, or most usually are, first shipped* for transportation.

Question was, whether the ship and goods were forfeited under navigation acts? in other words, whether the *words of exception* (*printed in italicks*) extend to the whole of the prohibitions in the clause, or only to the second branch of them? which resolved itself into the question, whether, under these circumstances, the ship was manned with mariners according to the provisions of the act.

Judgment was given for the defendant, on the ground that the navigation acts only require, that a specific number of the mariners should be *of the country*, not that they must necessarily be *natives of it*. Their residence, &c. within the dominions of Russia, imposed on them at least a local allegiance; and as no man can be born a mariner, and these men were mariners of Russia at the time of the voyage, and long before, and never were mariners of any other country,

they were sufficiently mariners of the countries of which the goods shipped were the produce, &c. &c.

After *M. T.* 1738. *Com. Rep.*

Information *qui tam* by *Scot* v. *A'Chez*, special verdict found, that the ship in question, the Sea-horse, laden with wine and vinegar, *was English-built*, that it was taken by a Spanish privateer, we being at war with that nation, and condemned as prize; that it was then regularly sold to a French subject residing in France, and became French property; the wines and vinegar were *the growth, &c. of France*, and were *imported from Bourdeaux* in France, to Great Britain, the said ship continuing French property; that the master of the ship and three-fourths of the mariners, at the time of the importation, were Frenchmen.

The question here was, whether this ship was under the words of exception in the navigation act.

The court decided, that the construction of the navigation act was this. It prohibited the importation of goods of the growth of any European country, except in ships *owned and navigated by the English*, or in ships *of the built of, and* manned by sailors of that country of which the goods were the growth; and gave judgment for plaintiff.

After *T. T.* 1748. *Parker's Rep.* *See further, titles* INSURANCE, MANIFEST, REGISTRY, SHIPPING.

NAVIGATION, *Inland.* The utility of inland navigation seems now to be universally admitted; for canals necessarily facilitate the communication between one part of the country, and another, reduce the price of carriage, and enable the husbandman, and the manufacturer, to send their goods cheaper to market. The ancients were aware of these advantages; and even in Greece, where, from the country being peninsulated by the sea, canals were not much wanted, Herodotus tells us, an attempt was made to dig a channel through the isthmus which joins the Peloponnesus to Greece; and we also find from Strabo, that in Bœotia canals were cut to carry off the water from lands which were overflowed. The aqueducts of the Romans were a species of canal, and they had also many for draining the water from overflowed grounds.

Egypt contained from the remotest antiquity a number of canals dug to receive and distribute the waters of the Nile at the time of the inundation; but the great project of a canal to communicate between the Nile and the Red Sea, deserves more particular attention. It was, as we are told by Diodorus Siculus, begun by Necos, and continued by Darius, but laid aside from a fear that it would lay Egypt under water. Ptolemy the second, however, completed the undertaking, and caused to be constructed a dam, or sluice, which opened to give a passage and immediately closed again; this canal was four days' journey in length. By means of it the rich commodities of India, Persia, Arabia, and the coast of Africa, were conveyed from the Red Sea to the Nile, down that river to Alexandria, and thence shipped to the various parts of Europe. After the reign of Ptolemy, this canal seems to have been neglected, but was again opened by one of the Califs in 635; and again neglected, so that some traces of it alone remain. The canal of Alexandria, or, as the Arabs call it, of Faoua, has had better fortune, it was cut from a place now called Rhamanic to Alexandria, with intent to supply that city with water. There was also a canal from Alexandria to Canopus, as well as several others.

China has for a long series of years been famous for canals; scarcely a town or a village, that is not washed by the sea or a river, being without. The royal canal is one of the most wonderful works of art: it employed thirty thousand men for the space of forty-three years to complete it. The length from south to north, extending from the city of Canton to the northern boundary of the empire, is between eight and nine hundred miles, the breadth is fifty feet, and the depth nine feet; it can consequently take vessels of considerable burthensome of which have sails, others oars, and others are towed. It passes forty-one large cities, and innumerable canals are cut into it, to connect it with the rivers, lakes, and rivulets of the country. These canals are of the utmost benefit to China; and they are finished and maintained in a very complete manner; the quays are all faced with freestone, the bridges over it are innumerable, and have some three, some five or more arches, the centre of which is lofty, to permit barges, or vessels with masts, to pass under. We are assured that there is a passage by canals almost from one end of the empire to the other, for the length of eighteen hundred miles. In short the canals are the roads of China.

Nor are other parts of Asia without these great conveniences, the countries between Delhi and the Pansiat, in Hindostan, are supplied with water by a canal, which also answers the purposes of navigation; and Major Rennell mentions several other canals, one of which, from the river Jumma, is divided into seven streams.

Let us now turn to Europe, and we shall find that Russia, although much more backward in civilization than most of the other European kingdoms, has, however, been very active in this species of improvement.

Peter the Great formed the plan of an inland navigation from Persia to Petersburgh, the new city he had just founded. The goods were to be brought by the Caspian Sea to the Astrachan, from thence by the river Wolga, and a line of canals, into the river Mesta and the lake of Novogorod,

thence into the lake of Ladoga and the river Neva to Petersburgh, a distance of four hundred and fifty miles. He also planned a navigation from the Don to the Wolga, and another canal to the river Occa, and thus to effect a navigation to Moscow, and afterwards a line of communication to Archangel, the completion of which was prevented by his death. He employed an Englishman, Captain Perry, as his engineer, who met with great opposition from the nobles or boyars. The Czar's death stopped the works for a time, but they have most of them, with some improvements, been carried on by his successors. The convenience for inland navigation in Russia is wonderful, it being possible to convey goods by water near four thousand five hundred miles with only one interruption of about sixty miles; this length is from the frontiers of China to Petersburgh. Also from Astrachan to Petersburgh by a line of water navigation, one thousand four hundred miles, and upwards. Russia has several other canals, but of less length.

Sweden has long enjoyed canal navigation, and Denmark has occasionally laid the whole trade of Europe, with the Baltic, under contribution, by means of the canal of Holstein.

The canals of Holland are out of number. The several provinces are intersected with innumerable ones, which serve for roads and public highways, and on these the Dutch are constantly journeying, and conveying commodities from one place to another. Nor are they, in this mode of conveyance, confined to their own country, for they have also water communications with many parts of France, Flanders, and Germany. The yearly profit of these canals is immense; and Mr. Phillips, in his History of Inland Navigation, says, that one distance of forty miles, the annual profit is 250,000*l.* which is 625*l.* per mile. The canals of Ostend, Ghent, Antwerp, Brussels, &c. communicate with the Dutch canals, and now that they are all comprehended under one government, the advantages must be incalculable.

France has canals of considerable consequence. The canal of Burgundy, which forms a communication between the Loire and the Seine. The canal of Orleans, which joins this canal. The canal of Bourbon, intended to effect a communication between Paris and the river Oise. A great number of other canals are in France, and their emperor planned many additional ones; but the great and really superb work is that of Languedoc, or the canal of the two seas, which forms a junction between the Ocean and the Mediterranean.

It does honour to the Minister Colbert, who patronised, and to Riquet, the engineer who conducted the work. It was begun in 1666, and finished in fifteen years, has on it one hundred and fourteen locks, and is conveyed over bridges of vast height, which give passage to rivers under them. It has also a tunnel to convey it under a mountain, which, as it was the first of the kind of any magnitude, was looked on as a most extraordinary undertaking. This work cost about half a million sterling, of which the king gave one half, and the province paid the remainder. This canal begins at Cette, and passes to the town of Agde, where there is a bason with three openings, of three different depths of water, the gates so contrived that the master of the vessel may open which he pleases. There are near Beziers, and also near the tunnel, eight locks, together forming a grand and regular cascade 960 feet long, by which the vessels cross the river Orb. At St. Ferriol is a reservoir which covers 590 acres, with passages for the water into the bason of Panouf, which is the highest level, and is embanked and walled round with stone. The canal then descends, passing many towns into the Gardane, a little below Toulouse. The breadth is 144 feet, including the towing paths, the depth six feet, and the length 64 French leagues. The highest part is 600 feet above the lowest level.

In Spain, the canal of Arragon was begun in 1781: it consists, in fact, of two canals, both of which begin at Navarre, and run through Arragon, and at length fall into the Ebro. These works have been effected by labours deserving of admiration: besides dykes, banks, sluices, &c. where necessary, there is an aqueduct 710 fathoms in length, in which this canal runs. They have also other canals, but of less note; and if the ministers of Spain come to attend to commercial improvements at home, when colonial projects shall have ceased to engross their exertions, there can be little doubt but that their number will increase.

Let us now turn to our own country. There we find the vestige of a canal, now called Caerdyke, which seems to have been cut from the river Hyne, near Peterborough to the river Witham, near Lincoln, and most probably with intention to join those rivers. It was forty miles in length, but is nearly filled up: and whether cut by the Romans, or Danes, is uncertain. Except this, no great attempt was made at canal navigation in England, till towards the middle of the last century. Factitious navigations were possibly thought less necessary; as several of our rivers had, by art, been rendered navigable much further than they were by nature.

About the period before mentioned, however, our countrymen began to turn their thoughts to this great object; and fortunately, at the same time there lived one of those wonderful geniuses which seldom appear; and, by a happy concurrence of circumstances, a spirited young nobleman, just come to the possession of a good estate, and inclined to patronize him.

This man was the justly celebrated Mr. James Brindly, and his patron was the Duke of Bridgwater. Mr. Brindly considered, that although the four great rivers of England, the Thames, the Trent, the Mersey, and the Severn, extend far into the country; yet the four great ports of the kingdom situated on these rivers, viz. London, Bristol, Liverpool, and Hull, had no communication by water with each other, except by a navigation, circuitous, always tedious, and in winter extremely dangerous. Mr. Brindly formed a plan to unite them, and private interest has led the way to the completion of this truly great and national undertaking.

Justice requires that we should give some account of the very singular man who planned, and laid the first foundation of, these great works. He was born at Tunsted, in Derbyshire, in 1716. His father possessed a little freehold, which he dissipated by a fondness for shooting, and other field sports; in consequence of which, his son's education was totally neglected; and, to support the family, he was employed in such kind of labour as his strength would permit. At the age of seventeen he bound himself apprentice to a millwright of the name of Banart, near Macclesfield, in Cheshire, when he quickly discovered an attachment to the mechanical arts in general, and a genius formed for extending them. In the early part of his apprenticeship he was often left by himself for weeks together, to execute works, for which his master had given him no previous instruction. These works he, of course, finished in his own way; and his master was often surprised at the improvements he from time to time introduced into the millwright business; and the millers, seeing his ingenuity, generally chose to have him employed on their work. In short, his attention and application supported his master (who was very old) and his family with comfort. One singular instance of his application deserves notice. His master was engaged to build an engine paper-mill, which was the first of the kind attempted in these parts. He went to see one, but when he came to work at it he was not able to complete it. Brindly, without mentioning his design, set out on the Saturday evening after he had finished his business, travelled to the place where a mill of that kind was to be seen, took a view of it, and returned back in time to his work on Monday morning, having travelled fifty miles on foot. He then informed his master in what he was deficient, and the mill was completed to satisfaction. He afterwards engaged in business on his own account, and brought forward many useful inventions and contrivances, so that he acquired the character of a most ingenious mechanic, and was called to work at many distant places. In 1752 he erected an extraordinary water-engine at Clifton, in Lancashire, for draining coal-mines. In 1755 he was employed to make and erect the large wheels for the silk-mill at Congleton, in Cheshire, all which he executed with the most consummate skill, and invented many useful machines to further this business. He also made some valuable additions to the potters' mill for grinding flint-stone; and in 1756 he undertook to erect a steam-engine on a new plan at Newcastle-under-Lyne. His inventive genius also displayed itself in many other ingenious inventions and improvements.

He was soon called to another object, the projecting and executing inland navigation; and in this we shall see this great mechanic's powers exerted in the production of some extraordinary events. This he did under the protection of the nobleman above-mentioned, who had the discernment to single him out, and the steadiness to support him against the opinion of those who treated Mr. Brindly's plan as chimerical.

The duke had, at Worsley, about seven miles from Manchester, a large estate, rich in coal, which had hitherto been useless, on account of the expense of land-carriage, which would have rendered them too dear for the market. The duke, wishing to work these mines, saw the necessity of a water-carriage, and, on consulting Mr. Brindly, the latter surveyed the ground, and declared the scheme to be practicable. The duke therefore resolved to effect his plan, and they thus had the joint honour and satisfaction of having first introduced canal navigation into this kingdom.

Having fixed in his mind the plan, and his surveyor having also completed his, he, in the year 1758, the thirty-second year of the reign of George the Second, obtained an act to make a navigable cut or canal from the township of Salford to or near the Worsley Mill and Middlewood, and to a place called Hollen's Ferry, in the county of Lancaster; and being thus legally authorized, began his work.

The first design of this intended canal was to convey coals from the duke's mine on his estate at Worsley to Manchester, but his views enlarged as he advanced in the work. He began to cut therefore at a place called Worsley Mill, about seven computed miles from Manchester; when he first excavated a bason capable of holding not only all his boats, but a great body of water to serve as a reservoir, or head of his navigation. The coals are dug from a hill adjoining, to which works a subterraneous passage is cut large enough for the admission of flat-bottomed boats, for three quarters of a mile, which are towed by hand-rails. At the distance of three quarters of a mile from the entrance, the passage divides into two channels, which have been far extended.

This passage being a curious and interesting work of art, we shall describe it: — In some places it is cut through the solid rock,

and in others arched with brick. There are several air-tunnels cut through near forty yards deep, at certain distances, to give air: the entrance is six feet wide, and about five feet high above the water; it widens in some places for boats to pass. The coals are brought to the boats in low carriages, and as the passage is on a descent, although they hold a ton each, they are easily drawn along by men, on a railed way, to a stage over the canal, and then shot into the boats. These boats, which contain about seven tons each, are easily drawn out of the passage, where two, three, or more, are linked together, and drawn by horses or mules to the place of their destination.

The canal is in some places carried over the roads on arches, and in places where the arch is not high enough for carriages to pass, the road has been sunk, at a great expence, for the convenience of the passage. But the most stupendous work on this canal is the bridge, and aqueduct, over the river Irwell. At Barton-bridge, three miles from the bason, is an aqueduct which conveys the canal over a valley for two hundred yards, and over the navigable river Irwell above 40 feet higher than the level of the river. The canal is carried over the meadows on each side of the Mersey, and over a place called Saltmoor, at an incredible expense. Mr. Brindly proceeded thus: he caused trenches to be made, and then placed deal balks upright, so as to back and support each other, supporting them by other balks, laid horizontally in rows, and secured together; thousands of oak piles were driven in between them; he then threw in the proper quantity of earth and clay, and caused it to be well rammed in. Having thus completed about forty yards, he removed his balks and proceeded again. The bridge over the Irwell is of stone, and has three arches all of hewn stone: the centre-arch is sixty-three feet wide, and will admit barges to pass through with their sails standing. The river Medlock is raised, and supplies the canal with water by means of a fine wear constructed in a curious manner.

The ingenuity displayed by Mr. Brindly through the whole of this work is surprising. His smiths' forges, his carpenters' and his masons' workshops, were covered barges, which floated on the canal, and followed the work as it advanced. The duke had one great advantage, having all the necessary materials, timber, stone, lime, and coals, taken from his own estate.

In the session of parliament, 1758-9, the duke obtained an act to make a navigable canal from Worsley to Salford, near Manchester, and to carry the same to Hollen's Ferry; but after he had completed the canal from Worsley to the highway between Warrington and Manchester, it was discovered that it would be more beneficial to carry it over the Irwell, and to extend it to Longford-bridge. An act was obtained for that purpose.

On a further survey it was discovered that it was practicable to extend the canal from Longford-bridge to a place on the river Mersey, called the Hempstones; a third act was obtained. The whole navigation was then proceeded on and completed, being more than twenty-nine miles in length, and having, at its fall into the Mersey, locks which let boats down ninety-five feet; for it is so contrived as to be on a level the whole length to that place. It may be proper to remark, that the locks were formed at Runcorn, instead of the Hempstones.

We cannot conclude this account of the duke's undertaking, without observing, that it has a variety of good effects. The price of carriage of goods of all kinds, and of coals for the manufactories of Manchester, are very considerably reduced: the value of all the estates contiguous to the canal is considerably increased, and the Duke of Bridgwater was recompensed by a princely addition to his fortune.

The duke having thus led the way, several other plans for navigable canals were immediately brought forward, and the success which attended the first essay prompted many to undertake the like works. Gentlemen naturally concluded that every thing, which caused a ready communication between one place and another, would increase the value of their estates, and the manufacturer reasoned in the same way, with respect to the fall of his raw material. In Staffordshire, in a part of that county near Newcastle, there are several towns near each other, where the coarse earthen-ware then in use was manufactured, and which spot is, from that circumstance, called the Pottery. The inhabitants of this part clearly saw the advantages inland navigation promised to them, and readily joined in subscribing money, and projecting such a work.

A public meeting was called at Sandon, near Stone, in Staffordshire at which several noblemen, with many of the neighbouring gentlemen, and persons concerned in the manufactories, attended. Among the latter was Mr. Wedgwood, then in a small way of business in the Pottery. That gentleman had too much good sense not to see that such an undertaking opened the way for attaining that wealth and independence which his family have since accomplished. Mr. Brindly, as we have already observed, had planned originally the great design of uniting the four great trading towns of England, London, Bristol, Hull, and Liverpool, by means of navigable canals. He was now again selected for the purpose of carrying into execution this portion of his original plan, which was to connect the rivers Trent and Mersey, to make another survey, which he did, in conjunction with Mr.

Smeaton, and they both reported that the country was most admirably calculated for the purpose.

Their plans were laid before this meeting; but some difficulties being started, other surveys were advised, which were presented to a second meeting. The gentlemen who proposed to be subscribers approved of Mr. Brindly's, at an adjourned meeting held at Wolseley-bridge, Staffordshire, on the 30th Dec. 1765.

This meeting was attended by Earl Gower, the lord-lieutenant of the county, in the chair; the two county members, and those for Litchfield, Newcastle in Staffordshire, and several other places. Here they came to the following resolutions:

1. To apply to parliament for leave to make a navigable canal from Wilden, in the county of Derby, to the river Mersey.

2. To complete it on Mr. Brindly's plan.

3. To raise 101,000*l.* in shares of 200*l.* each, and to open subscription books at the great towns near which it was to pass.

On this occasion, remarks on the advantages of canal navigation in general were set forth in a work attributed to Mr. Wedgwood, and especially on the peculiar advantages of the line taken by this canal. Some few of these, as well as extracts from the clauses of the act, (as this has served, with some alteration, as a foundation for all future canal acts,) we shall take the liberty of giving.

"The advantages attending navigable canals," observes the writer, "are great. Every person must allow that the stamina of our trade is the internal produce of the kingdom, and that the nearer the manufacturer is to the market, the better price his goods will bring him. For instance, if a person manufacture a piece of cloth forty or fifty miles from the part where it is to be shipped, he must abate in his price the value it will cost to carry it by land carriage to the market; but the opening a water navigation will lessen the expense, and either enable him to sell his work cheaper, which is a national benefit, or give him more profit, which is a private advantage.

"In case of invasion, government will, by these canals, be enabled to transport the heaviest cannon to any part of the country in a very short time; regiments also, and their baggage, may be conveyed in a safer and more commodious way than by long harassing marches, through roads often impassable, and oftentimes circuitous. The saving in draught-horses and the expense of baggage-waggons will be great.

"It has been objected that an inland navigation will destroy the breed of draught-horses, since there will be little or no employ for them; to this it may be replied, that the number of horses should be decreased; but there can be no danger of their destruction; and the land saved from the growing of produce for the horses will feed thousands of poor families.

"Nothing requires the attention of the people of this country more than husbandry: this will receive great advantages from these canals; the farmer will be able to send his corn to market at any time of the year, and this easy conveyance from one place to another will tend to bring it to a greater equality of price throughout the kingdom, and by this means that first necessary of life will be kept nearer a medium. If corn and other provisions be kept low, the manufacturers will be able to work cheaper, and sell more of their manufactures. Another advantage which will arise to the farmer will be, that, instead of employing his team in sending corn to market, he may transmit it by the canal, and his horses, mean time, may be employed in improving his land, by carrying marle and manure to it: and he might inclose and till more lands, which are now waste grounds and commons. How greatly would agriculture be improved, and the increase and produce of our land fulfil the proverb of returning tenfold, and the shepherd made happy by the increase of his sheep. I cannot omit mentioning, before I conclude, the enumeration of these general advantages, that prodigious and immense convenience, that the merchants at the three ports will receive, from being able to send their merchandise by this canal from Bristol to Hull; which is in fact joining the east and west together, by which means they will both avoid that most tedious and hazardous voyage of two months round the land's end, and also the expense attending those dangerous voyages, and find themselves considerable gainers.

Let us not omit too one very great and material advantage that inland navigation is of in keeping, through a whole country, an equimediate price of provisions; for, where any commodity is cheap at home, it may be carried to a more populous part to get a proper price for it, and when it is dear at home, it may be fetched from a cheaper market, and the poor will never be so liable to suffer by monopolizers.

"The great advantage that this kingdom will derive from a less number of horses being kept for draught is prodigious, as the same lands that kept twenty thousand horses will, perhaps, now keep thirty thousand fat oxen; by which means butchers' meat will be always cheaper to the labouring poor, as well as to the labouring manufacturer; all which articles are very considerable, and of material moment in the price of our manufactures, as they, in a great measure, work their trade to rise and fall in price according to the cheapness of their materials and the necessaries of life.

"Inland navigation will encourage old manufacturers to work with fresh vigour,

when they can obtain their materials cheap; and will give opportunity to set up new trades and manufactures, as the materials may be conveyed to any part of the country whatever.

"There are many large mines of valuable contents, that for want of carriage and conveyance are now useless; such as stones, iron ore, marble, and quarries of various sorts, that would then be opened and worked, and be productive, perhaps, of the greatest advantages to the proprietor, as well as to the various parts of the kingdom, in which they might be purchased at an easy rate.

"The coasting trade seems to claim mention of the great advantages that will accrue to it by these navigable canals, as all or most of the goods that have usually gone by land-carriage from London to these countries, will now be sent by the shipping to the ports, and from thence be dispersed far and wide by means of these navigable canals; for the more you open a channel, the more water it draws from the head, and consequently works its way farther on.

"They will certainly cause more shipping to be employed on the coasts, and more sailors to navigate them. I must here make one observation, that old men and worn-out sailors may be employed on these navigable canals; and those whose constitution will not suffer them to undergo the hardships and severities of a sea voyage, yet may do very well to navigate these vessels on the canals; every boy in each village through which the canals pass, will have a desire to become a sailor, and will be trained up in his early youth to hand a rope, and soon be fit to be of service on board a ship; by which means these canals will become one of the most natural nurseries for seamen for his majesty's fleets and the protection of this island; as also for shipwrights upon an emergency; both which are great advantages to any state.

"These canals will be of great advantage to the landed estates, as more persons will now come and settle themselves on many commons adjacent to the navigation for the benefit and convenience of trade, and thereby improve and inclose those barren lands; and the present inclosed lands will reap great benefit, either by draining some that want it, or flooding others, which is reckoned a great improvement to meadow lands.

"The result of every plan and scheme for the public service should ultimately terminate in giving assistance to the distresses of the poor, and relieving their wants by letting them have the necessaries of life at a cheap rate; this I term charity to our brother. This is the true strength of our trade, and a principal security for our present and future affluence.

"It is impossible that the immense advantages that will accrue to this nation, in a variety of instances, from inland navigation, should be enumerated by one pen; let us, therefore, proceed to point out some *local* advantages to the manufactures only bordering on *these* canals.

"The line of this canal is from the Mersey into the Duke of Bridgwater's canal at Preston, from whence it runs past Northwich, Middlewich, Sandbach, Lawson, Burslem, Newcastle, Stoke, Trentham, Stone, Sandon, Haywood, Wolseley, Wickner, Burton, to the Trent at Weldin. The price of land carriage in the neighbourhood of these towns is, upon an average, nine shillings per ton for ten miles; the charge on the canal will not exceed two shillings and sixpence, a saving which will alone enable the landholders to carry many things to market which are now useless. From Northwich to Lawson is a bed of rock salt, forty yards thick. Near the latter place is a mountain, containing four kinds of different useful stone. Near Wolseley-bridge is stone not at all inferior to Portland. Near Rudgley is coal, called cannel coal, and near the place where the canal joins the Trent is a vast mountain of lime-stone, and lime-stone in various other places; and not far distant, quarries of slate. Marle and other manure may be conveyed with great advantage to the land in the neighbourhood. Iron, stone, copper, calamine, marble, white clay, &c. are all found at no very considerable distance from the line. Of manufactures and cultivated articles are timber, cord, wood for charcoal and iron works, oak, bark, wood, madder, hides, tallow, and provisions of all kinds, the ale of Burton, the manufactories of the pottery of Nottingham, Leicester, and Derby, the flour and clay to make the pottery ware, and the groceries to serve the towns on the line, will all be brought for near one-fourth the expense of carriage which they have hitherto been carried at."

Of the advantages in his contemplation, it will probably be thought this author, whoever he might be, has exhibited a luminous account; but he has not met with argument the only solid objection to the multiplication of these inland conveyances, which arises from a doubt whether they do not injure the coasting trade, and thereby tend to destroy the best nursery for our seamen. In a continental kingdom, perhaps, canals cannot be multiplied too extensively; but in an insular one, the extent to which this practice, wise in the abstract, may be beneficially carried in the detail, is perhaps a problem not more difficult of solution, than necessary to be ascertained. The combination of political, and commercial, importance attached to the subject, is an apology for having dwelt so long on the domestic detail connected with it.

As this act for making the canal from the Trent to the Mersey, and which has been since commonly called the Grand Trunk

Canal, has been taken, as we have observed, as a pattern for most subsequent canal acts, the heads abridged cannot be misplaced here.

In the sixth year of the reign of Geo. III. A. D. 1766, "An Act for making a navigable cut or canal from the river Trent, at or near Wilden Ferry, in the county of Derby, to the river Mersey, at or near Runcorn Gap."

The preamble sets forth the advantages which will arise from making the said canal; and the act enacts, that certain persons therein named shall be a body politic and corporate, by the name of The Company of Proprietors of the Navigation from the Trent to the Mersey; and authorises them to cut a navigable canal from Wilden Ferry, in the county of Derby, to or near Aston, Weston, and Eggington, in the county of Derby; Burton, Wichnor, Haywood, Sandon, Stone, Trentham, Stoke, Newcastle, and Harecastle, in the county of Stafford; and Lawton, Sandbach, Middlewich, Preston Brook, and Runcorn, in the county of Chester.

With full power to enter on any land, set off, dig, cut, and make the said canal, with the necessary towing paths, bridges, tunnels, aqueducts, sluices, locks, rivers, reservoirs, &c. and to erect the necessary wharfs, quays, landing-places, cranes, and other works; the said company paying a reasonable compensation for all damages done by them, and the usual powers are given to all bodies politic, &c. and all trustees, guardians, &c. to sell and transfer, and commissioners are appointed to determine all differences.

The proprietors were authorised to raise among themselves the sum of 130,000*l.* divided into 650 shares of 200*l.* each. Every subscriber to have a vote for each share, and no person to possess more than twenty shares, except by will or act in law. (That sum not having been sufficient to complete their works, they were empowered by several subsequent acts of parliament, to raise the further sum of 194,250*l.* on mortgage of the tolls.)

General assemblies are to be held on the last Tuesday in March, and the last Tuesday in September, in every year. Each general assembly to consist of 300 shares, as principals, or proxies. A committee of twenty-one to be chosen by the general assembly, to transact the business of the company, subject to the controul of such general assembly.

Destroying the works of the canal is declared to be felony, and the person guilty to be transported for seven years.

The proprietors are allowed to take for tonnage on coals, stone, timber, and other goods, wares, and merchandise, a sum not exceeding 1½*d.* per ton, per mile, and a further rate of wharfage on all such goods as shall remain on the wharfs above twenty-four hours.

Paving-stones, gravel, sand, and all materials for making and repairing the roads, (lime-stones excepted) dung, soil, marl, and other manure for land, are exempted from any duty, provided the same shall be conveyed when the water flows over the weirs of the locks.

By a clause or clauses in this act, and by agreement with the proprietors of the Trent and Mersey company, the Duke of Bridgwater took a part of their line from Preston-Brook, and was thus enabled to carry his navigable canal into the river Mersey, below Runcorn Gad.

The Trent and Mersey canal was immediately begun, and carried on, under the direction of Mr. Brindly, as long as he lived. It has a fine aqueduct over the river Dove, and a tunnel under the hill of Harecastle for the length of a mile and a half: the whole length of the canal is ninety-one miles, from the Trent at Wildon ferry to the junction with the Duke of Bridgwater's canal at Preston.

After the canal was nearly finished, it was found that the summit, or highest pond of water might sometimes want a supply; to obviate which difficulty, in 1777, application was again made to parliament, for leave to cut another canal from a place called Caldon, to join the Grand Trunk near Newcastle, and also to make rail-ways from a hill of lime-stone, down to the head of that canal. This bill passed, and when this canal was completed, the whole length cut by this company amounted to nearly one hundred and twenty miles, in which there were ninety-one locks; the rise and fall on the Trent side being 316 feet, and on the Mersey side 326 feet. The whole expense of this navigation was upwards of 300,000*l.*, of which the proprietors raised 130,000*l.* among themselves, and the rest on interest.

From this canal others have been carried, with similar advantages, in proportion to their respective extents.

The same year that the first act for cutting the Trent and Mersey passed, another company obtained an act to cut a canal from the river Severn to join the Trent and Mersey canal near Haywood; 70,000*l.* was the capital of the company, with the usual power of borrowing more. The line taken by this canal was from a place called Stourport, in Worcestershire, to pass Mitten, near to Kidderminster, Wolverhampton, Penkridge, and Tixall, to Haywood, where it joins the Trent and Mersey canal. This was a part of Mr. Brindly's plan, and was called the *Staffordshire* and *Worcestershire Canal.*

Before we proceed to another part of Mr. Brindly's plan, that of approaching London by canals, it may be proper to take a view of some similar undertakings, to which the rising state of Birmingham gave birth.

In the eighth year of the reign of his present majesty, an act passed for making a

navigable cut or canal from Birmingham to join the Staffordshire and Worcestershire canal. This canal, although only between twenty-seven or twenty-eight miles in length, cost a very considerable sum: but both this, and the Staffordshire and Worcestershire canals have amply recompensed the subscribers, and given them the most satisfactory dividends. This arose chiefly from the vast quantity of coals found in the vicinity of the line, and from the great demand for that article at the manufacturing towns in the neighbourhood.

Nearly the same set of proprietors, who had engaged in the Birmingham canal, applied for an act to cut a canal from Birmingham to Fazeley, and then to join the Coventry canal. These two canals were, by a subsequent act of the 21st Geo. 3., united under the title of the Birmingham Canal Navigation.

Another canal, to communicate with these, was planned, and an act passed in the 23d year of the reign of the present king, for making a canal from Wyrly-bank, to communicate with the Birmingham and Fazeley canal near Wolverhampton, to which the title of Wyrly and Effington canal was given, and this was afterwards extended, and they were empowered to join the Coventry canal near Huddersfield.

We have already observed that the plan of Mr. Brindly was to connect all these northern canals with a line of navigation to London, which was to be effected by two different companies; one to take the line from the Trent and Mersey canal at Frudley-heath to Coventry, and the other from Coventry to Oxford.

The act for making the Oxford canal passed nearly about the same time, and was completed about the same period as the Coventry.

The Stourbridge canal act passed in 1776, and was intended to open to that town a communication with the Staffordshire and Worcestershire canal. The same year another act was passed for a canal from the Stourbridge navigation to lands of Lord Foley's, near Dudley, and which is called the Dudley canal, which opened the communication between the towns of Stourport and Dudley, and which, by another act passed in the 25th Geo. 3., was extended to join a canal intended from Birmingham to Worcester.

We now find a communication opened by water, from, and to, the great trading town of Birmingham, to every place on, or near, the Trent and Mersey, and the Staffordshire and Worcestershire canals, and to all the towns in its own neighbourhood, to the westward and northward. The attention of the adventurers was next drawn to the opening a communication eastward and southward.

Accordingly, in the year 1789, an act passed to make a canal from Birmingham to Warwick, for which 100,000*l.* was raised; another from the Warwick canal, to join the Oxford canal. In 1797, another act passed for making a canal from the Birmingham and Worcester navigations to Stratford-upon-Avon. It remains for us now only to observe, that the original design of connecting the metropolis with every portion of the kingdom by inland navigation, has been recently fulfilled, by the union of the *Grand Junction Canal* before mentioned with that of the *Oxford*, at a place called Braunston, which, proceeding to Uxbridge, and thence to the village of Paddington, now the north-western suburb of London, completes the projected communication with that city. Even this, however, vast and magnificent as the object has always been considered, has been insufficient to satisfy the enterprize of this commercial metropolis; for, while these sheets are passing through the press, a continuation of the Paddington canal, skirting the whole northern side of London, with its adjacent parishes, is progressing toward completion, to join the Thames below the extremity of the eastern environs of the city.

Scotland and *Ireland* have also largely participated in the spirit of enterprize on this subject. In the former of these kingdoms, beside many inferior ones of infinite local advantage, two instances of inland navigation stand especially pre-eminent, viz. 1st, the great cut, called "The Caledonian Canal," running in a direction nearly east and west, from near Inverness on the east coast, by forts *Augustus* and *William* to the west coast, and making a complete section of the kingdom of Scotland. Secondly, a canal, denominated "The Union," recently undertaken, and connecting Edinburgh, the metropolis, with its rival in wealth and splendour and commerce, Glasgow.

In Ireland, nearly similar facilities are enjoyed by the metropolis, of communicating with the distant part of the kingdom by water-carriage, as we have been describing in England; for by the great canal with its floating dock, which connects Dublin with the Atlantic ocean, on the western side of Ireland, the kingdom is completely intersected, and the capital is enabled to supply almost every county with the commodities which she imports, as well as to convey an interchange of manufactures. *See further articles* SCOTLAND, and IRELAND, *title* EUROPE.

NAVIGATOR. A person properly qualified to bear this title, should have a perfect knowledge of the figure and motion of the earth; the various imaginary lines upon it, so as to be able to ascertain the distance and situation of places with respect to one another. He should also be acquainted with the several instruments employed in measuring the ship's way; such as the log, half-minute glass; quadrant, to take the al-

titude of the sun and stars; compass, to represent the sensible horizon; and azimuth compass, to take the azimuth and amplitude of the sun, in order to know the variation of the magnetic needle. He should have an accurate knowledge of maps and charts of the lands and seas; together with the depth of water, the times and setting-in of the tides upon the coasts that he may have occasion to visit; also the currents; of the mould and trim of the ship, and the sail she bears, that so a due allowance may be made for lee-way. By the help of these, he may at all times know the place the ship is in, which way he must steer, and how far he has to run to gain his intended port. The names of the two great divisions of navigation are taken merely from the kind of charts made use of. Plane sailing is that, in which the plane chart is made use of; and Mercator's sailing, or globular sailing, is that, in which Mercator's chart is used. The application of these to practical navigation being parts of the common education of a navigator, it is unnecessary to enlarge further upon them here.

NAVY-BILLS, are bills issued by the navy-board in payment of stores for ships, dock-yards, &c. They are made payable at 90 days, with interest. *See title* BILLS.

Counterfeiting navy-bills, &c. punished, 1 Geo. 1. stat. 2. c. 25. s. 6.

Stealing them felony, 2 Geo. 1. c. 25. s. 3.

NEALING. *See* ANNEALING.

NEAP, or Neep Tides, those tides which happen when the moon is in the first and last quarters, being low, when compared to spring tides.

NEAT, or Net-Weight, the weight of a commodity alone, clear of the cask, bag, case, and even filth.

NECKLACES, (Ger. *Halsbäander.* Du. *Halsband.* Da. *Halsbaand.* Sw. *Halsband.* Fr. *Colliers.* It. *Collane.* Sp. *Collares.* Port. *Colleiras, Gargantilhas,*) are ornaments worn by females round the neck, composed of diamonds, pearls, gold, &c. and are principally manufactured at London and Birmingham. There is a considerable trade to Africa in necklaces, and similar articles composed of bugles.

NEEDLES, (Ger. *Nähnadeln.* Du. *Naajnalden.* Da. *Syenaale.* Sw. *Synalar.* Fr. *Aiguelles.* It. *Aghi da cucire, Aguglie.* Sp. *Agujas para coser.* Port. *Agulhas de coser.* Rus. *Iglü.* Pol. *Igly,*) are well-known small instruments, made of steel, pointed at one end, and pierced at the other, used in sewing, embroidery, tapestry, &c. Needles make a very considerable article in commerce, though there is scarcely any commodity cheaper, the consumption of them being almost incredible. The sizes are from No. 1, the largest, to No. 25, the smallest. In the manufacture of needles, German and Hungarian steel are of most repute. In making of them, the first thing is to pass the steel through a coal fire, and then under a hammer, to bring it out of its square figure into a cylindrical one. This done, it is drawn through a large hole of a wire-drawing-iron, returned into the fire, and drawn through a second hole of the iron, smaller than the first, and thus successively from hole to hole, till it has acquired the degree of fineness required for that species of needles, observing every time it is to be drawn that it is greased over with lard, to render it more manageable. The steel thus reduced to a fine wire, is cut in pieces of the length of the needles intended. These pieces are flatted at one end on the anvil, in order to form the head and eye; they are then put into the fire to soften them farther, and thence taken out and pierced at each extreme of the flat part on the anvil, by force of a puncheon of well-tempered steel; and laid on a leaden block to bring out, with another puncheon, the little piece of steel remaining in the eye. The corners are then filed off the square of the heads, and a little cavity filed on each side of the flat of the head; this done, the point is formed with a file, and the whole filed over; they are then laid to heat red hot on a long, flat, narrow iron, crooked at one end, in a charcoal fire, and when taken out are thrown into a bason of cold water to harden. On this operation a good deal depends; too much heat burns them, and too little leaves them soft; the medium is learned by experience, but might be much sooner known by a thermometer. When they are thus hardened, they are laid in an iron shovel on a fire more or less brisk, in proportion to the thickness of the needles, a scale of which might be easily formed; taking care to remove them from time to time. This serves to temper them, and take off their brittleness: great care here too must be taken of the degree of heat. They are then straightened one after another with the hammer, the coldness of the water used in hardening them having twisted the greater part of them. The next process is the polishing them. To do this, take twelve or fifteen thousand needles, and range them in little heaps against each other in a piece of new buckram, sprinkled with emery-dust. The needles thus disposed, emery-dust is thrown over them, which is again sprinkled with oil of olives: at last the whole is made up into a roll, well bound at both ends. This roll is then laid on a polishing table; and over it a thick plank loaden with stones, which two men work backwards, and forwards, a day and a half, or two days, successively; by which means the roll being continually agitated by the weight and motion of the plank over it, the needles within-side being rubbed against each other with oil and emery, are insensibly polished. After polishing, they are taken out, and the filth washed off them with hot water and soap; they are then wiped in hot bran, a little moistened, placed with the needles in a

round box, and suspended in the air by a cord, which is kept stirring till the bran and needles are dry. The needles thus wiped in two or three different brans, are taken out, and put in wooden vessels, to have the good separated from those whose points, or eyes, have been broken, either in polishing or wiping; the points are then turned all the same way, and smoothed with an emery stone turned with a wheel. This operation finishes them, and there remains nothing but to make them into packets of two hundred and fifty each.

NEEDLE-WORK, importing prohibited, 13 and 14 Car. 2. c. 13. May be exported duty free, 11 and 12 Will. 3. c. 3. s. 15.

NEGLECT, every person who engages to do any act, for which he is to receive any compensation or emolument, is responsible for any neglect or mismanagement: thus, if a carrier undertake to carry goods, which are damaged through his neglect, or, if an agent or factor, &c. exceed the authority received from his principal, both are liable to make a compensation in damages, to the extent of the injury sustained.

Neglect is divided, by the laws of England, into *malfeasance*, *misfeasance*, and *nonfeasance:* the first is doing any act wilfully; the second, not doing it as it ought to be done; and the third, omitting to do it at all: the first of these may sometimes amount to a trespass, and the two latter are punishable by an action for damages proportionate to the injury sustained.

NEPHRITIC WOOD, (Ger. *Grieshoiz.* Du. *Graveelhout.* Da. *Griustræe.* Sw. *Grusträ.* Fr. *Bois néphrétique.* It. *Legno neufritico.* Sp. *Palo nefritico.* Port. *Páo nephritico.* Lat. *Lignum nephriticum,*) a wood of a very dense and compact texture, and of a fine grain, brought to us from New Spain, in small blocks, in its natural state, and covered with its bark. It is to be chosen of a pale colour, sound and firm, and such as has not lost its acrid taste; but the surest test of it is the infusing it in water; for a piece of it infused only half an hour in cold water, gives it a changeable colour, which is blue or yellow, as variously held to the light. If the bottle it is in be held between the eye and the light, the tincture appears yellow; but if the eye is placed between the light and the bottle, it appears blue. This wood is a diuretic, and is said to be of great use with the Indians in all diseases of the kidneys and bladder, in fevers and obstructions of the viscera. The Indians take it in an infusion of cold water.

NEPHRITIC-STONE. *See* JADE.

NET-WEIGHT. *See* NEAT.

NET-PROCEEDS, the amount or sum which goods produce after every necessary deduction is made.

NET-MAKER. This is a branch of business principally dependant on the fishermen, for whose use nets are chiefly made. Net-makers also manufacture nets for fowling, and nets made of silk, &c. for horses. It requires neither much strength, ingenuity, nor capital.

NETTING, in a ship, a sort of grapes made of small ropes, seized together with rope-yarn or twine, and fixed on the quarters, and in the tops; they are sometimes stretched upon the ledges from the waste-trees to the roof-trees, from the top of the forecastle to the poop; and sometimes are laid in the waste of a ship to serve instead of gratings.

NETTLE. The roots of the common nettle, when boiled, communicate a yellow tinge to yarn. But the most valuable part of this weed is the fibrous stalk or stem, which, on being dressed in a manner similar to flax or hemp, has been in some parts of Europe advantageously manufactured into cloth; and a coarse kind of durable canvas has been made in Great Britain from these materials, which is considerably harder than the cloth manufactured from hemp or flax.

From the rind, as well as the woody substance of the stalk, Dr. Schaeffer produced good white writing paper; although that manufactured by M. de Vilette in France, was of a dark green colour.

The seeds of the nettle, upon expression, afford an useful lamp-oil.

NEVEL, a small coin of a base alloy, current on the coast of Coromandel, eight or nine of which make a fancon, and fifteen fancons a pagoda; the nevel is worth from three to six casses.

NEUTRAL, a designation applied to any ship, that belongs to a nation, state, or port which is in amity with all other powers. Vessels of this description are always to be had in time of war, and are of the utmost utility, in a commercial point of view, as without their interference the current of trade between different parts of the globe, would, in all probability, be entirely impeded. Such nations as can boast the possession of a well ordered marine, in time of war acquire immense profits, by acting as carriers between hostile powers; for the freight which they obtain is necessarily greater than that allowed to vessels in the service of the belligerent states, and must of course increase in proportion to the duration of hostilities. The pristine celebrity of the Dutch navy was produced by that people avoiding war as much as possible, and becoming the general carriers of Europe. In the late war between France and England, the Americans reaped great emolument from their neutrality, and astonishingly improved the state of their marine; many of the northern powers have likewise benefitted by our frequent differences with the French. Whatever glory our navy may have acquired by war, the merchant-service

of Great Britain has been vitally injured by its frequency, owing to which, much of her carrying trade has from time to time got into other channels. It is not unusual with many of our trading vessels *to feign neutrality*; or, in other words, to provide themselves with neutral flags, manifests, and other papers, in order to impose upon any enemy which they may fall in with, whilst at sea. Projects of this kind sometimes prove abortive; but they also, not unfrequently, answer the end for which they are formed.

NEUTRALIZATION. When two or more substances destroy each other's properties, they are said to neutralize one another. Thus, in a proper combination of acid and alkaline substances, the acid and alkaline properties are destroyed.

NEWFOUNDLAND, is an island of 350 miles in length from north to south, and 200 in breadth, lying on the eastern coast of North America, between 47° and 52° N. lat. It was discovered by Sebastian Cabot, a Venetian in the service of England, near the conclusion of the 15th century, and has been always highly prized by the nation, not only on account of its fisheries being a mine of wealth, but one of the best nurseries for our navy. It is in itself a barren country; very mountainous, and extremely cold most of the year. There is scarcely any vegetation for the use of man, but it abounds in timber, especially *fir*, which produces as good masts as the fir of Norway. Beasts and birds in great variety; of the former, many that are good for food; of the latter, some useful for their skins; but fish is the staple commodity, and makes the value of the island. There are excellent harbours all round the island; St. John's, Trinity, Bonavesta, Conception, &c. &c. There are at least 500 English families continually resident, beside the garisons of St. John's, Placentia, and other forts; and during the fishing season, which is from May to September, both inclusive, at least 10,000 persons resort to it on account of the fishery, which is principally carried on toward the eastern part of the island, where *the great bank* is situate. This bank is a vast mountain under water extending in length according to estimation from 41° N. lat. to 49° 25′, and in breadth from 42° 30′, to 51° 30′ of long. west from London. The depth of water is from 5 to 60 fathoms, covered with fish of all kinds and sizes, from the cod of immense weight, to the smallest sprat, which serves for food to the cod. From one, to five hundred, sail of vessels have been loaded annually from this island for more than two centuries, for the markets of nearly all parts of the world, without any sensible diminution in the quantity of the commodity.

The next bank in size, and prolific in produce, is called the *green bank*. This bank is by estimation about 120 miles in length, and 50 in breadth, and is in all respects, size excepted, similar in circumstances to the great bank. This is situate on the south coast of the island.

The great strand, or drying place for fish, which is about a league in extent, lies between two steep hills, one of which is separated from the strand by a small rivulet, which forms what is called "the little bay," and abounds with salmon. The great strand will contain sufficient to load 50 or 60 ships at one time. There is a smaller strand, which is principally occupied in preparing fish for home consumption. *See further title* FISHERY, *article Cod-fishery*.

After what has been premised respecting the productions of the island, it is almost superfluous to add, that almost every necessary of life, both for food (wild fowl and fish excepted) and raiment, are imported from the mother-country.

The government, trade, and relations of Newfoundland, with the mother-country and other states of the world, are regulated by numerous statutes of the British parliament, much too numerous to be even abridged in a mere elementary work of this kind. Suffice it to say, therefore,

1st. That the present territorial provisions for Newfoundland, are by 49 Geo. 3. c. 27.

2dly. That the export of salt from Great Britain, for carrying on the fisheries in Newfoundland, is regulated by 38 Geo. 3. c. 89., and by 57 Geo. 3. c. 49.; by which last-mentioned statute it is allowed to be exported to Newfoundland, and certain other places therein mentioned, duty free.

3dly. That the vessels, by means of which the fisheries on the coasts of Newfoundland are carried on, are governed by 27 Geo. 3. c. 19., 44 Geo. 3. c. 44., and 56 Geo. 3. c. 83. by all of which, certain exceptions from the general laws of navigation are made in favour of Newfoundland.

4thly. That the passengers on board ships sailing to Newfoundland, are regulated by the said 56 Geo. 3. c. 83., as well with respect to numbers, as to accommodations.

5thly. That the trade of Newfoundland (in certain articles specified, being the produce of Europe) with Gibraltar and Malta, which forms an exception to the restrictions imposed on all British colonies by the navigation laws, is regulated by 46 Geo. 3. c. 116.; and further, that additional privileges respecting the direct trade between Newfoundland and the island of Malta, are extended by 55 Geo. 3. c. 20.

6thly. That the trade of Newfoundland with America, and the West India Islands, is under the regulations of 52 Geo. 3. c. 100., extended by 57 Geo. 3. c. 29.; and is further subject to modification by commercial treaties with the government of the American States; the most recent of which was

concluded at London on Oct. 20. 1818, and ratified by the President of the United States on Jan. 30. 1819. By this the respective rights of Great Britain and America, relative to the fisheries on the coasts of Newfoundland and Labrador, are defined.

Commerce, in its outline, not in its minute regulations, being the only province of an elementary work, we must refer the reader for further information relative to the trade of Newfoundland and its appendages of duties, countries, &c., to abridgements of the laws of excise and customs, and other works particularly adapted to the purpose of giving minute practical information; and to the appendix to this work.

NEWSPAPER, an article of too much importance to commerce to be omitted here. A newspaper is a sheet, or half-sheet, of paper, published and renewed periodically; viz. daily, weekly, or at some other determinate period. If it consist of more than a sheet, or a sheet of more than a prescribed size, it becomes a pamphlet; and this distinction is recognized by the statutes which impose the duties on newspapers. These vehicles of intelligence communicate indeed the news of each successive period, which was their only original purpose, with the exception of one, the gazette of government. But the important service which they now perform, in a commercial point of view, is by notifying sales of all kinds, lands, livings, houses, merchandize; by private contract, tender, and public auction; the arrival and departure of vessels; the bankruptcies of traders, the payment of dividends, and the dissolution of partnerships; in short, the wants and wishes of one-half of the nation, and the means of supplying those of the other half.

The 44 Geo. 3. c. 98. imposes a duty of 3½*d.* on every newspaper consisting of half a sheet or less *double demy*, or of one sheet *single demy* (sizes of paper so distinguished); and for every half sheet over and above, 3½*d.*

Printing or exposing to sale, or even having in custody, without stamp, subjects the party offending to 20*l.* penalty, 38 Geo. 3. c. 78.; omitting to print the full price at which sold, to 20*l.* penalty, 49 Geo. 3. c. 50.; letting to hire from house to house, to 5*l.* penalty; inserting seditious matter, &c. copied from foreign papers, to imprisonment, fine, &c., as for a misdemeanor. *Id.*

By 60 Geo. 3. and 1 Geo. 4., certain periodical pamphlets, containing news, &c. published at intervals not exceeding twenty-six days, or published for a less sum than 6*d.*, exclusive of duty, are subjected to the stamp duties on newspapers, and put under the same regulations. And by section 8. of the same act, no persons are to print or publish newspapers, or certain pamphlets, &c. without entering into recognizance or bond for securing fines upon conviction for libels.

NICARAGUA WOOD, (Ger. *Nikaragaholz, Blutholtz.* Du. *Bloedhout.* Da. *Blodtræe.* Sw. *Blodträ.* Fr. *Bois de sang, Bois de Nicarague.* It. *Legno sanguigno.* Sp. *Palo de sangre.* Port. *Pao sanguinho,*) a kind of dye-wood, of a very bright red colour; brought from Nicaragua, a province of Spanish America, where the tree which produces it grows in great abundance.

NICKEL, a semi-metal, which is rarely found, and then, almost exclusively, in mines of cobalt.

By means of the fixed vegetable alkali, nickel produces yellow, and by the volatile alkali, blue solutions.

The semi-metal fuses with other metals with great difficulty; but it is supposed that the Chinese prepare their white copper by the addition of nickel, which is an elegant composition, and may be applied, in the arts, to many useful purposes.

Nickel is commonly obtained from its sulphuret, the kupfernickel of the Germans, in which it is generally mixed also with arsenic, iron, and cobalt. This is at first roasted to drive off the sulphur, then mixed with two parts of black flux, put into a crucible, covered with muriat of soda, and heated in a forged furnace. The metal thus obtained is still impure, and must be dissolved in diluted nitric acid, and then evaporated to dryness; and after this process has been repeated three or four times, the residuum must be dissolved in a solution of ammonia, perfectly free from carbonic acid. Being again evaporated to dryness, it is now to be well mixed with two or three parts of black flux, and exposed to a violent heat in a crucible for half an hour or more. Mr. Chenevix observed, that a very small portion of arsenic prevents nickel from being affected by the magnet. When it is not attractable, we may be pretty certain that this is present.

Nickel is employed in potteries, and in the manufacturing of porcelain. A beautiful grass-green colour may be obtained from it; its oxide gives to flint-glass a hyacinthine colour.

NIL, a denomination for a sum of money, used in the late territories of the Grand Mogul. A hundred courons make one padan, and a hundred padans one *nil.* *See* COURON.

NINZIN, a root greatly esteemed in the East, and long since introduced into Europe. Ninzin and ginseng are too generally used as synonimous names, though they are generally very different. Ninzin is an oblong root, larger and thicker than ginseng, and of a more lax and spongy structure; it is usually met with about four or five inches long, and half an inch in diameter, sometimes considerably more. It is of the shape of a small parsnip, largest at top, and tapering to the bottom. It generally runs down all the way single, but sometimes is divided into two or more branches towards

the end. Ninzin is of a pale brown colour, often whitish on the surface, has a yellowish tinge within, an aromatic and sweet smell, an acrid, astringent taste, and is perfectly smooth. It ought to be chosen sound, firm, somewhat tough, not brittle or dusty, and of an agreeable smell. The true ninzin is collected on the mountains of Corea.

The Chinese and Japanese are extremely fond of ninzin; they, indeed, esteem it inferior to the ginseng, but more than equal to any other drug. They give it as a restorative cordial and provocative, and esteem it the best of all medicines in fevers; and attribute to it all the virtues of ginseng. *See* GINSENG.

NIPPERS, in a ship, are small ropes about a fathom or two long, with a little truck at one end, and sometimes only a whale-knot. They are used in holding off the cable from the main or jear capstan, where the cable is so slimy, wet, or so great, that they cannot strain it, to hold it off with their hands only.

NITRE. *See* SALTPETRE; and

NITRIC ACIDS. *See* ACID, *Nitric.*

NITROGEN-GAS, or AZOTIC GAS, a gaseous fluid which enters into the composition of the atmosphere in the proportion of 78 to 22 of oxygen-gas. It may be obtained by heating phosphorus in a proportion of dry atmospheric air; the phosphorus combines with the oxygen, and leaves the azote free; it however contains a small proportion of carbonic acid gas, from which it may be freed by passing it through lime-water.

Azotic gas is tasteless, inodorous, and insoluble in water. It does not support combustion; and is, when respired, fatal to animals. 100 cubic inches weigh 29.25 grains. With relative increased proportions of oxygen, it forms *nitrous oxide, nitrous gas, nitrous acid,* and *nitric acid.*

Nitrogen combined with chlorine forms a peculiar gas, composed of 1 part nitrogen, and 4 parts chlorine. The gases will not unite directly, but the compound may be obtained by exposing a solution of nitrate of ammonia to chlorine at a temperature of from 60° to 70°. The gas is absorbed, and an oil-like fluid is produced, swimming on the surface of the solution, This substance is highly explosive, and is decomposed with violent detonation by many combustible bodies.

Nitrogen united with hydrogen constitutes ammoniacal gas.

NOBLE was an ancient English money, now not in use; its value about 6*s*, 8*d*.

NONPAREIL, a small sized type, on which small Bibles, and common prayer-books, are printed. Also the name of a celebrated apple.

NONSUIT signifies the termination of a suit sent to a jury for trial, without their verdict passing upon it. It is sometimes so terminated by direction of the judge, sometimes by the voluntary renunciation of the party, on the discovery of some error in the proceedings. By this mode of withdrawing the matter from the cognizance of the jury, the right of the party to proceed again *de novo,* on the same subject, is preserved.

NOTARY-PUBLIC, is a person duly appointed to attest deeds and writings: he also protests and notes foreign, and inland, bills of exchange and promissory notes; translates languages, and attests the same; enters and extends ships' protests, &c.

The notary's fees of office, for noting and protesting bills, are settled by general acquiescence. The last regulations were by a general meeting of notaries in 1797, the resolutions of which meeting were approved by the Governor and Company of the Bank of England, and form the rule of charging at this time.

NOTES, *promissory.* Promissory notes are merely written promises to pay the sums therein written, either specifically to a particular person, or generally to any person who may be the bearer of them, or sometimes to the order of a particular person, at the time specified; which, in bankers' notes, is usually on demand.

These are made assignable, and indorsable like bills of exchange, by 3 & 4 Anne, c. 9. But prohibited, first, by 15 Geo. 3. c. 51., and subsequently with more precision, and a more summary mode of enforcement, by 48 Geo. 3. c. 88., not to be negotiable under twenty shillings value, but declared null and void, and the issuers punishable before a justice, in a penalty not exceeding 20*l.* nor less than 5*l.*

Bankers' notes, being payable on demand, are considered as cash, whether payable to order, or bearer, and are transferable by delivery, or may be negotiated by indorsement; if made to order are transferable only by the latter mode. *Bayl. Sum.* 31.

On a transfer by mere delivery of a note payable to bearer, the person delivering it ceases to be a party, but on a transfer by indorsement, he is chargeable as new drawer, like a bill of exchange. *Str.* 478.

Upon notes, as well as bills, for less than 5*l.*, the indorsement must be attested by a subscribing witness, with the name and abode of the person to whom payable, and bear date at or before making. 17 Geo. 3. c. 30.

The national banks and county bankers alone, issue notes properly so called; the London bankers give cheques. These are only taken conditionally, *if paid,* unless otherwise provided by agreement. And a person who receives such a cheque ought to present it with all reasonable dispatch, that is, immediately, subject only to the directions before pointed out with respect to bills of exchange.

Stamp Duties on Promissory Notes.

Promissory note for the payment of money *to the bearer on demand*, for any sum not exceeding one pound one shilling,

	£.	s.	d.
	0	0	5
Exceeding 1*l.* 1*s.* not exc. 2*l.* 2*s.*	0	0	10
- - 2*l.* 2*s.* - - 5*l.* 5*s.*	0	1	3
- - 5*l.* 5*s.* - - 10*l.*	0	1	9
- - 10*l.* - - 20*l.*	0	2	0
- - 20*l.* - - 30*l.*	0	3	0
- - 30*l.* - - 50*l.*	0	5	0
- - 50*l.* - 100*l.*	0	8	6

Which said notes may be re-issued, after payment thereof, as often as shall be thought fit.

Promissory note, for the payment, *in any other manner than to bearer on demand*, but not exceeding two months after date, or sixty days after sight, of any sum of money,

	£.	s.	d.
Amounting to 40*s.* not exc. 5*l.* 5*s.*	0	1	0
Exceeding 5*l.* 5*s.* - - 20*l.*	0	1	6
- - 20*l.* - - 30*l.*	0	2	0
- - 30*l.* - - 50*l.*	0	2	6
- - 50*l.* - 100*l.*	0	3	6

These notes are not to be re-issued after having been once paid.

Promissory note, for the payment, *either to the bearer on demand, or in any other manner than to bearer on demand*, but not exceeding two months after date, or sixty days after sight, of any sum of money,

	£.	s.	d.
Exceeding 100*l.* not exc. 200*l.*	0	4	6
- - 200*l.* - - 300*l.*	0	5	0
- - 300*l.* - - 500*l.*	0	6	0
- - 500*l.* - - 1000*l.*	0	8	6
- - 1000*l.* - - 2000*l.*	0	12	6
- - 2000*l.* - - 3000*l.*	0	15	0
- - 3000*l.* - - -	1	5	0

These notes are not to be re-issued after having been once paid.

Promissory note, for the payment to the bearer, or otherwise, at any time *exceeding two months* after date, or *sixty days after sight*, of any sum of money,

	£.	s.	d.
Amounting to 40*s.* not exc. 5*l.* 5*s.*	0	1	6
Exceeding 5*l.* 5*s.* - 20*l.*	0	2	0
- - 20*l.* - - 30*l.*	0	2	6
- - 30*l.* - - 50*l.*	0	3	6
- - 50*l.* - - 100*l.*	0	4	6
- - 100*l.* - - 200*l.*	0	5	0
- - 200*l.* - - 300*l.*	0	6	0
- - 300*l.* - - 500*l.*	0	8	6
- - 500*l.* - - 1000*l.*	0	12	6
- - 1000*l.* - - 2000*l.*	0	15	0
- - 2000*l.* - - 3000*l.*	1	5	0
- - 3000*l.* - - -	1	10	0

These notes are not to be re-issued after having been once paid.

Promissory note, for the payment of any sum of money by instalments, or for the payment of several sums of money at different days or times, so that the whole of the money to be paid shall be definite and certain; the same duty as on a promissory note, payable in less than two months after date, for a sum equal to the whole amount of the money to be paid.

By 31 Geo. 3. c. 25. all unstamped, or improperly stamped, bills or notes shall be void and unavailable: and it shall not be lawful for the commissioners to stamp the same at any time after they shall have been drawn; and the penalty on using paper not stamped, or improperly stamped, is 20*l.* by the same act of 31 Geo. 3. c. 25.

But by 55 Geo. 3. c. 184. if any person shall sign, accept, or pay any bill, draft, order, or note liable to the duties, without being duly stamped, he shall forfeit 50*l.* sec. 11.

However, by 37 Geo. 3. c. 136. the holder of any *bill, note, draft, or order*, stamped with a stamp of a different denomination than required, *if of equal or superior value* to the stamp required, may, *if produced before it be payable*, be stamped on payment of the duty and 40*s.* penalty: but if produced *after payable*, then on a penalty of 10*l.* sect. 5, 6.

And by 55 Geo. 3. c. 184. if any person shall issue any bill, draft, order, or note, which shall bear date subsequent to the day on which it shall be issued, so that it shall not in fact become payable in *two months* if after date, or in sixty days, if after sight, without the proper stamp in such case directed to be used, he shall forfeit 100*l.* sect. 12.

And if any person shall issue any bill, draft, or order payable to bearer, upon any banker, dated on any subsequent day, or which shall not specify the place where it issued, unless stamped as a bill of exchange, such person shall forfeit 100*l.* Persons receiving such drafts are also to forfeit 20*l.* and bankers paying the same shall not only forfeit 100*l.* but be disallowed the money paid in their accounts against the parties. sect. 13.

Any banker who shall have issued promissory notes for payment to bearer on demand, of any sum not exceeding 100*l.* may re-issue the same as often as he thinks fit. sec. 14. And that notwithstanding any alteration in the firm, or any alteration therein as to any house or place, where the same were first made payable. sect. 15.

No banker or other person shall, after the 31st of August, 1815, issue any promissory note for payment of money to bearer on demand *with the date printed thereon*, on pain of 50*l.* sect. 18.

If any person shall re-issue any note, bill, draft, or order, not allowed to be re-issued: or after payment thereof, shall refuse or neglect to cancel the same, such person shall forfeit 50*l.* and in case of the same being re-issued, he is also chargeable with a further duty, as if the same had been then first issued, and persons knowingly receiving the same, shall forfeit 20*l.* sect. 19.

Re-issuable notes are not to be issued by bankers or others without an annual licence of 30*l.* for each town or place where they are issued. sect. 30.

Promissory notes payable to bearer on

demand, made out of Great Britain, shall not be negotiable, whether payable in Great Britain or not, unless duly stamped; and persons circulating the same are to forfeit 20*l.* for each, but this is not to extend to notes when made and payable only in Ireland. sect. 29.

NOTICE, in law, is the making something known that a man was or might be ignorant of before, and it produces divers effects; for by it the party that gives the same shall have some benefit, which otherwise he should not have had: and by this means the party to whom the notice is given is made subject to some action or charge, that otherwise he would not have been liable to, and his estate in danger of prejudice. *Co. Lit.* 309.

If the holder of a bill of exchange, upon presenting it for acceptance or payment, find it dishonoured, he is bound to give notice to the antecedent indorser; and if he neglect to do so, he cannot recover the amount from them.

NOTING AND PROTEST. In the case of an *inland* bill being refused acceptance, or payment, by the drawer when presented, it should be noted; that is, taken to a notary, who makes a formal demand of acceptance, and if refused makes *a note of it.* If it be a foreign bill, there is the same process, accompanied by what is called a protest, which is only a more formal and particular account of the demand and refusal, drawn out in a more methodical and circumstantial manner. To such an instrument all foreign courts give credit by established usage. They differ in form in different countries, but in England are authenticated additionally by being directed to be on a government-stamp.

The reason why protest and notice are required is, that the parties from whom the holder received the bill, may call on those who are liable to them for an indemnity, therefore it seems immaterial from whom they receive it, so it be actually received.

And the person receiving notice of non-acceptance, noting, or protest, must give like notice to those who are liable to him, or similar reasons.

In an action upon a bill, the plaintiff is entitled to recover the money payable thereby, with interest from the time it became due, to the time of final judgment, with *all incidental* expenses, occasioned by the non-acceptance and non-payment, as noting, protest, &c.; and upon a foreign bill, the drawer. The re-exchange forms a part of the return, and let the bill be returned through ever so many hands, the drawer is liable for the re-exchange upon each return.

Duties on protests are, of any bill of exchange or promissory note, for any sum of money, not amounting to 20*l.* £0 2 0
Amounting to 20*l.* not to 100*l.* 0 3 0
Amounting to 100*l.* not to 500*l.* 0 5 0
Amounting to 500*l.* or upwards £0 10 0
Protest of any other kind - 0 5 0
And for every sheet after the first, a further duty of - 0 5 0

See further PROTEST.

NUMERO, or NUMBER, in commerce, a term prefixed to any number of things marked N°.

NUT, or HAZEL-NUT. (GER. *Haselnüsse.* DU. *Hazelnooten.* DA. *Hasselnödder.* SW. *Hasselnotter.* FR. *Norsettes, Avelines.* IT. *Naccinole, Avelane.* SP. *Avellanas.* PORT. *Avellãas.* RUS. *Orechi.* POL. *Loskowy orzech.* LAT. *Avellanæ.*) There are three species of nut-trees, viz. 1. *The corylus avellana,* (from Avellino, in Italy, where they were first cultivated,) or hazel, of which the filbert is a variety. 2. *Corylus rostrata,* or American cuckold-nut. 3. *Corylus columbo,* Constantinopolitan hazel. They are all of the large shrub kind, hardy, and deciduous; and have several varieties valuable for their nuts, as also for their variety in large wildernesses and shrubberries. These nuts are more nourishing than walnuts, but also harder to digest. To come to perfection they require a dry season: much rain will destroy them.

The kernels of the fruit have a mild, farinaceous, oily taste, agreeable to most palates. A kind of chocolate has been prepared from them, and they have sometimes been formed into bread. The oil expressed from them is little inferior to the oil of almonds; and is used by chemists, painters, perfumers, &c. for receiving and retaining odours. Nuts are imported by us from different parts of France, Spain, and Portugal; but principally from Bilboa and Barcelona, in Spain.

In the latter kingdom, the district of Avellino is almost covered with hazel-nut bushes, which in favourable seasons bring in a profit of sixty thousand ducats. These bushes were originally imported into Italy from Pontus, and known among the Romans by the appellation of *nux pontica.* The proprietors plant them in rows, and by dressing, form them into large bushes of many stems. Every year, they refresh the roots with new earth, and prune off the straggling shoots with much attention. The Spanish nuts are usually flatter and longer than the English hazel-nuts: they are imported in bags.

NUTMEG. (GER. *Muskatennüsse.* DU. *Muskaät.* DA. *Muskad.* SW. *Muskot.* FR. *Muscades, Noix muscades.* IT. *Noce muscada.* SP. *Moscada.* PORT. *Noz mascada.* RUS. *Musskatnüe oreschki.* POL. *Muszatowa galka.* LAT. *Nux moschata.*) There are two sorts of nutmegs, the one male, and the other female. The female is that in common use; the male is longer and more cylindric, but it has less of the fine aromatic flavour than the other. This is very subject to be worm-eaten, and by the Dutch always strictly pro-

hibited from being packed with the others, lest it give occasion to the insects getting from one species to the other.

The seeds or kernels called nutmegs have been long used both for culinary, and medical, purposes. Distilled with water, they yield a large quantity of essential oil, resembling in flavour the spice itself: after the distillation, an insipid sebaceous matter is found swimming on the water; the decoction inspissated, gives an extract of an unctuous, very slightly bitterish taste, and with little or no astringency. Rectified spirit extracts the whole virtue of nutmegs by infusion, but elevates very little of it in distillation; hence the spirituous extract possesses the flavour of the spice in an eminent degree.

Nutmegs, when heated, yield to the press a considerable quantity of limpid yellow oil, which, on cooling, concretes into a sebaceous consistence. In the shops, there are three sorts of unctuous substances, called oil of mace, though really expressed from the nutmeg.

The best is brought from the East Indies in stone jars: this is of a thick consistence, of the colour of mace, and has an agreeable fragrant smell; the second sort, which is paler-coloured, and much inferior in quality, comes from Holland in solid masses, generally flat, and of a square figure; the third, which is the worst of all, and usually called *common* oil of mace, is an artificial composition of serum, palm oil, and the like, flavoured with a little genuine oil of nutmeg.

The medicinal qualities of nutmeg are aromatic, anodyne, stomachic, and astringent; and with a view to the last-mentioned effects, it has been much used in diarrhœas and dysenteries. The aromatic flavour of nutmeg is very agreeable; it should however not be used in large quantities, as it is apt to affect the head, and even to manifest a narcotic quality in such a degree as to prove extremely dangerous.

The officinal preparations of nutmeg are, a spirit, and essential oil; and the nutmeg in substance roasted, to render it more astringent. Both the spice itself, and its essential oil, enter several compositions, as the *confectio aromatica, spiritus ammoniæ com. &c.* Mace possesses qualities similar to those of the nutmeg, but is less astringent, and its oil is supposed to be more volatile and acrid.

An Account of the Nutmeg-tree.

The nutmeg-tree, in its size and foliage, resembles the pear-tree; it attains the height of thirty feet, producing numerous branches, which rise together in stories. The bark of the trunk is of a reddish-brown, but that of the young branches is of a bright green colour. The leaves are nearly elliptical, pointed, undulated, on the upper side of a bright green, on the under whitish. The flowers are small, and male and female upon separate trees; they are succeeded by the fruit, which is covered with an external green substance, similar in its form to the common walnut, but more fleshy and full of juice. It is nine months before the fruit comes to perfection. The nutmeg differs in goodness according to the age of the tree, the soil, the exposition, and mode of culture. The round nutmeg is preferred to that which is oblong; and that fruit is more particularly esteemed which is fresh, moist, heavy, of good smell, and an agreeable though bitter flavour, and which yields an oily juice when pricked. Nutmeg-trees grow in several islands of the Eastern Ocean. The wood-pigeon of the Moluccas is unintentionally a great planter of these trees, and disseminates them in places, whence the monopolizers of the article which they produce conceive it their interest that they should be rooted out, or otherwise destroyed. The growth of this aromatic is chiefly confined to a few of the Banda Islands, whereof Banda itself, Neira, and Pouloay produce 800,000 lb. of nutmegs annually.

The method of gathering and preparing nutmegs. — When the fruit is ripe, the natives ascend the trees, and gather it by pulling the branches to them with long hooks. Some are employed in opening them immediately, and in taking off the green shell or first rind, which is laid together in a heap in the woods, where in time it putrefies. As soon as the putrefaction has taken place, there spring up great quantities of mushrooms underneath, called *boleti moschatyni*, of a blackish colour, and much valued by the natives, who consider them as delicate eating. When the nuts are stripped of their first rind, they are carried home, and the mace is carefully taken off with a small knife. The mace, which is of a beautiful red, but afterwards assumes a darkish-red colour, is laid to dry in the sun for the space of a day, and is then removed to a place less exposed to his rays, where it remains for eight days that it may soften a little. They afterwards moisten it with sea-water, to prevent it from drying too much, or from losing its oil. They are careful, however, not to employ too much water, lest it should become putrid, and be devoured by the worms. It is at last put into small bags, and closely squeezed.

The nuts, which are still covered with their ligneous shell, are for three days exposed to the sun, and afterwards dried before a fire, till they emit a sound, when they are shaken; they then beat them with small sticks in order to remove their shells, which fly off in pieces. These nuts are distributed into three parcels, the first of which contains the largest and most beautiful, which are intended for Europe; the second contains such as are reserved for the use of the inhabitants; and the third contains the smallest, which are irregular or unripe.

These are burnt; and part of the rest is employed for procuring oil by pressure. A pound of them usually produces three ounces of oil, which has the consistence of tallow, and entirely the taste of nutmeg.

The nutmegs which have been thus selected, would soon corrupt if they were not watered, or rather pickled, with lime-water made from calcined shell-fish, which is diluted with salt water till it attains the consistence of fluid pap. Into this mixture the nutmegs, contained in small baskets, are plunged two or three times, till they are completely crusted over with the mixture. They are afterwards laid in a heap, where they heat, and lose their superfluous moisture by evaporation. When they have sweated sufficiently, they are then properly prepared, and fit for exportation.

NUX-VOMICA, (for the synonyms, *see* POISON-NUT,) a flat, compressed, round kernel of a fruit, somewhat downy, and of a very firm texture; it has no smell, but is of a very bitter taste. We have it only from the East Indies, together with another drug, the *lignum colubrinum*, the tree on which the nux-vomica grows. This tree, which is extremely large, is principally met with in Malabar and Coromandel. The species are three: the *nux-vomica, colubrine*, and *potatorum*. The surface of the nux-vomica is not much corrugated, its texture is firm, like horn, of a pale greyish colour without, and various colours within, sometimes white, and sometimes brown: the largest, whitest, newest, and cleanest being the best. It is generally about the breadth of a shilling. It is extremely bitter and deleterious, though used in medicine. Nux-vomica has been more than suspected to have been made use of in the porter breweries, although it is so strongly narcotic as to poison dogs, fishes, &c. When it is suspected that a dog has swallowed this drug, the administering of two or three spoonfuls of vinegar will perfectly counteract its deleterious effects.

O, The fourteenth letter of the alphabet. As a numeral it is used for eleven, and with a dash over it, thus, $\bar{O}$, signifies 11,000.

OAK, (Ger. *Eiche*. Du. *Eik*. Da. *Eeg*. Sw. *Ek*. Fr. *Chêne*. It. *Quercia*. Sp. *Roble, Carballo*. Port. *Roble, Carbalho*. Rus. *Dub*. Pol. *Dab*. Lat. *Quercus*.)

The English oak claims precedence as a timber-tree, for its prodigious height and bulk, and the superior worth of its timber. Every possessor of considerable estates ought therefore to be particularly assiduous in raising woods of them; which is effected by sowing the acorns either in a nursery and the plants transplanted where they are to remain, or sown at once in the places where they are always to stand. There are said to be nearly 30 different species of the oak genus.

All the sorts will grow in any middling soil and open situation, though in loam they are generally most prosperous; they will thrive tolerably in gravelly, sandy, and clayey land, as may be observed in many parts of this country of the common oak; but it has been found by experiment that the timber of oaks grown in clay soil is the toughest and most durable; that such as is grown in sharp sand easily shivers, and is least durable.

Besides the grand purposes to which the timber is applied in navigation and architecture, and the bark in tanning of leather, there are other uses of less consequence, to which the different parts of this tree have been referred. The highlanders use the bark to dye their yarn of a brown colour, or, mixed with copperas, to procure a black. Oak saw-dust is also a principal ingredient in dyeing drabs, especially fustian. The acorns are a good food to fatten swine and turkeys. There are acorns produced from another species of oak, which are eaten to this day in Spain and Greece, with as much pleasure as we eat chesnuts.

OAK-APPLES, sometimes called oak-balls, a kind of galls, or excrescences, arising out of oak. *See* GALLS.

OAK-BARK, (Ger. *Bork, Eichenrinde, Loke*. Du. *Run, Runne*. Da. *Bark, Garverbark*. Sw. *Bark, Ekbark*. Fr. *Tawbrut*. It. *Scorza di quercia*. Sp. *Corteza de encina*. Port. *Casca do carvalho*. Rus. *Dubowüi kora*. Pol. *Dab garbarski*.) *See titles* BARK and TANNING; and respecting the importation of oak bark, see 12 Geo. 2. c. 50. and 52 Geo. 3. c. 18.

OAKUM, old ropes untwisted, and pulled out into loose hemp, in order to be used in caulking the seams, tree-nails, and bends of a ship, for stopping and preventing leaks, &c.

OARS. (Ger. *Riemen* (*zu fahrzeugen*). Du. *Riemen*. Da. *Aarer*. Sw. *Aoror*. Fr. *Avirons, Rames*. It. *Remi*. Sp. and Port. *Remos*.) Oar, in navigation, a long piece of wood, for moving a vessel by rowing. Oars for ships are generally cut out of fir-timber, those for barges are made out

of New England or Dantzic rafters, and those for boats out of English ash, or Norway fir-rafters.

OATH, an affirmation or denial, of any thing before one or more persons, who have the authority to administer the same, for the discovery and advancement of truth and right. *See* AFFIDAVIT.

OATS. (Ger. *Hafer*. Du. *Haver*. Da. *Havre*. Sw. *Hafre*. Fr. *Avoine*. It. *Vena*, *Avena*. Sp. *Avena*. Port. *Avea*. Rus. *Owes*. Pol. *Owies*. Lat. *Avena*.) We reckon twenty-five species of this grain, some of which are said to be indigenous. The large, white, Poland oat is most esteemed, being the only one entirely proper for the making of meal for medicinal, and culinary, purposes; and at the same time the best for horse-provender. Oats will thrive on almost any soil, but are an early, or a late, crop, according to the land on which they are sown. In the counties consisting of a warm sand, the white oats of different kinds are usually sown, and are an early crop. In the cold, and the wet, counties, a small, coloured oat is generally sown late, and produces the last crop of corn of the season. *See* CORN.

OBLIGATION, is a bond containing a penalty, with a condition annexed, either for payment of money, performance of covenants, or the like; this security is termed a specialty, and is preferred, in a course of administration, to a debt upon simple contract. 2 *Black. Com.* 340.

All persons who are capable of contracting, may bind themselves by an obligation. If a married woman enter into an obligation, such obligation shall be void, and neither she nor her husband shall be bound by it.

The obligation of an infant, although for necessaries, will be also void.

Two or more persons may bind themselves jointly, and severally, in which latter case the obligee may sue jointly, or severally; but if they are jointly, and not severally, bound, the obligee must sue them jointly; and in such case, if one of them dies, his executor is totally discharged, and the survivor and survivors only will remain chargeable.

If two jointly, and severally, bind themselves in an obligation which they severally deliver at different times; the obligation is either joint, or several, at the election of the obligee.

If an obligation be made to three, to pay money to one of them, they must all join in suit, for they constitute but one obligee; and if he, to whom the money is paid, dies, the survivors must sue, although they have no interest in the sum contained in the condition.

In an obligation to three, where two bring their action, they ought to shew that the third is dead. *See* BOND.

OBOLUS, in pharmacy, a weight, two of which make a scruple, and three scruples one drachm.

OBSERVATION, among navigators, implies the taking the sun or stars' meridian altitude, in order thereby to find the latitude of the place required.

OCCUPIERS *of walling*, a term in the salt-works for the persons who are the sworn officers that allot, in particular places, what quantity of salt is to be made, that the markets may not be overstocked, and see that all is carried fairly and equally between the lord and the tenant.

OCHAVO, or Octavo, a small copper coin of Spain, equivalent to $\frac{23}{136}$ of a penny sterling.

OCHRE, (Ger. *Ocher*, *Oker*. Du. *Oker*. Da. *Ocksr*, *Ocher*. Sw. *Ockra*, *Ochra*. Fr. *Ochre*, *Ocre*. It. *Ocra*, *Ocria*. Sp. *Ocre*. Port. *Ocra*, *Ochre*. Rus. *Wochra*. Pol. and Lat. *Ochra*,) a genus of earths, slightly coherent, and composed of fine, smooth, soft, argillaceous particles, rough to the touch, and readily diffusible in water. It is a combination of alumina and red oxide of iron. Ochres are of various colours, as red, blue, yellow, brown, green, &c. They are to be found in greater abundance in England, and Italy, than in any other parts of the world. Ochres are of extensive use as colours, not only in oil but in water-painting.

The colours of every species of ochre may be varied by means of fire, and thus brown, and yellow, ochres are frequently turned to red pigments.

OCTAVO, signifies a sheet of paper folded into eight leaves.

OFFICE, is that function, by virtue whereof a person has some employment in the affairs of another. An office is a right to exercise any public or private employment, and to take fees and emoluments thereunto belonging, whether public, as those of magistrates, or private, as of bailiffs, receivers, &c. The statute of 5 and 6 Edw. 6. c. 16. declares all securities given for the sale of offices unlawful. And if any person shall bargain or sell, or take any reward, or promise of reward, for any office, or the deputation of any office, concerning the revenue, or the keepers of the king's castles, or the administration and execution of justice, unless it is such an office as has been usually granted by the justices of the king's bench or common pleas, or by justices of assize, every such person shall not only forfeit his right to such office, or to the nomination thereof, but the person giving such reward, &c. shall be disabled to hold such office But it has been decided, that where an office is within the statute, and the salary certain, if the principal makes a deputy, reserving by bond a less sum out of the salary, it is good; or if the profits are uncertain, reserving a part as half the profits, it is good; for the fees still belong to the principal, in

whose name they must be sued for. But where a person so appointed, gives a bond to the principal to pay him a certain sum, without reference to the profits; this is void under the statute. *Salk.* 465.

And now by stat. 49 Geo. 3. c. 126. it is declared to be a misdemeanor to *buy, sell, pay money for, offer a reward for, or enter into negociation relative to,* the purchase or sale of all offices in the gift of the crown, or of any officer appointed by the crown; of all commissioners civil, naval, or military; and to all places, &c. under the controul or superintendence of the commissioners of the treasury, secretaries of state, commissioners of the admiralty, principal officers of the ordnance, commander in chief, secretary at war, paymaster of the forces, commissioners for the affairs of India, for those of the excise, navy, victualling, or transport boards, commissary-general, storekeeper-general, and the principal officers of all other public departments, &c. &c.

These provisions are still further extended with respect to offices in Ireland, by 53 Geo. 3. c. 54. And now, by the annual mutiny act, it is provided that any person not being an authorized army agent, negociating for the purchase, sale, or exchange of commissions in his majesty's forces, shall forfeit for such offence 100*l.* and treble the value of the sum received or negociated for, above the price allowed by his majesty's regulations.

And by the above-mentioned statute of 49 Geo. 3., publishing or advertising the names of brokers or agents for negociating bargains of those kinds, or of houses for the transacting of such negociations, is made an offence punishable by fine of 50*l.* on conviction, payable to the prosecutors.

To offer money to any officer of state, to procure the reversion of an office in the gift of the crown, is a misdemeanor at common law, and punishable by information; and even the attempt to induce him under the influence of a bribe, is criminal, though never carried into execution. Any contract to procure the nomination to an office, not within the statute, is defective in the ground of public policy, and the money agreed to be given is not recoverable.

OFFICERS of the *Customs, Excise,* and *Stamp Duties,* &c. *See* CUSTOM OFFICERS, EXCISE, STAMPS, &c. and OFFICE.

OFFING, or OFFIN, in the sea language, that part of the sea a good distance from shore, where there is deep water, and no need of a pilot to conduct the ship; thus, if a ship from shore is seen sailing out to seaward, they say, she stands for the offing; and if a ship, having the shore near her, has another a good way without her, or towards the sea, they say that ship is in the offing.

OIL. (Ger. *Oel.* Du. *Oli, Olie, Oly.* Da. *Olje.* Sw. *Olja.* Fr. *Huile.* It. *Olio.* Sp. *Aceite.* Port. *Oleo.* Rus. *Maslo.* Pol. *Oley.* Lat. *Oleum.*) There are two classes of oils exceedingly different from each other, namely, fixed oils, and volatile oils. The latter are also susceptible of a division into fat, and drying, oils.

Fixed oils are distinguished by the following character: 1. Liquids, or easily becoming so when exposed to a gentle heat. 2. An unctuous feel. 3. Very combustible. 4. A mild taste. 5. Boiling point not under 600°. 6. Insoluble in water and alcohol. 7. Leave a greasy stain upon paper. Those oils which are called also fat, or expressed oils, are numerous; and are obtained, partly from animals and partly from vegetables, by simple expression. As instances may be mentioned whale or train oil, obtained from the blubber of the whale; olive-oil, obtained from the fruit of the olive; linseed-oil and almond oil, obtained from linseed and almond-kernels. Fixed oils may also be extracted from poppy-seeds, hemp-seeds, beech-mast, birch-tree, and many other vegetable substances.

Certain dry matters may be made to afford oil by expression, by grinding them into a meal, which being suspended so as to receive the vapour of boiling water, will thus be moistened, and afford an oil, in the same manner as almonds. Oils obtained by expression should be suffered to depurate themselves, by standing in a moderately cool place; to separate from their water, and deposit their fæces: from both which they ought to be carefully freed.

The only part of vegetables in which fixed oils are found is the seeds of bicotyledinous plants. In animals they are most usually deposited in the liver, though they are found also in the eggs of fowls.

Fixed oil is usually a liquid with a certain degree of viscidity, adhering to the sides of the glass vessels in which it is contained, and forming streaks. It is never perfectly transparent, having always a certain degree of colour; most usually it is yellowish or greenish. Its taste is sweet, or nearly insipid. When fresh it has little or no smell. Its specific gravity varies from 0.9403 (the specific gravity of linseed-oil) to 0.9153 (the specific gravity of olive-oil).

When fixed oils are exposed to the open air or to oxygen gas, they undergo different changes according to the nature of the oil.

1. Some of them dry altogether, without losing their transparency, when thin layers of them are exposed to the atmosphere. These are distinguished by the name of drying-oils, and are employed by painters. Linseed-oil, nut-oil, poppy-oil, and hemp-seed-oil, possess this property; but linseed-oil is almost the only one of these liquids employed in this country as drying oil. The cause of this peculiarity has not been completely investigated; but it is well known that these oils possess the drying

quality at first but imperfectly. Before they can be employed by painters, they must be boiled with a little litharge. During this operation the litharge is partly reduced to the metallic state. Hence it has been conjectured that drying oils owe their peculiar properties to the action of oxygen: which is supposed either to constitute one of their component parts, or to convert them into drying oils by diminishing their hydrogen.

2. Other fixed oils, when exposed to the atmosphere, gradually become thick, opaque, and white, and assume an appearance very much resembling wax or tallow. These have been distinguished by the term fat oils. Olive-oil, oil of sweet almonds, of rape-seed, and of ben, belong to this class.

3. Both these classes of oils, when exposed in considerable quantity to the action of the atmosphere, undergo another change, well known under the name of rancidity. But the fat oils become rancid much more readily than the drying oils. Rancid oils are thick, have usually a brown colour, convert blues to red, and have the smell and taste of sebacic acid. During the change which they undergo, some drops of water also appear on their surface. The rancidity of oils then is owing to the formation of a quantity of acid in them. This. together with the water, is evidently the consequence of a partial decomposition.

Fixed oils combine with alkalies and earths, and form with them compounds called soaps. The fat oils enter into these combinations, much more readily than the drying oils. *See* SOAP.

Volatile oils, called also essential oils, are distinguished by the following properties:

1. Liquid; often almost as liquid as water; sometimes viscid.

2. Very combustible.

3. An acrid taste, and a strong fragrant odour.

4. Boiling point not higher than 212 degrees.

5. Soluble in alcohol; and imperfectly in water.

6. Evaporate without leaving any stain on paper.

By this last act it is easy to discover whether they have been adulterated with any of the fixed oils. Let a drop of the volatile oil fall upon a sheet of writing-paper, and then apply a gentle heat to it. If it evaporates without leaving any stain upon the paper, the oil is pure, but if it leaves a stain, it has been contaminated with some fixed oil or other.

If an essential oil be adulterated with an expressed oil, there is another mode of discovering the fraud, by adding a little spirit of wine to a few drops of the suspected oil, and shaking them together; for the spirit will dissolve all the oil that is essential, and leave the expressed oil untouched. If an essential oil be adulterated with alcohol, to discover the fraud put a few drops of the oil into fair water; if it be adulterated the water will immediately turn milky, and by continuing to shake the glass, the whole quantity of spirit will be absorbed by the water, and leave the oil pure at the top. If an essential oil be adulterated by a cheaper essential oil, such as oil of turpentine, this fraud will easily be discovered by the real flavour being overpowered by the turpentine smell.

Volatile oils are almost all obtained from vegetables, and they exist in every part of the plants; the root, the bark, the wood, the leaves, the flower, and even the fruit: though they are never found in the substances of the cotyledons; whereas the fixed oils, on the contrary, are almost always contained in these bodies. When the volatile oils are contained in great abundance in plants, they are sometimes obtained by simple expression. This is the case with the oil of oranges, of lemons, and of bergamot; but in general they can only be obtained by distillation. The part of the plant containing the oil is put into a still with a quantity of water, which is distilled off by the application of a moderate heat. The oil comes over along with the water, and swims upon its surface in the receiver. By this process are obtained the oils of peppermint, thyme, lavender, and a great many others, which are prepared and employed by the perfumer. Others are procured by the distillation of resinous bodies. This is the case in particular with oil of turpentine, which is obtained by distilling a kind of resinous juice, called turpentine, that exudes from juniper.

The scented flowers, like jessamine, honeysuckle, sweet-briar, roses, &c. usually require to be treated in a particular manner; the essential oil being too dear, and scarcely obtainable by distillation, if the flowers are barely infused in fine oil of nuts, or oil of ben, drawn without heat, and kept in a cool place, their subtile, odorous matter will pass into the oil, and richly impregnate it with their flavour. These essences may be rendered still more perfect by straining off the oil first put on, and letting it stand again without heat, upon fresh flowers; which operation may be repeated twice or thrice. Oil impregnated with green herbs, as camomile, alder, &c. requires long boiling to obtain their virtues.

The greater number of volatile oils are liquid, and some of them are as transparent and colourless as water. This is the case with the oil of turpentine; but for the most part they are coloured. Some of them are yellow, as the oil of lavender; some brown, as the oil of rhodium; some blue, as the oil of camomile; but the greater number of volatile oils are yellow, or reddish-brown.

Their odours are so various as to defy all description. It is sufficient to say, that all the fragrance of the vegetable kingdom re-

sides in the volatile oils. Their taste is always acrid, hot, and unpleasant. Their specific gravity is for the most part less than that of water; but some volatile oils, as those of canella and sassafras are heavier than water. The specific gravity of oils varies from 0.8697 to 1.6439. Water dissolves a small portion of volatile oils, and acquires the odour and taste of the oil which it holds in solution.

When heated, they evaporate very readily and without alteration. They are much more combustible than fixed oils, owing to their greater volatility. They burn with a fine, bright, white, flame, exhale a great deal of smoke, deposit much soot, and consume a greater proportion of the oxygen of the atmosphere than fixed oils. The products of their combustion are water and carbonic acid gas. From these facts it has been concluded that they are composed of the same ingredients as the fixed oils, but that they contain a greater proportion of hydrogen.

When exposed to the action of cold they congeal like the fixed oils; but the temperature necessary to produce this effect, varies according to the oil. Some of them, as oil of anise, and of fennel, become solid at the temperature of 50 degrees; frozen oil of bergamot and of canella become liquid at 23°; oil of turpentine at 14°. Margueron exposed several volatile oils to a cold of 17°. They congealed, or rather crystallized partially, and at the same time emitted an elastic fluid, These crystals consisted partly of the oils themselves, partly of other substances. Some of them had the properties of benzoic acid.

Volatile oils, when exposed to the action of light in close vessels, and excluded from common air, undergo very singular changes. Their colour becomes deeper, they acquire a great deal of consistency, and their specific gravity is considerably increased. Tingry, to whom we are indebted for these interesting researches, has proved that light is a necessary agent. It was supposed formerly that they were occasioned by the absorption of oxygen; and when oxygen is present, it has been ascertained that it is absorbed; but Tingry has proved that the same changes go on when oxygen is excluded. This philosopher ascribes them to the fixation of light. And if this be the real cause, the quantity of light fixed must be enormous; for as the specific gravity of the oils is increased considerably while the bulk continues the same, it is evident that the absolute weight must be increased proportionably. One circumstance, however, renders this conclusion doubtful, at least in its full extent; and that is, that the quantity of change was always proportional to the quantity of the oil and the quantity of air contained in the vessel.

When exposed to the open air, their colour becomes gradually deeper, and they acquire consistency, while they exhale, at the same time, a very strong odour. The air around, as Priestley first ascertained, is deprived of its oxygen, a quantity of water is formed, and the oils at last, for the most part, assume the form of resins.

Volatile oils are applied to a great number of uses. Some of them are employed in medicine; some of them, as oil of turpentine, are much used to dissolve resins, which are afterwards employed as varnishes; not to mention their employment in painting, and perfumery. Besides the oils which exist ready formed in the vegetable and animal kingdoms, there are a variety of others which are obtained when animal or vegetable bodies are distilled by means of a heat above that of boiling water. These oils have received the appellation of empyreumatic, because they are formed by the action of fire.

The following is a list of the plants which yield the fixed oils occurring usually in commerce.

1	Linum usitatissimum & perenne	Linseed oil
2	Corylus avellana	Nut oil
3	Juglans regia	
4	Papaver somniferum	Poppy oil
5	Cannabis sativa	Hemp oil
6	Sessamum orientale	Oil of sesamum
7	Olea Europea	Olive oil
8	Amygdalus communis	Almond oil
9	Guilandina Mohringa	Oil of behen
10	Cacurbita pepo & melapepo	Cucumber oil
11	Fagus sylvatica	Beech oil
12	Sinapis nigra & arvensis	Oil of mustard
13	Helianthus annuus & perennis	Oil of sunflower
14	Brassica napis & campestris	Rapeseed oil
15	Ricinis communis	Castor oil
16	Nicotiana tabacum & rustica	Tobacco-seed oil
17	Prunus domestica	Plum kernel oil
18	Vitis vinifera	Grapeseed oil
19	Thebroma cacao	Butter of cacao
20	Laurus nobilis	Laurel oil
21	Arachis hypogæa	Ground-nut oil

The following TABLE contains a copious list of plants which yield volatile oils. The part from which it is extracted, and the English name of the oil, are in separate columns.

	Plants.	Parts.	Oil of	Colour.
1	Artemisia absynthium	Leaves	Wormwood	Green
2	Acorus calamus - -	Root	Sweet flag	Yellow
3	Myrtus pimenta - -	Fruit	Jamaica pepper	Yellow
4	Anethum graveolens -	Seeds	Dill	Yellow
5	Angelica archangelica	Root	Angelica	
6	Pimpinella anisum -	Seeds	Anise	White
7	Illicium anisatum -	Seeds	Stellat. anise	Brown
8	Artemisia vulgaris -	Leaves	Mugwort	
9	Citrus aurantium - -	Rind of the fruit	Bergamot	Yellow
10	Meloleuca leucodendra	Leaves	Cajeput	Green
11	Eugenia caryophyllata	Capsules	Cloves	Yellow
12	Carum carui - -	Seeds	Caraways	Yellow
13	Amomum cardamomum	Seeds	Cardamum seeds	Yellow
14	Carlina acaulis - -	Roots		White
15	Scandix chaerefolium -	Leaves	Chervil	Sulph. yellow
16	Matricaria chamomilla	Petals	Chamomile	Blue
17	Laurus cinnamomum -	Bark	Cinnamon	Yellow
18	Citrus medica - -	Rind of the fruit	Lemons	Yellow
19	Cochlearia officinalis -	Leaves	Scurvy grass	Yellow
20	Copaifera officinalis -	Extract	Copaiba	White
21	Coriandrum sativum -	Seeds	Coriander seed	White
22	Crocus sativus - -	Pistils	Saffron	Yellow
23	Piper cubeba -	Seeds	Cubebs-pepper	Yellow
24	Laurus culilaban - -	Bark	Culilaban	Brown yellow
25	Cuminum cymimum -	Seeds	Cummi	Yellow
26	Innula helenium - -	Roots	Elecampane	White
27	Anethum fœniculum -	Seeds	Fennel	White
28	Croton eleutheria -	Bark	Cascarilla	Yellow
29	Maranta galanga - -	Roots	Galanga	Yellow
30	Hypopus officinalis -	Leaves	Hyssop	Yellow
31	Juniperus communis -	Seeds	Juniper	Green
32	Lavendula spica - -	Flowers	Lavender	Yellow
33	Lauris nobilis - -	Berries	Laurel	Brownish
34	Prunus laurocerasus -	Leaves	Laurocerasus	
35	Levisticum logusticum	Roots	Loveage	Yellow
36	Myristica moschata -	Seeds	Mace	Yellow
37	Origanum majorana -	Leaves	Marjoram	Yellow
38	Pistacia lentiscus - -	Resin	Mastich	Yellow
39	Matricaria parthenium	Plant	Motherwort	Blue
40	Melissa officinalis -	Leaves	Balm	White
41	Mentha crispa - -	Leaves		White
42	——— piperitis - -	Leaves	Peppermint	Yellow
43	Achillea millefolium -	Flowers	Millefoil	Blue and green
44	Citrus aurantium - -	Leaves	Neroli	Orange
45	Origanum creticum -	Flowers	Spanish hop	Brown
46	Apium petroselinum -	Roots	Parsley	Yellow
47	Pinus sylvestris & abies	Wood and resin	Turpentine	Colourless
48	Piper nigrum - -	Seeds	Pepper	Yellow
49	Rosmarinus officinalis -	Plant	Rosemary	Colourless
50	Mentha pulegium -	Flowers	Pennyroyal	Yellow
51	Genista canariensis -	Root	Rhodium	Yellow
52	Rosa centifolia - -	Petals	Roses	Colourless
53	Ruta graveolens - -	Leaves	Rue	Yellow
54	Juniperus sabina - -	Leaves	Savine	Yellow
55	Salvia officinalis - -	Leaves	Sage	Green
56	Santalum album - -	Wood	Santalum	Yellow
57	Laurus sassafras - -	Root	Sassafras	Yellow
58	Satureia hortensis -	Leaves	Satureia	Yellow
59	Thymus serpillum	Leav. and flow.	Thyme	Yellow
60	Valeriana officinalis	Root	Valerian	Green
61	Kæmpferia rotunda -	Root	Zedoary	Greenish blue
62	Amomum zinziber -	Root	Ginger	Yellow
63	Andropogon schænanthum		Sira	Brown

Several of the gum-resins, as myrrh and galbanum, yield an essential oil: and likewise the balsams, as benzoin, &c.

OIL. Search to be made in London for defective oils. 3 Hen. 8. c. 14.

OIL OF BEECH. Several unsuccessful attempts have been made to manufacture this oil with profit from English beech. The following appears the best process: the kernel is obtained by passing the nuts through a mill, the stones of which are set sufficiently wide to break the outer shell without materially bruising the fruit; the broken shells are afterwards separated by a common winnowing machine. The kernels are then thrown into scalding water, and such as float are supposed to be so mouldy as to give a bad taste to the produce. The rest are reduced to a pulp, and then cold drawn, when they will be found to yield 15 per cent. of a clear light-coloured oil, nearly insipid, equally as good as common olive-oil. The marc being now slightly roasted, and again pressed, will yield 12 per cent. more of an inferior oil; and the dry residue is a much better food for cattle than common oil-cake.

OIL OF TURPENTINE. Upon making turpentine, the sap which collects in a hole at the bottom of the tree is put into a basket. The part which runs through, constitutes the turpentine, and the thicker matter which remains in the basket, they put into a common alembic, adding a large quantity of water. They distil this as long as any oil is seen swimming upon the water. This oil, separated from the surface, is the common limpid, essential oil, called spirit of turpentine. The remaining matter at the bottom of the still is common yellow rosin.

OIL OF VITRIOL, is the common name given in trade to sulphuric acid. *See* ACID, *Sulphuric*.

OIL-CAKE. The cake which remains, after having expressed the oil from flax, rape, and some other seeds. It is used for the fattening of cattle, of all kinds, in winter, and has been determined now, by considerable experience, to be excellent for the purpose. It is given generally in the cake broken into pieces, sometimes mixed with bran, or chaff; but it may be diffused in hot water, and given in a liquid state. Some cattle will take it best in one way, others in the other.

OIL-NUTS. *See* CASTOR-NUTS.

OILMAN. The oilman sells hams, oils, pickles, salt, anchovies, &c.

OILY-GRAIN, (Ger. *Sesam*. Du. *Aostersche vygboonen*. Da. and Sw. *Sesam*. Fr. *Sesame, Jugeoline, Girgelin, Gingeoline*. It. *Sesamo, Sisamo, Giuggiolena*. Sp. *Ajonjole, Alegria*. Port. *Gergelim, Jergelim, Cirgilim*. Rus. *Kunschut*. Pol. *Sesam*. Lat. *Sesamum*,) the produce of a plant of which there are three species. This plant is called the sesamum. The oriental sesamum grows naturally in India, and is an annual plant. After its flowers are past, the germen turns to an oval acute-pointed capsule, with four cells, filled with oval compressed seeds, which ripen in autum. This sort is chiefly to be met with on the coast of Malabar, and in the island of Ceylon. The sesamum indicum, another species, grows in many parts of India. The first sort is frequently cultivated in Africa, and in the eastern countries, as a pulse; and of late years the seeds have been introduced into Carolina by the African negroes, where they succeed very well. The inhabitants of that country make an oil from the seed, which will keep good for many years, without having any rancid smell, or taste. It is used as a salad-oil, and for all the purposes of sweet-oil. Nine pounds of this seed, brought from Carolina, yielded upwards of two quarts of oil; as great a quantity as has been obtained from any vegetable whatever.

OLERON, *Sea Laws of*, certain laws relating to maritime affairs, made in the time of Richard I. when he was at the island of Oleron. These laws, being accounted the most excellent sea-laws in the world, are recorded in the black book of the admiralty.

OLIBANUM. *See* GUM.

OLIVE, (*Olives*. Ger. and Du. *Oliven*. Da. and Sw. *Olizer*. Fr. *Olives*. It. *Ulive, Olive*. Sp. *Aceitunas*. Port. *Azeitonas*. Rus. *Oliwkii*. Pol. *Oliwki*. Lat. *Olivæ*,) a fruit which yields a large quantity of oil, the produce of the *olea*, olive-tree.

There are seven species of this tree, of which the most remarkable are: 1. The Europea, or common olive-tree. It rises with upright solid stems, branching numerously on every side, 20 or 30 feet high; spear-shaped, stiff, opposite leaves, two or three inches long, and half an inch or more broad; and at the axillas small clusters of white flowers, succeeded by oval fruit. This species is the principal sort cultivated for its fruit; the varieties of which are numerous, varying in size, colour, and quality. It is a native of the southern parts of Europe, and is cultivated in great quantities in the south of France, Italy, and Portugal, for the fruit to make the olive-oil. 2. The *carpensis*, or cape box-leaved olive. 3. Olea *odoratissima*, the flower of which is by some said to give the fine flavour to the green-tea; but which is attributed by others to different causes. *See* TEA.

Olives, or the fruit of the olive tree, have an acrid, bitter, and extremely disagreeable taste; pickled (as we receive them from abroad) they prove less disagreeable. The Lucca olives, which are smaller than the others, have the weakest taste; the Spanish, or larger, the strongest; the Provence, which are of a middling size, are generally the most esteemed.

When olives are intended for preservation, they are gathered before they are ripe

The art of preparing them consists in removing their bitterness, in preserving them green, and impregnating them with a brine of aromatised sea-salt, which gives them an agreeable taste. For this purpose different methods are employed: formerly they used a mixture of a pound of quicklime, with six pounds of newly-sifted wood-ashes; but of late, instead of the ashes, they employ nothing but a ley. This, it is alleged, softens the olives, makes them more agreeable to the taste, and less hurtful to the constitution.

In some parts of Provence, after the olives have lain some time in the brine, they remove them, take out the kernel, and put a caper in its place. These olives they preserve in excellent oil; and when thus prepared, they strongly stimulate the appetite in winter. Olives perfectly ripe are soft, and of a dark red colour. They are then eaten without any preparation, excepting only a seasoning of pepper, salt, and oil; for they are extremely tart, bitter, and corrosive.

The wood of the olive-tree is beautifully veined, and has an agreeable smell. It is in great esteem with cabinet-makers, on account of the fine polish of which it is susceptible.

Trials have been frequently made, but without success, to multiply the olive by growing the seeds; it has always been found necessary either to employ cuttings, or to procure wild plants from the woods. An inhabitant of Marseilles, astonished to find that we cannot obtain by cultivation what nature produces spontaneously, was led to inquire in what manner the wild plants were produced. He found that they proceed from the kernels which have been carried into the woods, and sown there by birds, who have swallowed the olives. By the act of digestion, these olives have been deprived of their natural oil, and the kernels have become permeable to the moisture of the earth; the dung of the birds has served for manure, and, perhaps, the soda which this dung contains, by combining with a portion of the oil which has escaped digestion, may also favour germination. From these considerations, the following experiments were made. A number of turkeys were caused to swallow ripe olives; the dung was collected, containing the kernels of these olives, the whole was placed under a stratum of earth, and was frequently watered. The kernels were found to vegetate, and a number of young plants were procured. In order to produce upon olives an effect similar to that which they experienced from the digestive powers of the stomach, a quantity of them was macerated in an alkaline lixivium: they were then sown, and olive plants were produced from them, as in the former experiment.

This may be considered as a very important discovery, and may be applied to other seeds besides the olive, which are, in the same manner, so oily, that, except under some rare circumstances, the water cannot penetrate them, and cause their developement: of this description is the nutmeg.

Sir Joseph Banks observed, that the growth of the hawthorn-seed, which is usually two years before it shoots above the earth, may be hastened a whole season by being swallowed by cattle.

OLIVE-OIL. (Ger. *Baumöl.* Du. *Boomöli.* Da. *Bomolje.* Sw. *Bomolja.* Fr. *Huile d'olives.* It. *Olio d'uliva.* Sp. *Aceite de accitunas.* Port. *Oleo das azeitonas.* Rus. *Derewännoe masslo.* Pol. *Oleiva.* Lat. *Oleum olivarum.*) The oil is undoubtedly that part of the produce of the olive trees which is of greatest value. The quality of it depends on the nature of the soil where the trees grow, on the kind of olive from which it is expressed, on the care which is taken in the gathering and pressing of the fruit, and likewise on the separation of the part to be extracted. Unripe olives give an intolerable bitterness to the oil, when they are over-ripe, the oil has an unguinous taste: it is therefore of importance to choose the true point of maturity. When the situation is favourable, those species of olives are cultivated which yield fine oils; otherwise they cultivate such species of trees as bear a great quantity of fruit, and they extract oil from them for the use of soaperies, and for lamps. They gather the olives about the months of November or December. It is best to put them as soon as possible into baskets, or into bags made of wool or hair, and to press them immediately, in order to extract a fine oil. Those who make oil only for soaperies, let them remain in heaps for some time in their storehouses; when afterwards pressed, they yield a much greater quantity of oil.

Even those who extract oil to be used in food, sometimes allow the olives to ferment in heaps, that they may have more oil; but this is extremely hurtful to the quality, and the reason why fine oil is so very rare. In order to have the oil in its purity, it must be allowed to deposit its sediment, and then it must be poured off into another vessel. That which is extracted from the pulp only of olives, is the most perfect which can be obtained, and will keep for several years; but that obtained from the kernel or the nut, or from the whole olive ground in the common way, in public mills, has always more, or fewer, defects, loses its limpidity in a certain time, and is very apt to become rancid. After all, in the course of time, olive-oil loses its qualities, becomes disagreeable to the taste, and smell, diminishes in fluidity, and at last thickens considerably. The refuse of the first pressing, when squeezed a second time, yields an oil, but thicker, and less pure, than the first. What remains after the second pressing, when

mixed with a little water, and placed in a pan over the fire, produces by pressure a third oil, but of a very inferior quality.

The process of expressing oil from olives, as used in France, is thus described by Chaptal. The olive is crushed by a millstone placed vertically, rolling upon a horizontal plane. The paste thus formed is strongly squeezed in a press; and the first oil which comes out is called virgin-oil. The pulp is then moistened with boiling water; the mass is again pressed; and the oil which floats upon the water, carries with it part of the parenchyma of the fruit, and a great part of the mucilage, from which it is with difficulty separated.

Oil of olives is an ingredient in the composition of a great many balsams, ointments, plasters, and mollifying and relaxing liniments.

Olive-oil is of no use in painting, because it never dries completely. The best soap is made of it, mixed with Alicant salt-wort and quicklime.

The consumption of olive-oil is incredible: the southern parts of France, and also Italy, Candia, and Sicily, yield the greatest quantities. The provinces in the kingdom of Naples, most abundant in oils, are Bari, Otranto, Calabria, and Abruzzo. The produce upon ten years' average has been estimated at six hundred thousand salme; about six and a half salme, making a tun of 252 gallons. The exportation of oil brings into Calabria Ultra half a million of ducats annually. Gallipoli, a sea-port town in the province of Otranto, is the place in the kingdom of Naples from which the greatest quantity of olive-oil, and the best quality for the use of the British woollen manufactories is exported. The trade is entirely in the hands of the merchants at Naples and Leghorn, especially the former, who have their agents at Gallipoli, and by making advances to the poor cultivator, keep him constantly in their chains, so much so, that it would be difficult to purchase a cargo of Gallipoli oil, at Gallipoli; and it always can be procured more reasonably at Naples. The Neapolitan contractors either purchase at a fixed price, or at the *prezzo della voce*, that is to say, the average price of the sales made in the months of November, and December. The orders for the delivery of oil at Gallipoli are treated like bills of exchange, and have sometimes five or six indorsements. On buying oil, the seller will perhaps not deliver any of it out of his own cellars, but give orders upon others, and they upon others again, so that the buyers may have to receive it from a dozen different people. Oil, therefore, at Gallipoli, never can be bought according to sample, but if not of a good merchantable quality, it may be refused. There is much jobbing carried on in this trade; frequently the Gallipoli agents sell, on their own account, the oil purchased for their principals, and when the orders for delivery come upon them unexpectedly, they must replace it any price. A plentiful crop of olives, in the neighbourhood of Gallipoli, yields from forty to fifty thousand salme of oil.

Sicilian oil is inferior to the Calabrian, and the latter to the Gallipoli; so that Gallipoli is always worth about two pounds sterling per tun more than the best Calabrian; and from three to five pounds more than the best Sicilian oil. The reason is, that the Calabrian and Gallipoli oils have less foot, and more colour and substance than those of Sicily. This superior quality of the Gallipoli oil may, in some measure, proceed from the nature of the soil; but it arises more particularly from a better management in manufacturing and refining it. At Gallipoli they deposit their oil, to settle and purify, in large stone cisterns fixed under ground, and the quality of the stone used for that purpose is said to be particularly adapted for retaining the heat, and promoting thereby the fermentation necessary for its refinement. In Calabria, and Sicily, it is kept in earthen jars.

At Gallipoli, if the oil on delivery does not prove *lampante e bacille*, that is, bright and clear, the buyer has a right to refuse it.

In Sicily, to prevent disputes, the contract ought to be so made, that if, when the tops of the jars shall be taken off with a ladle, the oil shall appear in the least disturbed, the buyer may object to taking the remainder.

The district of the Dietro Marino produces the best oil in Calabria, in goodness very little inferior to that of Gallipoli. Milazzo is the place which in Sicily produces the greatest quantity of oil; then comes Sciacca, then Cefalu, Tasa, Mistretta, Pettineo, and St. Stefano. The oils coming from Milazo and Sciacca are chiefly consumed in the soap manufactures; those from Pettineo and Mistretta are the best for eating; but their consumption is limited to Italy, as they have, like all oils produced in Naples and Sicily, a rank taste and smell.

This country is entirely supplied with eating oil from Leghorn, and Genoa, known under the denomination of Lucca and Florence salad-oil. An account of the discovery of a substitute for olive-oil will be found under the head of ITALY, article EUROPE. The parts of France which afford the greatest plenty of olive-oil are Provence and Languedoc. The French oils, especially that called *Aix*, are excellent, and their colour is generally a bright grass green. These oils are usually exported through Marseilles, and the other ports of France, situate on the Mediterranean. The olive-oil brought from the island of Candia is nearly similar to the Sicilian oils, and is fit only to be employed in the manufacture of soap.

Oil abroad, should never be brought out of the casks, as it is difficult to judge of the

quality, and scarcely possible to draw it off without disturbing some of the foot. To prevent leakage, it is best not to ship oil in cargoes from Italy, unless in autumn or winter.

This article is sold at London by the tun of 236 gallons, but it pays freight and duty at the rate of 252 gallons to the tun.

The best oil should be clear, of strong body, free from foot or sediment, of a perfectly sweet taste and smell, and a bright gold colour.

OLIVETS, in the commerce of the coast of Africa, a name given to mock-pearls, or a species of bugle, in the form somewhat similar to the fruit of the olive tree. They are usually white, and are much prized by the negroes of Senegal.

OMNIUM, a term used among the stock-jobbers to express all the articles included in the contract between government and the original subscribers to a loan, which of late years has generally consisted of different proportions of three, and four, per cent. stock, with a certain quantity of terminable annuities. Those who dispose of their share soon after the agreement is concluded, generally get a premium of two, or three, per cent. for it, which fluctuates with the current prices of the public funds; and in some instances the omnium has been at a considerable discount. Some of the subscribers pay their whole subscription at the time fixed for the first, or second, payment, and their shares become immediately transferable stock: others dispose of the several articles which make up the terms of the loan, separately; and in this state the three, or four, per cent. consols, &c. are distinguished by the name of scrip, till the whole sum has been paid in upon them.

ONION. (Ger. *Zwiebel, Zippel.* Du. *Uyen, Ajain.* Da. *Rödlög.* Sw. *Rödlök.* Fr. *Oignon.* It. *Cipolla.* Sp. *Cebolla.* Port. *Cebola.* Rus. *Luk.* Pol. *Cebula.* Lat. *Cepa.*) The most reputed sorts of onion are the Strasburgh, the Spanish, the Portuguese, and the Egyptian. It is not known whence this plant was first brought to Europe, but the Spanish, and Portuguese, onions are most famous in this country, and vast quantities of them are imported in baskets. Besides its culinary uses, the onion has been employed medicinally, especially the squill, or sea-onion.

ONUS IMPORTANDI. The charge of importing, mentioned 12 Car. 2. art. 28.

ONUS PROBANDI. The burthen of proving, spoken of 14 Car. 2. c. 11, and in several other statutes.

ONYX, (Ger. and Sw. *Onyx.* Fr. *Onix, Onice.* Sp. *Onique.* Port. *Onix.* Pol. *Onich, Oniks.* Lat. *Onyx,*) one of the semipellucid gems, with variously coloured zones, but none red; being composed of crystal, debased by a small admixture of earth, and made up either of a number of flat plates, or of a series of coats surrounding a central nucleus, and separated from each other by veins of a different colour, resembling zones or belts. There are four species of this gem: 1. A blueish-white one, with broad white zones. 2. A very pure onyx, with snow-white veins. 3. The jasp-onyx, or horny onyx, with green zones. 4. The brown onyx, with blueish-white zones.

The ancients attributed wonderful properties to the onyx, and imagined that if worn on the finger it acted as a cardiac; they have also recommended it as an astringent, but these, like other superstitions, have passed away. It is found on the shores of rivers in the East Indies, New Spain, and other parts of America, as also in Germany; but the latter are greatly inferior to the American kind; the Oriental are the most beautiful of all.

OPAL. (Ger. and Sw. *Opal.* Fr. *Opale.* It. *Opalo.* Sp. *Opalo, Piedra iris.* Port. *Opala.* Lat. *Opalus.*) This stone is found in the East Indies, in Egypt, Arabia, Cyprus. Persia, and Tartary, and in some parts of Europe, especially in Hungary, in the Crapacks near the village of Czennizka. When first dug out of the earth it is soft, but it hardens and diminishes in bulk by exposure to the air. The substance in which it is found is a ferruginous sandstone. The opal is always amorphous. Its fracture is conchoidal. Commonly somewhat transparent. Specific gravity from 1.958 to 2.540. The lowness of its specific gravity, in some cases, is to be ascribed to accidental cavities which the stone contains. These are sometimes filled with drops of water. Some specimens of opal have the property of emitting various-coloured rays, with a particular effulgence, when placed between the eye and the light. The opals which possess this property are distinguished by lapidaries by the epithet oriental; and often by mineralogists by the epithet *nobilis.* This property rendered the stone much esteemed by the ancients.

An opal described in Frederick Hasselquist's Travels in the Levant, was of the size of a hazel-nut, in the form of a half globe. If held horizontally, it had a very fine olive colour; but if held perpendicularly, between the eye and the light, it had the colour of the finest ruby. The opal, and almost every other stone accounted precious by the ancients, is to be found in the ruins of Alexandria, and Old Cairo.

OPHITES, a kind of variegated marble, of a dusky green ground, sprinkled with spots of a dark green colour. It is found in many parts of the world, of three colours, green, white, and grey. The last-mentioned is found in England, especially in Derbyshire; the green in Arabia, and the white in some few places on the continent of Europe. It obtains its name

from a Greek word signifying *a serpent*, from the variegated spots upon it resembling that reptile.

OPIUM, (Ger. *Opium, Trockner mohnsaft, Oder schlafsaft.* Fr. *Opium.* It. *Oppio.* Sp. and Port. *Opio.* Lat. *Opium,*) is obtained from the *papaver album*, or white poppy, a plant which is cultivated in great abundance in India and other parts of the East. The poppies are planted in a fertile soil, and well watered. After the flowering is over, and the seed-capsules have attained nearly their full size, a longitudinal incision is made in them about sun-set for three or four evenings in succession. From these incisions there flows a milky juice which soon concretes, and is scraped off the plant, and wrought into cakes. In this state it is brought to Europe. Opium thus prepared is a tough, brown substance; has a peculiar smell, and a nauseous, bitter, acrid taste. It becomes softer when held in the warm hand, and burns very readily and strongly.

The *meconium*, or common opium, is prepared in the East Indies by pressing the poppy-heads, that have been already cut. The juice that comes out of them, mixed with the least beautiful of the other drops, is kneaded with water, and made into cakes, which are sent to Europe. The finer East India opium not being brought to Europe, may account for the superior quality of the Turkish opium. A very considerable trade is carried on in this article at Patna, on the river Ganges. Neumann was informed by some Turks at Genoa and Leghorn, that in certain places the heads, stalks, and leaves, of the poppy are committed to the press together, and that the juice thus extracted, affords, when inspissated, a very good opium. It is certain, that the extract made by boiling the heads, or the heads and stalks, in water, is much weaker than opium; but it appears also, that the pure milky tears are considerably stronger. Opium has been made from poppies in England, equal to that imported from abroad; and Dr. Coxe, of Philadelphia, asserts, that the inspissated milky-juice of the common garden lettuce is precisely similar in its effects to the opium of Turkey.

An excessive fondness for opium prevails in all parts of Turkey, and the East Indies. In vain have the laws of China condemned to the flames every vessel that imports, and every house that receives it; the consumption is not less considerable. It is still greater at Malacca, Borneo, the Moluccas, Java, Macassar, Sumatra, &c. These islanders smoke it with their tobacco; those who are desirous of attempting some desperate action intoxicate themselves with the fume. The Turks, likewise, smoke and chew opium just before they go into battle. Opium at present is in great esteem. Its effects, on those who are accustomed to take it in considerable quantities, are highly exhilarating; it produces a kind of pleasing delirium, in which the imagination is vividly employed in contemplating the most delightful images, and forming the most extravagant combinations of ideas: but the depression which ensues, when its effects have subsided, is proportionably great: the ill consequences which arise from this are more serious than those from the immoderate use of wine; the most dreadful nervous irritation, and debility, is experienced, and the strength of the body, and powers of the mind are soon destroyed.

As a medicine, taken occasionally, and in proper quantities, it is, perhaps, the most valuable we possess. It is not only the most efficacious for the relief of pain consequent on disease, but also the most effectual remedy for many diseases themselves.

OPOBALSAMUM, (Ger. Du. Da. and Sw. *Opobalsamum.* Fr. *Opobalsamum, Baume de Gilead.* It. Sp. and Port. *Opobalsamo.* Lat. *Opobalsamum,*) balsam, or balm of Gilead; called also *Balsamum Judaicum, Syriacum, Meccha,* and golden balsam. A medicine brought into some celebrity of late. It is admitted, however, even by the Turks, that on account of the great price of this article, it is very difficult to find it genuine; it is generally adulterated immediately on its filtration from the tree which yields it, and scarcely to be found pure any where, except in the possession of the Turkish emperor and the grandees of the empire, who get it as a valuable present from travellers. The marks of its supposed purity are, a very yellow colour, perfectly transparent; a strong fragrant smell, with something of the lemon or citron flavour; and a bitter, sharp, and astringent taste. It is also very tenacious and glutinous, sticking to the fingers, and capable of being drawn into long threads. The mode of trying opobalsamum at Cairo, and Mecca, is as follows; they let fall a drop of the balsam into a cup of clear cold water; if this drop remains in one place on the surface of the water, the balsam is of little value; but if it instantly expands like a pellicle over the whole surface, and this skim is even and clear, then it is a sign that the balsam is genuine. Opobalsamum principally comes from Arabia Petrea, and the Arabians carry it to Mecca, where they sell it during the stay of the Egyptian and Turkish caravans. It is also produced in Palestine, but there great care must be taken to prevent the tree from degenerating, which is not necessary in Arabia, where it grows spontaneously. This balsam, the produce of a species of *amyris*, which rises to the height of the pomegranate tree, to which it has a great resemblance, both in its long branches and flowers. The wood is red, and gummy, and its fruit is a small nut covered with a dry, and brown, pellicle,

which contains a kernel. In the months of June, July, and August, the opobalsamum distils from it, by incision, in the form of a viscous juice. The juice extracted from the fruit is called *carpobalsamum*, and that from the wood, *Xilobalsamum*. The smell, and consistence, of opobalsamum are similar to the turpentine of Cyprus, whence the former is frequently adulterated with the latter. There is a sort of balsam of Mecca, which is a whitish, dry gum, resembling copperas, especially when old; it has all the virtues of the balm of Gilead, and hence it is conjectured to be the same, only hardened, and altered in colour. Balsam of Gilead, or opobalsamum, is used in medicine to remove obstructions of the lungs, as a stomachic, and also externally for curing wounds, &c. The Turkish women employ it as a cosmetic.

OPOCALPASON, the juice of a tree called Celpasi. It resembles myrrh. A deadly poison taken internally, but of use in some external applications.

OPODELDOC, a solution of soap in alcohol, with the addition of camphor, and volatile oils. It is used externally against rheumatic pains, sprains, bruises, and other like complaints.

OPOPONAX, (Ger. Du. Da. and Sw. *Opoponax*. Fr. *Opopanax*. It. *Opoponasso*. Sp. and Port. *Opoponaca*. Lat. *Opoponax*,) a resin obtained from the *pastinaco opoponax*, a plant which is a native of the countries round the Levant. The milky juice, when dried in the sun, constitutes the opoponax. It is in lumps of a reddish-yellow colour, and white within, of a bitter and acrid taste.

Opoponax is usually brought to us in granules or drops, and sometimes in large masses, formed by a number of the drops connected by a quantity of substance of the same kind; but these are usually loaded with extraneous matter; and are greatly inferior to the loose kind.

OPTICS, in its comprehensive sense, signifies the *science* of vision; whence telescopes, microscopes, spectacles, and other glasses, to assist vision, are denominated *optical glasses*, and those who deal in them, *opticians*. The best practical opticians in the world are those of the British metropolis; and a considerable commerce is carried on by them with all parts of the globe, in the numerous articles of their formation.

ORANGES. (Ger. *Pomeranzen*. Du. *Oranjen*. Da. *Pomerantser*. Sw. *Pomeranser*. Fr. *Oranges*. It. *Melarance*. Sp. *Naranjas*. Port. *Laranjas*. Rus. *Pomeranezii*. Pol. *Pomeranczy*. Lat. *Aurantia mala*.) This fruit is the produce of the *Citrus aurantium*, of which the varieties are, 1. Seville orange: this is a very handsome tree, and the hardiest of any; as in this country it shoots freely, produces large and beautiful leaves, flowers, &c. The fruit of this variety is large, rough-rinded, and sour, of excellent quality for economical uses. 2. The China orange: this tree has moderately sized leaves, and a smooth, thin rind, sweet fruit; of this there are several varieties in warm countries, where they grow in the open ground.

The orange-tree in general has an upright smooth trunk, divided upwards into a branchy regular head, from five to ten and twelve feet high; oval, spear-shaped, entire leaves, having winged footstalks, and numerous white flowers at the sides of the branches, succeeded by globular fruit compressed at each end. The flowers appear principally in May or June. The fruit continue setting in July, and ripen the year following. Great quantities of Seville oranges are consumed in Great Britain and Ireland, which are chiefly brought from Spain and Portugal. The Spanish oranges are decidedly superior to the Portuguese, containing much more juice than the latter, and their rinds being by no means so thick and spongy. Reggio is said to be the spot where the culture of oranges was first attempted in Italy, and whence it was extended over that country. The island of Malta, situated in the Mediterranean, furnishes abundance of oranges, which in size, flavour, and quantity of substance, are not to be exceeded by those of any other part of the world; they are, however, said not to keep so well as the Spanish, and Portuguese, oranges, a circumstance which may be attributed to their uncommon lusciousness. It is said that the finest-flavoured fruit is obtained by engrafting the China orange on a Seville orange stock. Oranges come to great perfection in the West India Islands, and it is strange their culture is not more attended to in Jamaica, and other of our colonies. Oranges of very excellent quality are grown in Provence, Languedoc, and other parts of the south of France, whence they are sent, packed in fir chests, to different European states. The oranges of the Bermudas are of an extraordinary size, and a peculiarly excellent flavour; they are mostly brought to England. Sweet oranges grow in abundance in the southern provinces of China; but the inhabitants set very little value upon them: there is, however, a species of orange of which the Chinese make a dry conserve, of a flattish form, which they export to many parts of the world, and even send vast quantities of it to Mexico. The oranges which are to be commonly met with in the province of Fo-kyan are much larger than any of those of Europe, and their flavour nearly approaches to that of the muscadine grape. Oranges are frequently prepared in the form of conserves, and perfectly dry, especially in Sicily, whence they are sent to many parts of Europe, but in greatest quantities to Leghorn, Venice, and Rome. Upwards of 150 quintals of dried oranges are an-

nually exported from Sicily. The juice of the fruit contains an essential acid salt, mixed with much mucilage. This salt may be obtained in crystals by diluting the juice, clarifying it with whites of eggs, and evaporating. The juice not freed from its mucilage is apt to become mouldy; but by the above-mentioned method of depuration, a saline extract may be made, capable of being preserved, which is possessed of the same medicinal qualities as the juice, which is said to be very powerful in the scurvy. The rind of the orange contains a considerable warmth, and abounds in an essential oil, which may be procured by pressing the peel against an inclined glass. In Provence and Italy the peel is rasped; by which means the vesicles are torn, and the oil flows into the vessel destined to receive it. This oil suffers the parenchyma which goes along with it to subside, and becomes clear by standing. If a lump of sugar be rubbed against these vesicles, it imbibes the volatile oil, and forms an oleosaccharum, soluble in water, and very proper to give an aromatic flavour to certain liquids. The flowers of the orange tree have been for some time in great esteem as a perfume. They are highly odoriferous, and of a somewhat warm, and bitter, taste. They yield their flavour by infusion to rectified spirit, and in distillation both to spirit, and water. An oil distilled from the flowers is brought from Italy under the name of *oleum*, or *essentia neroli*.

ORANGES, *China*, or *Portugal Oranges*. (Ger. *Apfelsinen*. Du. *Sina appelen*. Da. *Abelsiin*. Sw. *Appelsiner*. Fr. *Pommes de Chine, Oranges douce de Portugal*. It. *Portogalli, Aranci dolci della China*. Sp. *Naranjas Chinas*. Port. *Laranges doces da China*. Rus. *Apelzinii*. Pol. *Pomarancza slodka*. Lat. *Aurantia Sinensia*.) *See* ORANGES.

ORANGE-BUDS, are small dried oranges, which, from want of nourishment, blights, or other causes, fall from the trees before coming to perfection, as is the case with other fruit. They are mostly imported from Italy, and are used by distillers and others, to give a flavour to spirits and various kinds of liquids.

ORCANET. *See* ALKANET.

ORCHILLA-WEED, Orchella, or Archella. (Ger. *Orseille*. Du. *Orseille, Orcel, Orchillie*. Da. *Orselje, Farvemos*. Sw. *Orsulja*. Fr. *Orseille*. It. *Oricello, Orcella, Rocella, Raspa, Rospo, Respio*. Sp. *Orchilla*. Port. *Orsella, Orzella*. Rus. *Arsel*. Pol. *Mech farbierski*. Lat. *Rocella*.) The lichen rocella, or orchella weed, is a whitish moss, yielding a rich purple tincture, used for dyeing. It is found in abundance in several of the islands of the Archipelago, and also in some of those near the African coast, particularly in the Canary and Cape de Verd islands. It grows partly in single, partly in double stems, to the height of about two inches, of a light, or sometimes dark-grey colour. As early as the time of Pliny, it would appear that this plant was in use, for giving the ground in dyeing purple; and the *phycos thelasion*, or *pontion*, of which he speaks, is probably our orchilla. Be this as it may, the art of dyeing with orchilla was discovered in the Levant, about the year 1300, by a Florentine merchant of the family of Oricellarii, or Rucellai, who, happening one day to make water on a plant of which there was a great abundance, observed that it became extraordinarily red, and having made several experiments on the herb, and finding it proper to die wool purple, he sent some of it to Florence, where it became of great utility in the cloth manufactures. Certain it is, from a variety of documents, that the art of dyeing *in oricello* was known at Florence at the commencement of the 14th century, whence it spread over the rest of Europe. The Italians alone, for some time, furnished all Europe with orchilla, from the Levant; but upon the re-discovery of the Canary isles, towards the end of the 14th or beginning of the 15th century, it was principally imported from the latter. The growth of orchilla in the Canary islands is more beautiful, and abundant, than in the Levant: and that of the Cape de Verd islands again, appear larger, richer, and longer than the produce of the Canaries. This may be owing to its not being collected every year. Orchilla is generally found incrusting rocks, stones, and (otherwise) arid mountains. Auvergne, in France, and several parts of Holland, produce very excellent orchilla-weed. This moss is brought to us as it is gathered, but to prepare it for the purpose of dyeing, it is ground betwixt stones, moistened occasionally with spirit of wine, and so made up in a paste, called by the French, *orseille en pate*. Many, instead of keeping the paste in a moist state with wine, as they ought, suffer it to dry. It then has the appearance of a dark violet-coloured earth, intermixed with some white spots. The Dutch are the inventors of a dye called Lacmus, or *orseille en pierre*, which seems to be an adulterated kind of orchilla paste. There is also a kind of moss different from the orchilla, and known by the name of *orseille de terre, orseille d'Auvergne*, which is used for a like purpose, but it contains fewer and lighter colouring particles. The orchilla-paste is rarely used as a dye by itself, on account of its dearness, and the speedy evanescence of its beauty. It is chiefly employed to give a bloom to other colouring matters, as pinks, &c. Linnæus, in the "Swedish Transactions," for the year 1748, asserts, that the true archill moss is to be found on the western coasts of England. This dye has been, for a considerable time past, prepared in Scotland, from a species of the moss found in the Highlands. Prepared orchilla very readily gives out its colour to

water, to volatile spirits, and to alcohol; it is the substance principally made use of for colouring the spirits of thermometers. A solution of orchilla in water, applied on cold marble, stains it of a beautiful violet or purplish blue colour, far more durable than the colour it communicates to other bodies. There is a considerable consumption of a species of archil called *cudbear*, which is manufactured in Scotland, and sells in London at about 19*d*. or 20*d*. per lb. *See titles* DYEING and CUDBEAR.

ORDNANCE, a general name for all sorts of great guns used in war. *See* CANNON.

ORDNANCE, *Office of*, an office kept within the Tower of London, which superintends and disposes of all the arms, instruments, and utensils of war, both by sea and land, in all the magazines, garrisons and forts in Great Britain.

ORDNANCE-DEBENTURES, bills issued by the board of ordnance for the payment of stores, &c. purchased for that department.

ORGAN, a wind instrument, blown by bellows, and containing numerous pipes of various kinds and dimensions, and multifarious tones and powers. Of all musical instruments, this is the most proper for the sacred purpose to which it is most generally applied in all countries wherever it has been introduced. Its structure is lofty, elegant, and majestic; and its solemnity, grandeur, and rich volume of tone, have justly obtained it an acknowledged pre-eminence over every other instrument, for sacred music.

An organ, when complete, is of threefold construction, and furnished with three sets of keys; one for what is called the great organ, and which is the middle set; a second (or lower set) for the choir organ; and a third (or upper set) for the swell. In the great organ, the principal stops are the two diapasons, the principal, the twelfth, the fifteenth, the sesquialtra, the mixture or furniture, the trumpet, the clarion, and the cornet. The choir organ usually contains the stops diapason, the dulciana, the principal, the flute, the twelfth, the bassoon, and the vox-humana. The swell comprises the two diapasons, the principal, the hautboy, trumpet, and cornet. Besides the complete organ, there are other organs of lesser sizes, and more limited powers, adapted to chapels and private houses. There is also the barrel or hand-organ, consisting of a moveable turning cylinder called a barrel, on which, by means of wires, pins, and staples, are set the tunes it is intended to perform. These pins and staples, by the revolution of the barrel, act upon the keys within, and give admission to the wind from the bellows to the pipes. The barrel-organ is generally portable; and so contrived that the same action of the hand which turns the barrel supplies the wind by giving motion to the bellows.

The church-organ properly consists of two parts; the main body, called the great organ, and the positive or little organ, which forms a small case or buffet, placed before the great organ. The size of an organ is generally expressed by the length of its largest pipe: thus, they say, an organ of eight, sixteen, thirty-two feet, &c. The organ in the cathedral church at Ulm in Germany is ninety-three feet high, and twenty-eight broad; its largest pipe is thirteen inches diameter, and it has sixteen pair of bellows.

ORGANZINE, is silk prepared for forming the warp of the stuff designed to be woven in the loom. *See* SILK.

ORGOL, or Argol, the tartar or salt from the lees of wine, used by dyers, in giving a madder-red colour, and by pin-makers in whitening their pins.

The more tartar is separated, the more smooth and palatable is wine. This substance forms a thick crust, remarkably hard, on the sides of the vessels in which wine is kept; and as part of the fine dregs of the wine adhere to it, the tartar of the white wines is of a greyish-white colour, called white argol; and that of red wine of a red colour, and is called red argol. When separated from the vessel in which it is formed, argol is mixed with much heterogeneous matter; from which, for the purposes of medicine and chemistry, it requires to be purified. This purification consists in first boiling the argol in water, filtrating the solution, and allowing the salt to crystallize, which it very soon does, as it requires nearly twenty times its weight of water to dissolve it. The crystals of tartar obtained by this operation, are far from being perfectly pure; and therefore they are again boiled in water, with an addition of clay which absorbs the colouring matter; and thus, on a second crystallization, a very pure white salt is obtained. These crystals are called *cream of tartar*. Argol, in fine, consists of fixed vegetable alkali, super-saturated with the pure acid of tartar, and joined by a great deal of earthy impurities and colouring matter. The white argol is preferable to the red, as containing less of the drossy or earthy matter. The marks of good argol of either kind, are its being thick, brittle, hard, brilliant, and a little earthy. That brought from Germany is esteemed the best, on account of being taken out of those great tuns, wherein the Rhenish wines are deposited in the merchants' vaults, and in which it is sometimes permitted to collect to so extraordinary a consistence, that when in course of time the wood-work and other materials, whereof the tuns are formed, become rotten, the wine is actually contained and retained by the coats of tartar, which, of themselves, constitute perfect vessels. See DYEING. *For the foreign names of the article, see* ARGOL.

ORICHALCUM. *See* ZINC.

ORIGANUM. An essential oil is kept at the shops, under the name of oil of origanum, which is simply the oil obtained from the leaves of the wild-marjoram.

This oil has lately been found to be an effectual application externally for several complaints in veterinary science, as well as in surgery. It has been said to cure blood-spavins in horses, when applied early, and without intermission. It will almost invariably cure chilblains in the human species, if applied in an early stage of the disorder.

ORPIMENT, (Ger. Du. Da. and Sw. *Operment*. Fr. *Orpiment*. It. *Orpimento*. Sp. *Oropimente*. Port. *Ouropimente*. Rus. *Awripigment, Operment*. Pol. *Aurypigment, Zlotokost*. Lat. *Auripigmentum*,) a semi-metal, usually found in copper mines. Its colour is always yellow, intermixed with shades of other colours, such as green, red, orange, &c. What is usually called red orpiment, or red arsenic, is only the yellow orpiment, heated to a great degree, and put into a crucible with oil of hemp-seed, olives, or nuts. Painters, farriers, and others, use much of this mineral; but as it is a violent corrosive, it should be employed with great precaution. White orpiment is the same with arsenic. *See* ARSENIC.

ORRIS, or Ireos, (Ger. *Violenwurzel*. Du. *Vioolwortel*. Da. *Violrod*. Sw. *Fiolrot*. Fr. *Iris de Florence*. It. *Ireos*. Sp. *Raiz delirio de Florencia*. Port. *Lirio florentino*. Rus. *Fialkowoi koren*. Pol. *Fiolkowy korzen*. Lat. *Iris florentina*,) a sweet-scented powder, produced by pulverising a root of the same name. This root is white, about the thickness of a man's thumb, of an oblong form, and is brought to us dry from Florence, in the neighbourhood of which city it grows spontaneously. When taken out of the earth, this root is encumbered with many fibres, which are cut off, and it is then dried. Orris-root should be chosen plump, heavy, compact, clean, very white, of a sweet and pleasing violet-like odour, and of a sharp and rather bitterish taste. The dry roots of the Florence orris are entirely mild, and said to be a medicine of good service in disorders of the breast. They are much employed in scenting hair-powder, and other articles of perfumery, as well as for flavouring liqueurs, &c. It produces an essential oil in great abundance, which may be extracted with little difficulty.

ORRIS, a peculiar pattern in which gold and silver laces are worked. The edges are usually ornamented with conical figures placed at equal distances, with spots between them.

ORSEDEW, Orsidue, or Manheim-Gold, (Ger. *Flittergold*. Du. *Klatergoud*. Da. and Sw. *Flitterguld*. Fr. *Oripean, Oliquant*. It. *Orpello*. Sp. *Oropel*. Port. *Ouropel*. Rus. *Schumucha krasnaja*. Pol. *Paziotka, Flaterki*.) This article is also called *Dutch-gold, Dutch-leaf*, and *Dutch-metal*; appellations which it has obtained, from our being supplied with it in the greatest abundance by the Hollanders. The first syllable *or*, is the French for gold, and, from whatever source the succeeding ones may have been derived, the word is used to signify mock, or fictitious gold. With respect to the designation of *Manheim-gold*, it is derived from the name of a German town, where vast quantities of the article are manufactured. It is likewise called *leaf*-brass, from the circumstance of the ingredients, of which it is made, being the same as those employed in the manufacture of brass.

The few authors, who have treated of the manufacture of this article, differ materially in their accounts. One gives the following: "By melting yellow copper in various proportions with red copper, some ductile alloys result, the colours of which approach more, or less, to that of gold. Equal parts of brass, and copper, form a ductile metal of the colour of gold, and pale. Three-fifths of red copper, with two-fifths of yellow copper, yield an alloy, the colour of which may be confounded with that of gold. One part of yellow copper and two of red copper give a deeper red colour. If, in place of employing yellow copper, zinc is used, and alloyed by fusion with copper, we may also form Manheim-gold. In the latter case we must cover the two melted metals with a layer of charcoal, for the purpose of preventing the loss of a great part of the zinc, and also in order to facilitate the combination. The most advantageous proportion for this composition is, to employ one part of zinc, and four of red copper; this mixture is afterwards covered with charcoal in powder, and melted."

Another informs us, that "There is, besides the true *leaf-gold*, another kind in use, called *Dutch-gold*, which is copper gilt, and beaten into leaves like the genuine. It is much cheaper, and has, when good, greatly the effect of the true, at the time of its being laid on the ground; but with any access of moisture, it loses its colour, and turns green in spots; and indeed in all cases its beauty is soon impaired, unless well secured by lacquer or varnish. It is nevertheless serviceable for coarser gilding, where larger masses are wanted, especially where it is to be seen by artificial light, as in the case of the theatres; and if well varnished, will then, in a great measure, answer the end of the genuine kinds."

To the foregoing may be added the following account, from Aikin's Chemical Dictionary, article Copper. "Mixtures chiefly of these two metals (copper and zinc) are used to form variety of gold-coloured alloys known by the names of Manheim gold, Tombac, tinsel, similor, Prince Rupert's metal, Pinchbeck, &c.;

but the precise composition varies according to the fancy, or the experience, of different manufacturers. The Dutch gold may be beaten into extremely fine leaves, which, when fresh, have nearly the brilliance of gold leaf, and are used as a cheap imitation of it; but they tarnish very soon. The mixture may be made by directly melting copper, and zinc, or by mixing brass, and copper. In either case, the copper should be melted first, and the zinc added afterwards; the whole stirred together with wood, covering it with a little charcoal, and poured out immediately to prevent the loss by the burning off of the zinc.

Which, of all the several processes recommended, is most likely to prove successful, it is not for us to determine, but each of them being applicable to a different species of the article, may be perfectly reducible to practice, and may turn out equally advantageous to the manufacturer. As we have already observed, orsidue is imported in vast quantities from Holland. The article is sold in books like leaf-gold; and it is imported in casks and cases, with scratch brushes. We frequently export twenty tons at one shipment of this commodity to the East Indies, where it is in great demand for the dresses of their dancing-girls, their priests, and their gods. It is used in England for philosophical purposes, for gilding the leaves, &c. of low-priced books, for coarse gilding of picture-frames, for covering gingerbread, cockades, &c. Nearly the whole of the orsidue sold throughout Europe (that brought from Holland not excepted) is manufactured in Germany.

ORYCTOGNOSY signifies the science of classifying minerals, necessary in various branches of commerce and manufacture: *ex. gr.* to the chemist, the lapidary, the miner, &c.

OSIERS, (Ger. *Kanegen, Weidengerten, Korbgerten.* Du. *Teenen.* Da. *Vien.* Sw. *Korgpihl.* Fr. *Osiers, Rouettes.* It. *Vinchi, Viniun.* Sp. *Mimbres.* Port. *Vimes,*) twigs used in making baskets, and produced by the willow-tree. *See* BASKETS.

OSLEON-IRON, a particular sort of bars of iron made on purpose for the manufacture of wire.

OSMIUM. This metal was first discovered by Mr. Tennant, in platina, in the year 1804; it is of a dark-blue colour. It is insoluble in any of the acids; with difficulty fusible; and unchangeable in the most intense heat, unless in contact with air, when it combines with oxygen, and is converted into a volatile oxide, having a peculiar pungent smell. Its oxide is soluble in water, has a sweet taste, and, forms, with potash, an orange-coloured solution. It imparts to the skin an indelible stain of a dark colour, and produces a purple with a solution of galls, which soon after changes to a bright deep blue. It has not hitherto been applied to any use in the arts.

OSNABRUG or Osnaburgh Linen, (Ger. *Osnabrucker lienwand.* Fr. *Colettes.* Sp. *Creguelas agantadas.* Port. *Ancagens cruas,*) a sort of coarse linen-cloth, manufactured at Osnaburgh, in Germany, whence its name. The Germans sell this linen to the English, the Dutch, and the Spaniards, who, for the most part, send it to their respective colonies. We have an imitation of this linen in many parts of Great Britain, called Osnaburgh.

OSTRACITES, the name of a kind of cadmia, found at the bottom of furnaces where copper has been purified.

OSTRICH - FEATHERS, (Ger. *Straussfedern.* Du. *Struisveeren.* Da. *Strudsfiere.* Sw. *Strussfjädrar.* Fr. *Plumes d'autruche.* It. *Piume di strozzo.* Sp. *Plumas de avestruz.* Port. *Plumas de abestruz.* Rus. *Strusowii penja.* Pol. *Strussie piora,*) the fine feathers of the ostrich: the ancients used those plumes on their helmets; our military wear them in their hats; and the ladies make them an ornament in their head-dress. The colours are generally black, and white; though some of them are said to be grey.

Ostrich-feathers are dyed and dressed by the feather-dressers. They are brought to us from Africa, and particularly from the coast of Barbary. They are more prized as ornaments than those of any other bird; not only on account of their brilliant white hue, but their length, their suppleness, the beauty of their fringe, and the facility with which they may be cleaned, or stained of any colour, without the opposition of that tenacious oil so common in other species of feathers. They are divided into those of the male bird, those of the female, and ostrich-down or estrich. The feathers of the male ostrich are peculiarly white, and of the finest quality: the best of this sort are the feathers taken off the backs and the upper part of the wings of the bird: the less these are exposed to friction of any kind, the better they preserve their original beauty. The second quality of this sort consists of the feathers plucked from the wings only; the third from the extremity of the wings, and the fourth from the tail; these last are redivided into three kinds according to quality. The finest feathers of the female have usually a greyish cast, which considerably detracts from their beauty and value. These are divided into white, grey, and feathers of a mixed hue. An account of the species of down called ostrich-down, will be found under the head of ESTRICH.

From the neck and thighs of the ostrich are plucked feathers of a soft consistence nearly in the form of a skin, the quills of which have not attained to a state of perfection in point of size. Immense quantities of ostrich-feathers are bought up by the merchants of Leghorn, who procure them from Jew dealers established in several parts

of Africa, especially in Tunis, Alexandria, and Madagascar. *See title* AFRICA.

OTTA, or Ottar of Roses, the essential oil of roses. It comes to us under this name from Bengal, and is of too high a price to become an article of commerce in this country. From a variety of accounts we learn that it is obtained in the usual manner, viz. by the distillation of rose-leaves with water. The quantity of essential oil to be obtained from the rose is very precarious and uncertain, as it depends not only on the skill of the distiller, but also on the quality of the roses, and the favourableness of the season; even in Europe, when the chemists are so perfect in their art, Hoffman obtained above two ounces from 100 lb of flowers. The roses, being stripped of their calyxes, and only the leaves used.

It is said to be equal in fragrance to the new-blown rose. This may be true of the oil when newly distilled; but in general the difference in scent appears to be nearly as great as between most other essential oils, and the vegetables which afford them.

OTTER-SKINS. (Ger. *Gemeine, Otterfelle, Fischotter.* Du. *Ottervellen, Vischotter.* Da. *Odderskind.* Sw. *Utterskinn.* Fr. *Peaux de Loutre.* It. *Pelli di Lontra o Lodra.* Sp. *Pieles de Nutria.* Port. *Pelles de Contra.* Rus. *Wüdrii.* Pol. *Wydra.* Lat. *Lutræ pelles.*) The otter is an amphibious animal, of which there are three species. *The common otter* is found in almost every part of Europe, as well as in the colder regions of Asia, inhabiting the banks of rivers, and feeding principally on fish. It occurs also in the northern parts of America, and particularly in Banda, where it appears to arrive at a larger size than in Europe. In the river Euphrates, on the contrary, it is found to be no larger than the domestic cat. The general length of the otter is about two feet from nose to tail, and of the tail about sixteen inches. Its colour is a deep brown, with a small light-coloured patch on each side of the nose, and under the chin.

The small otter, very much resembles the common otter, but it is smaller; the body is of a dusky colour, but with a considerable cast of tawny. It measures about a foot in length. In North America this species bears the name of minx. In Europe, the smaller otter is chiefly found in Poland and Lithuania. Its fur is very valuable, and next in beauty to that of the sable.

The *sea-otter* is the largest of the otters, measuring about three feet from the nose to the tail, and the tail thirteen inches. The colour of this species is a deep, glossy, brownish-black, the fur being extremely soft, and very fine; on the forehead is generally a cast of a greyish or silver colour. They inhabit, in great abundance, Bering's islands, Kamtschatka, the Aleutian and Fox islands, between Asia and America. They land also in the Kurile islands; but are never seen in the channel between the north-east of Siberia and America. This animal is killed for its skin, which is one of the most valuable furs. They are said to be chiefly sold to the Chinese.

Otter-skins are mostly employed in trimming or lining garments; and vast quantities of the fur which they yield is consumed by hatters, who either use it as an entire substitute for, or mix it in a moderate proportion with, beaver.

OVER-HALE, in the sea language. A rope is said to be overhaled when drawn too stiff, or haled the contrary way.

OVER-RAKE, among seamen: when a ship riding at anchor, so overbeats herself into a head-sea, that she is washed by the waves breaking in upon her, they say the waves over-rake her.

OUBANG, is a gold coin of the largest sort at Japan: its figure is oval, and its value is ten coupangs (which are pieces of gold of the same figure) but ten times less in their weight, or one-fifth less in their surface; the oubang is worth 106 rix-dollars in India, and the coupang ten.

OUNCE, a small weight, the sixteenth part of a pound *avoirdupois*; and the twelfth part of a pound *troy*; the ounce *avoirdupois* is divided into eight drachms, and the ounce *troy* into twenty pennyweights.

OUNCE-SKINS. The ounce is scarcely inferior in size to the leopard. Its colour is dull white, with a slight yellowish or tawny cast, and the whole is scattered over with differently-sized spots, and markings of black. About the head these spots are small, numerous, and roundish: along the back they form a kind of abrupt or irregularly interrupted stripes, whilst on the sides and limbs they are variously shaped, forming in some places angular, and others somewhat round or oval marks, with a central space included; and on the legs and tail they are black and scattered. This animal is a native of several parts of Africa, and Asia. The skins are usually applied to the same purposes as those of the leopard, and lynx.

OUTLICKER, in a ship, a small piece of timber made fast to the poop, and standing out right astern. At the outmost end thereof is a hole, into which the standing part of the sheet is reeved.

OUTNAL-THREAD, the Flemish and Dutch-brown flaxen thread.

OWLERS, are those persons who convey wool secretly to the sea-side, in order to export it. This is now a capital offence, particularly if the offenders neglect to surrender after proclamation made for that purpose. *See* WOOL.

OWNERS OF SHIPS. Owners of ships are particularly interested in the following acts of parliament. 7 Geo. 2. c. 15.—21 Geo. 3. c. 29.—26 Geo. 3. c. 60. amended

by 26 Geo. 3. c. 86. — 34 Geo. 3. c. 68. — and 53 Geo. 3. c. 159.

The first is, *An Act for farther securing the Property of the Owners in such Ships or Vessels as are liable to forfeiture, for importing Spirits, or other Goods, by the Misconduct of the Master, Mates, or Seamen;* by which it is enacted, That,

1. If the master of any vessel shall conceal, or suffer to be concealed, foreign spirits, tea, or coffee, above two gallons of spirits for each seaman, above 6lb. of tea, or 19lb. of coffee; or, if the master, &c. of such ship or vessel shall clandestinely import, or suffer to be clandestinely imported, therein, any such foreign spirituous liquors, or any other uncustomed goods, whereby the owners become liable to forfeit the ship; he shall forfeit all his wages to the owners, with treble the value of the uncustomed goods on board.

2. If the mates or seamen shall conceal any of the said goods, (above the quantity allowed by law,) they shall forfeit their wages, and also 10*s.* for every gallon of foreign spirits, and 10*s.* for every pound of tea or coffee.

3. And, if in time of war, the owner may send them to serve three years on board a man of war, except such as are old, disabled, or unfit for service.

4. A printed copy of this act is to be put up on some conspicuous part of every British trading-vessel; and, when any clauses become defaced, the master shall cause the same to be replaced, under the forfeiture of 1*s.* per day during such omission, to be paid to the owner.

5. Mates or seamen, who shall refuse to pay the penalties, &c. may be committed for three months.

6. Justices may mitigate penalties, but not reduce them under one-half.

7. Proceedings of the justices not to be quashed for want of form, and to be final.

8. Commencement of actions is limited to six months; the party sued may plead the general issue; and, on verdict against the plaintiff, recover treble costs.

N. B. But, by a discretionary power invested in the honourable commissioners, the stores before-mentioned are allowed duty free only for the use of the crew during the delivery of the cargo: as soon as the goods are all out, and the voyage thereby at an end, the stores that shall remain unconsumed when the ship is cleared are to be entered, and not more left than will exceed 40*s.* in customs and excise, by way of clearing-stores.

If a ship arrive in ballast, she is to be considered as fit for clearing, and to be allowed only the clearing-stores as above-mentioned.

Where spirits are found on board, no wine is to be allowed as clearing-stores. But, where there are no spirits, then two dozen quarters of ordinary wine, for the use of the crew on board, in short voyages, from Holland, Germany, Flanders, France, &c.

The second is, *An Act to explain and amend an Act, made in the seventh year of His late Majesty's reign, intituled,* An Act to settle how far Owners of Ships shall be answerable for the Acts of their Masters or Mariners; and for giving a further Relief to the Owners of Ships. 26 Geo. 3. c. 60. By which it is enacted, That,

1. *Owners not answerable for loss of goods, by master or mariners, beyond the value of ship and freight.*—No person, who is owner of any ship or vessel, shall be liable to answer or make good any loss or damage, by reason of any robbery, embezzlement, secreting, or making away with, of any gold, silver, diamonds, jewels, precious stones, or other goods or merchandise, which shall be shipped on board any ship or vessel; or for any act, damage, or forfeiture, done or incurred, from the passing of this act, without the knowledge of such owner; farther than the value of the ship or vessel, with all her appurtenances, and the full amount of the freight due, or to grow due, for the voyage wherein such robbery, embezzlement, secreting, or making away with, shall be made, although the master or mariners shall not be concerned in, or privy to, such robbery, embezzlement, secreting, or making away with.

2. *Owners not answerable for loss by fire.*—No owner of any ship or vessel shall be liable to answer or make good any loss or damage which may happen to any goods or merchandise whatsoever, which shall be shipped and put on board such ship or vessel, by reason or means of any fire happening to, or on board of, the said ship or vessel.

3. *Masters or owners not answerable for loss of goods, unless their nature, quality, and value, are made known upon shipping.*—No master or owner of any ship or vessel shall be subject or liable to answer for, or make good, any loss or damage which may happen to any gold, silver, diamonds, watches, jewels, or precious stones, which shall be shipped on board any such ship or vessel, by reason of any robbery, embezzlement, making away with, or secreting thereof, unless the owner or shipper thereof shall, at the time of shipping the same, insert in his bill of lading, or declare in writing to the master or owner of such ship or vessel, the true nature, quality, and value, of such gold, silver, diamonds, &c.

4. *Where ship and freight are not equal to all the losses.*—If several freighters or proprietors of any such gold, silver, &c. shall suffer any loss or damage by any of the means aforesaid, in the same voyage (fire only excepted,) and the value of the ship or vessel and freight shall not be sufficient to make full compensation to all of them, then such freighters or proprietors shall receive satis-

faction thereout in proportion to their respective losses; and, in every such case, it shall be lawful for such freighters or proprietors, or any of them, on behalf of himself and all other such freighters or proprietors, or for the owners of such ship, to exhibit a bill, in any court of equity, for a discovery of the total amount of such losses, and of the value of such ship or vessel, appurtenances, and freight, and for an equal distribution and payment amongst such freighters or proprietors, in proportion to their respective losses, according to the rules of equity. Provided, that if any such bill shall be exhibited on behalf of the part-owners of such ship, the plaintiff or plaintiffs shall thereto annex an affidavit, that he or they do not collude with any of the defendants; and shall thereby offer to pay the value of such ship or vessel, appurtenances, and freight, as such court shall direct.

5. *Remedies against the master and mariners.* — Provided, that nothing shall extend to discharge any remedy which any person or persons now hath or have, or may hereafter have, against the master or mariners of such ship, in respect of any embezzlement, secreting, or making away with, any gold, silver, &c. shipped or loaden on board such ship or vessel; or on account of any fraud, abuse, or malversation, of and in such master and mariners respectively; but it shall be lawful for every such person or persons, so injured, to pursue such remedy against the said master and mariners, as they might have done before the making of this act.

ADJUDGED CASES RELATIVE TO OWNERS OF SHIPS.

Goods spoiled by default of a master. — If goods are spoiled by default of a master of a ship employed by the owners, the owners are liable; but the action must be brought against all the part-owners, who make but one master.

Part-owners not agreeing about a voyage. — If several part-owners wish to send a ship on a voyage, but two or three other part-owners refuse their consent, the former may send her on the voyage; but they must enter into a recognizance in the admiralty for her safe return.

A part-owner of a ship sued the other owners for his share of the freight on finishing her voyage; but the other owners had fitted her out, in which, complainant would not join; whereupon the other owners complained in the admiralty; and, by order there, they gave security, if the ship perished in the voyage, to make good to the plaintiff his share, or to that effect; in such a case, by the law marine and course of the admiralty, the plaintiff was to have no share in the freight. It was referred to Sir Lionel Jenkins to certify the course of the admiralty, who certified accordingly, and that it was so in all places; for otherwise there would be no navigation; whereupon the plaintiff's bill was dismissed.

In what case the owner of a ship, letting it to another, is still liable for loss. — The defendant was sole owner of a ship which he let out to one Fletcher for a voyage for a certain sum, and Fletcher was to have the benefit of carrying goods. The plaintiff sent a quantity of moidores, and had bills of lading signed by the captain: and, many of the moidores not being delivered, according to consignment, an action was brought against the defendant, the owner of the ship, to make him liable, as far as the ship and freight were worth, according to 7 Geo. 2. c. 15.

For the defendant, it was insisted, that, though the ship was his property, yet that Fletcher is for this purpose the owner. But, it appearing that the defendant had covenanted for the condition of the ship and the behaviour of the master, the chief-justice held he was liable to the plaintiff: and the freight he had in general from Fletcher was sufficient, though the identical freight for the gold belonged to the other; and Fletcher had only the use of the ship, but no ownership. 2 *Strange's Rep.* 1251.

The registered owner of a ship chartered her to the captain at a certain rent, for a certain number of voyages. Determined, that the owner was not liable for stores furnished to the ship by order of the captain during the charterparty. *Fraser* v. *Marsh.* 13 *East. Rep.* 288.

A ship was chartered to the commissioners of the navy as an armed vessel, and by the misconduct of the persons on board, injury was done to another vessel while king's pilot and a commander of the navy were on board. An action for the injury lies against the owners. *Fletcher* v. *Braddlick.* 2 *N. R.* 182.

Repairing a ship. — If a ship be repaired in the River Thames, and fitted out there with new rigging and apparel, the ship itself is not liable, but the owners are. If she be repaired abroad, the ship is liable, and the master may hypothecate her for payment of the charges.

The repairer of a ship may sue either the master who employs him or the owners: but, if he undertake it on a special promise from either, the other is discharged.

An action was brought by a shipwright for repairing the defendant's ship in his dock. About three hours before the ship's repairs were finished, a fire happened, and she was burnt. Notwithstanding which, the court held that the owner was liable to pay for the repairs that had been done.

Sole registered owner gave orders for materials and work to be done, for a ship's repair; but before the whole of the articles were delivered, he conveyed the vessel with its furniture to another by bill of sale, which was registered. Held that vendee was not liable for any goods furnished previous to

legal title being conveyed to him, and registered to him according to the statutes. *Trewhalle* v. *Rowe*, 11 *East. Rep.* 435.

The legal title to a ship remained in the vendors for a month after the sale, upon the face of the register, according to 34 Geo. 3.; but the vendors held not liable during that period for repairs ordered by the captain under the direction of the vendee, (who is for this purpose to be considered as a stranger to the legal owners,) and consequently had no authority to bind them. *Young* v. *Brender*, 8 *East. Rep.* 10.

Owners liable for provisions, &c. bought by the master. — If the master of a ship buy provisions for her, and have money of the owners to pay for the provisions, but sail without paying the money, the owners are liable to pay, in proportion to their respective shares in the ship, the master being but a servant to the owners. 2 *Vern. Rep.* 643.

Master not liable for stores ordered before, but delivered after, his appointment as master. — Lord Mansfield, in delivering the opinion of the court in the case of Farmer and another against Davis, where goods were ordered for a ship by the owner before the appointment of the captain, and some of which goods were delivered after his appointment, said, "Where a captain contracts for the use of a ship, the credit is given to him, in respect of his contract: it is given to the owners, because the contract is on their account; and the tradesman has likewise a specific lien on the ship itself. Therefore, in general, the tradesman who gives that credit, debits both the captain and the owners. Now, what is this case? The captain made no contract personally: the owners contracted for their ship: the credit was given to them only: and there is not a shadow of colour to charge the captain with any part of these goods."

Master has no lien on the ship for his wages; nor for money paid for stores and repairs. — Wilkins and others, assignees of Brooke, a bankrupt, against Carmichael. The question in this case was, whether a captain, having paid for stores supplied, and repairs done, to a ship in England, and having wages due to him, has such a lien on the ship as to be entitled to keep her till he is paid?

Lord Mansfield said, "Notwithstanding the strongest inclination that the defendant (the captain) should have full satisfaction, we are not able to find ground on which we can give judgment in his favour. 1. He has set up a lien upon two sorts of claim; viz. wages, and stores and repairs. As to wages, there was no particular contract that the ship should be a pledge; there is no usage in trade to that purpose; nor any implication from the nature of the dealing. On the contrary, the law has always considered the captain as contracting personally with the owner; and the case of the captain has, in that respect, been distinguished from that of all other persons belonging to the ship; this rule of law may have its foundation in policy, for the benefit of navigation; for, as ships may be making profit and earning every day, it might be attended with great inconvenience, if, on the change of a captain for misbehaviour, or any other reason, he should be entitled to keep the ship till he is paid. As to stores and repairs, it is a strong answer to that claim, that, when the demand was made to the assignees, the captain had not paid the tradesmen's bills. But if there was any lien originally, it was in the carpenter. The captain could not, by paying him, be in a better situation than he was, and he had parted with the possession; so that he had given up his lien, if he had one: the other creditors had none. If the defendant is liable to the tradesmen, it is by his own act. Work done for a ship in England is supposed to be done on the personal credit of the employer: in foreign parts the captain may hypothecate the ship. The defendant might have told the tradesmen, that he only acted as an agent, and that they must look to the owner for payment." — Judgment for the plaintiff.

Owners liable for necessaries ordered by the master, whether they know of it or not.—The plaintiffs being rope-makers, supplied the ship Henry and Thomas with cables to the value of 5*l.* 8*s.* 3*d.*, by the order of Thomas Harwood, the captain, and made Harwood and the owners of the ship (the defendant) the debtors, in the usual manner, without naming the owners, or knowing particularly who they were. The ship Henry and Thomas had been let by the defendants to Harwood upon certain articles, in which it was mutually covenanted between them as follows: 1st. The owners covenanted with Harwood, that, on his performance of the covenant stipulated on his part, he should have the sole management of the ship, and employ her for his sole benefit and advantage for the space of eleven years, if he should so long live, and the ship should not be lost. The covenants on the part of Harwood were (amongst others), to pay a yearly rent of 36*l.* per cent., at stated periods; that he would, at all times, at his own cost and charge, repair, maintain, and keep, the vessel and her rigging, &c. in good and sufficient repair. The plaintiffs had no notice of this contract at the time they furnished Harwood, the captain, with the goods.— The question was, whether the defendants were liable to this debt?

Lord Mansfield, in delivering judgment, said, "This case was reserved, not with a view to the particular matter in dispute, or the parties now before the court, but in consideration of a general anxiety in the owners of ships, employed in this trade, to know how far they are by law liable, for the acts of their respective lessees. In that point of view we have considered the case very

particularly; and, after the fullest deliberation, we think it impossible to say that the plaintiffs are not entitled to recover. Whoever supplies a ship with necessaries has a treble security. 1. The person of the master. 2. The specific ship. 3. The personal security of the owners, whether they know of the supply or not. — 1. The master is personally liable as making the contract. 2. The owners are liable in consequence of the master's act, because they choose him; they run the risk, and they say whom they will trust with the appointment and office of master. Suppose the owners in this case had delivered the value of the goods in question, in specie to the master, with directions for him to pay it over to the creditors, that the master had embezzled the money; it would have been no concern of the creditors; for they trust specifically to the ship, and generally to the owners. In this case, the defendants are the owners: and there happens to be a private agreement between them and the master, by which he is to have the sole conduct and management of the ship; and to keep her in repair, &c. But how does that affect the creditors, who, it is expressly stated, were total strangers to the transaction? In answer to the observation, that the plaintiff must have known the real situation of the matter in this case, from the general usage and custom of the country in that respect. To be sure, if it appeared that a tradesman had notice of such a contract, and, in consequence of it, gave credit to the captain individually, as the responsible person, particular circumstances of that sort might afford a ground to say he meant to absolve the owner, and to look singly to the personal security of the master: but here it is stated, that the plaintiff had no notice whatever of the contract. The owners themselves are aware of their being liable at the time; they choose a master to whom they agree to let the ship, and trust for their security to the covenants which they oblige him to enter into; these covenants are, that he shall be obliged to keep the ship in repair, and deliver her up, at the end of the term, in as good condition as when delivered to him. This is not all, for they indemnify themselves against the debts of the master, and against his being taken in execution; for if he does not perform all and every the covenants in the agreement (beside their remedy against him upon the ship), the consequence (beside their remedy against him upon the covenant) is, that the contract and agreement are to be absolutely at an end, and they are to take possession of the ship. Suppose the ship had been impounded in the admiralty court, and that happened at the end of the term; or suppose the captain had broken a covenant, which put an end to the agreement, the defendant could never have taken the ship out of court, without paying the debt for which the ship was impounded. We are all of opinion, therefore, that under these circumstances, there is no colour to say that the creditors shall be stripped of the general security they are, by law, entitled to against the owners." *Rich, executor,* v. *Coe and another.*

The stat. of 34 Geo. 3. c. 68. gives a summary conviction against any master of a vessel, "who, having received the certificate of its register, *wilfully detains, and refuses to deliver up, the same to the proper officers, &c.*, on the requisition of the owner or major part of owners, &c." But this will not authorise the conviction of a master who refuses to comply with the requisition of the *sole owner* to deliver up such certificate *to him;* even though expressed to be for the purpose of providing the indorsement necessary to be made at the custom-house for transfer of the ship. *Rex.* v. *Rixley,* 13 *East Rep.* 91.

The stat. 34 Geo. 3. applies to the sale of the entirety of a ship in the same port, as well as to the sale of a share therein. *Hubbard* v. *Johnson,* 3 *Taunt.* 177.

The ship-register acts, so far as they apply to defeat titles, and create forfeitures, are to be construed strictly, as penal, not literally, as remedial, laws. 3 *Taunt.* 220.

The most recent statute on this subject is the 53 Geo. 3. c. 159., the preamble of which statute states it to be an amendment of the 7 Geo. 2. c. 15. and 26 Geo. 3. c. 86. It enacts, that owners of ships thenceforward shall not be liable to make good any damage or loss occasioned without their fault, further than the value of their respective vessels, *and the freight due, or growing due, for and during the voyage in prosecution, or contracted for,* at the time of such damage or loss. sec. 1.

The value of the carriage of goods, and also the hire due, or to grow due, (except only such hire, as in the case of a vessel hired for time, may not begin to be earned till the expiration of six calendar months after the happening of the loss or damage,) shall be considered as freight. sec. 2.

Separate losses or damages, arising from distinct accidents, to be satisfied and compensated separately and distinctly. sec. 3.

But not to take away general responsibility from masters or mariners, being owners or part owners; and not to extend to owners of lighters, and other vessels used in inland navigation, nor to vessels not duly registered. sec. 4 & 5.

Actions may be brought for damage by persons suffering loss, though others have sustained loss by the same accident.

But if the ship, &c. &c. shall not be of sufficient value to make compensation to all the suffering parties, a bill in equity may be exhibited by any of them for a rateable distribution. And such court may take all measures necessary for ascertaining the said

value, and may require securities till the whole be paid into court. sec. 8, 9, 10.

Any court of equity competent to take cognizance under this act. sec. 15.

OWSE, among tanners, signifies oak-bark beaten, or ground small for use.

OWSER, among tanners, is bark and water mixed in a tan-pit.

OXALIC ACID. *See* ACIDS.

OXEN. (Ger. *Ochsen*. Du. *Ossen*. Da. *Oxer*. Sw. *Oxar*. Fr. *Bœufs*. It. *Bugl*. Sp. *Bueies*. Port. *Bois*. Rus. *Buki*. Pol. *Woly*. Lat. *Boves*.) It is not necessary to treat this title much at length, as the subject is considered under other heads, especially CATTLE, and AGRICULTURE.

The domesticated ox is met with in various parts of the world, and runs into as many varieties as the sheep; differing widely in size, form, and colour, according to climate and other circumstances. The British, and Irish, breeds of horned cattle have been much improved of late years by a foreign mixture. In Ireland the ox gives rise to a vast commerce, both in the flesh, which is salted and barrelled for exportation, and in the hides, of which vast quantities are annually sent to England, as well as to other parts of Europe.

OXYGEN, a simple substance, which can only be obtained in combination with other bodies, or in the state of gas. It exists naturally in the form of gas, forming about one-fourth of the composition of the atmosphere. It is evolved in great abundance from the leaves of vegetables, by the action of light. It may be obtained from its combinations in the state of gas by exposing substances which contain it, as manganese, red oxide of mercury, or the salt termed oxymuriate of potash, to heat in a pneumatic apparatus; by which oxygen gas is copiously disengaged, and may be collected in the usua way.

Oxygen gas is insipid, colourless, and inodorous. 100 cubical inches, at a mean temperature and pressure, weigh 33.75 grains. It may be indefinitely expanded or condensed. It is essentially necessary for the respiration of animals; an animal confined in oxygen gas will live three times as long as in an equal portion of atmospheric air. It is also the most powerful supporter of combustion. It was formerly considered as the only acidifying principle, but the discoveries of Sir H. Davy have shown, that hydrogen has, with certain substances, the same properties. Combined with metallic substances, it forms compounds, termed oxides. This may take place on mere exposure to the atmosphere, or by the influence of heat. The oxidation, or rusting of iron, when exposed to a damp atmosphere, is an instance of the former; and the change of lead, by burning, into red lead, exemplifies the latter. The great waste of this substance constantly taking place by the respiration of animals and combustion, is principally repaired by the function of the leaves of vegetables, which decompose carbonic acid gas, evolving the oxygen, and retaining the carbon.

OXYMEL, a compound of honey and vinegar. It is frequently combined with other medical ingredients, and then named from them, as oxymel of squills, &c.

OYSTER. (*Oysters*. Ger. *Austern*. Du. *Oesters*. Da. *Osters*. Sw. *Ostron*. Fr. *Huitres*. It. *Ostriche*. Sp. and Port. *Ostras*. Rus. *Ustrizii*. Pol. *Ostrygi*. Lat. *Ostrea*.) There are reckoned more than thirty species of oysters, principally distinguished by peculiarities in their shells. The common oyster is excellent food; and is eaten both raw and variously prepared.

Oysters usually cast their spawn in May, which at first appears like drops of candle-grease, and sticks to any hard substance it falls upon. These are covered with a shell in two or three days; and in three years they are large enough to be brought to market. As they invariably remain in the places where they are laid, and as they grow without any other seeming food than the afflux of sea-water, it is the custom at Colchester, and other parts of England, where the tide settles in marshes on land, to pick up great quantities of small oysters along the shore, which, when first gathered, seldom exceed the size of sixpence. These are deposited in beds where the tide comes in, and in two or three years grow to a tolerable size. They are said to be better tasted for being thus sheltered from the agitations of the deep: and a mixture of fresh water entering into these repositories, is said to improve their flavour, and increase their growth and fatness. The oysters, however, which are prepared in this manner, are by no means as large as those found sticking to rocks at the bottom of the sea, usually called rock-oysters. These are sometimes found as broad as a plate, and are much admired as excellent food. In parts of the East Indies there are found oysters, some of whose shells have measured two feet over. The oysters found along the coast of Coromandel, are capable of furnishing a meal for eight or ten men, but their flavour is not by any means so delicate as that of the European oyster.

There is scarcely a part of the world which does not furnish oysters; and the varieties noticed in this delicious fish, in different places, are truly surprising.

Oysters with greenish shells are much sought after in many parts of Europe, especially in France. In order to procure them of this description, the French bury the white oysters in pits three feet deep, situated on the sea-shore, in such a manner that the water only reaches them during the spring-tides. A sort of sluice is formed at each pit, which is so contrived, that on the ebbing of the tide, the pit is only covered by about

half the quantity of water that inundated it at the flowing. The pits now become green, and in the course of two or three days the oysters likewise acquire a greenish hue. After this they are suffered to remain in the pits about six weeks. The best oysters should be as fresh as possible, of a middling size, tender, humid, and delicate. Such oysters as are taken at the mouths of rivers are the most esteemed; for this fish delights in fresh water, and, as before observed, fattens in it more kindly than in the sea. The oyster-fishery is carried on in a very considerable manner along the British and Irish coasts; but more particularly in Wales, and the eastern part of England, whence the oysters are sent to market either fresh, or pickled in barrels. The oysters taken on the coast of France are so very poor, that they are frequently brought over to England to be fattened. The Dutch have likewise a few oysters; but they, as well as the French, are obliged to have recourse to the English, for oysters of any delicacy.

British oysters are exported to all parts of Europe, even to Russia, where they are considered a great delicacy.

LAWS RELATIVE TO THE OYSTER FISHERY.

31 Geo. 3. c. 51. and 48 Geo. 3. c. 144.

Punishment for taking oysters illegally.—If any person or persons shall, after the 1st of August, 1791, with any net, traul, dredge, or other instrument or engine whatever, take or catch any oyster or oyster-brood, within the limits of any oyster-fishery of this kingdom; or shall dredge for oysters or oyster-brood, or use any oyster-dredge, or any net, instrument, or engine whatsoever, within the limits of any such fishery, for the purpose of taking or catching oysters or oyster-brood, although no oysters or oyster-brood shall be actually taken; or shall, with any net, instrument, or engine, drag upon the ground or soil of any such fishery, all and every such person or persons (other than and except such persons as shall be the owners, lessees, or occupiers, of such fishery, or shall be otherwise lawfully entitled to take or catch oysters therein) shall be deemed and taken to be guilty of a *misdemeanour*, and shall and may be prosecuted for the same, by indictment at the assizes, or general quarter-sessions of the peace for the county, riding, or division; and such person or persons being lawfully convicted by verdict, or by his or their own confession, shall be punished, for any of the said offences, by fine and imprisonment, or either of them, as the court shall think proper; such fine not to exceed twenty pounds, or be less than forty shillings, and such imprisonment not to be for more than three months, or less than one month.

But by 48 Geo. 3. which is an amendment of 31st, the offence is declared to be a felony, and punishable with seven years' transportation, or three years' imprisonment, at the discretion of the court. *See further, title* FISHERY, *article Oyster Fishery,* as well for general information as for decided cases.

OYSTER-SHELLS are extremely valuable, both in pharmacy and agriculture. In the former science, they are used as an alkali, and administered in doses of twenty or thirty grains. The way of preparing them is, to select the hollow, or bottom, shells, dry them well, and pound them in a mortar, then pass them through a fine sieve. Some calcine them first: others prefer them in their natural state, supposing the saline properties with which they are imbued to be salutary, and to be evaporated by calcination.

In agriculture, they are found eminently beneficial; 40 bushels of the pulverised shells having been estimated to be equal in effect to eight tons of farm-yard manure. The pulverisation of these shells has lately been resorted to with advantage, and is an employment for the poor in parochial work-houses.

P, The fifteenth letter of the alphabet. P. M. is used to denote *post meridiem,* or afternoon. As a numeral, P signifies the same as G, viz. 400; and with a dash over it, thus, $\overline{P}$, 400,000. Among physicians, P denotes pugil, or the eighth part of a handful; P. Æ. *partes æquales,* or equal parts of the ingredients. P. P. *pulvis patrum,* the jesuit's bark in powder, so called, as these *fathers* were the first who brought it into Europe. P. S. stands for postscript, or something added to a letter.

PACE, a measure taken from the space between the two feet of a man in walking; usually reckoned two feet and a half, and in some men a yard, or three feet. The geometrical pace is five feet; and 60,000 such paces make one degree of the equator.

PACK, denotes a quantity of goods, made up in loads or bales for carriage. A pack of wool is seventeen stone and two pounds, or a horse's load.

PACKAGE, among mercantile men, is usually defined, a single lot or parcel of any species of goods made up for exportation, &c. such as a barrel or pipe of wine, a bale of cloth, a case of hats, &c.

As the duties of *scavage, package, baillage,*

and *portage*, payable at the port of London, have a certain affinity to each other, and are usually levied at one and the same time, the whole of them will be found together in the Appendix to this volume.

For the more certain and for the better levying and collecting the duties of package, scavage, &c. the mayor and commonalty, or their proper officers or deputies, may, by all lawful ways and means, compel persons, suspected of any concealment, colourings, or frauds, to take their oaths upon the holy Evangelists.

The city of London is likewise entitled to the survey of the measures, numbers, and weights, of all merchandise of aliens or denizens, coming into, or going out of, the said city, as well by land, as by water: and also the portage and carriage of all goods of denizens, whose fathers are aliens, born under foreign allegiance, or of aliens born under foreign allegiance in parts beyond the seas, carried in London from the river of Thames to the houses or warehouses of such merchants, and thence to the said river.

PACKET, a vessel appointed by government to carry letters, &c. by sea, from one country to another. By stat. 13 & 14 Car. 2. c. 11. no vessel or boat, appointed and employed ordinarily for the carriage of letters and packets, shall (unless allowed by the officers of customs) import, or export, any goods into, or out of, the parts beyond the seas, under penalty of 100*l.* to be paid by the master of the vessel, with the loss of his place, and all the goods on board the said vessel. By statutes 46 Geo. 3. c. 60. and 56 Geo. 3. c. 9. duties of tonnage are authorised to be laid on foreign packets, lading, or unlading, in the ports of Great Britain.

The British packet boats are stationed as follow:

AT	TO
Dover . . .	Calais Ostend
Falmouth . .	Lisbon Gibraltar and Mediterranean
	Madeira and Brazils
	America Jamaica Leeward Islands
Harwich . .	Holland Cuxhaven Sweden
Holyhead . . .	Dublin
Milford . . .	Waterford
Port Patrick . .	Donaghadee
Weymouth .	Guernsey and Jersey.

PADAN, a money of account in the East Indies, at present in little use. A hundred courons make one padan. *See* COURON.

PADDLE, a kind of oar, used by savage nations in navigating their canoes. The paddle is broader at the end than the common oar, and being employed at the stern of the canoe, not only impels her forwards, but regulates her course in the manner of a rudder.

PADLOCK, (*Padlocks.* Ger. *Vorlegeschlössor.* Du. *Hangsloten.* Da. *Hængelaas.* Sw. *Hänglås.* Fr. *Cadenats.* It. *Lucchetti.* Sp. *Candados.* Port. *Caddeados.* Rus. *Wissjatschtschiä samki.* Pol. *Klotki,*) a sort of lock, hung on a staple, to hold on a link. Padlocks are made of brass, iron, &c. Those of the latter sort are the most common, and are generally japanned over to preserve them from rust, and to give them a neatness of appearance. Padlocks are principally manufactured at Birmingham, Wolverhampton, Dudley, and in the vicinities of these towns; but the superior kinds, especially those called Bramah's, from the name of the inventor, are manufactured in and about London.

PAENSZAJIE, silver money current in Persia, worth two and a half mamoudis. The paenszajie is equivalent to 1*s.* 4*d.* sterling.

PAGE, one side of the leaf of a book. A folio volume contains 4 pages in every sheet; a quarto, 8 pages; an octavo, 16 pages; a duodecimo, 24 pages; and an octodecimo volume, 36 pages *per* sheet.

PAGODA, or Pagod, a gold coin, current in several parts of the East Indies: at Madras, the pagoda is worth 9*s.*; at Bengal, it is worth 8*s.* 9*d.*; but at Bombay, it is only equivalent to 7*s.* 10½*d.*

PAINT, (Ger. *Schminke.* Du. *Blanketzel, Blanket.* Da. *Sminke.* Sw. *Smink.* Fr. *Fard, Peintzure.* It. *Belletto.* Sp. *Afeite, Arrebol.* Port. *Enfeite, Arrebique, Rebique, Posturas do rosto.* Rus. *Rümanü.* Pol. *Barwiczka, Rumienidlo.* Lat. *Fucus,*) a term more particularly intended to express those colours which are used in house-painting; the principal article used in the various compositions for which, is white-lead. The grinding is extremely detrimental to health, and for which the following substitute has been proposed by M. De Vaux; viz. two quarts of *sweet* skimmed milk, six ounces and a half of fresh-slaked lime, four ounces of linseed oil, and three pounds of Spanish white to be used in the composition. The lime must be first introduced into a stone vessel, to which should be added such a proportion of milk, as will produce a mixture resembling cream.

The oil is next to be gradually poured in, and the remainder of the milk added. The

Spanish white must next be crumbled in, or scattered on the surface of the fluid, which it gradually imbibes, and at length sinks, when the whole should be briskly agitated.

The quantity above-mentioned is stated to be sufficient for the first coat from twenty-four, to twenty-seven, English yards, and costs in Paris no more than nine sols, or 4½*d.*

To obtain a *distemper*, or *size-colour*, the paint thus prepared may be tinged with powdered charcoal, yellow ochre, &c. for painting with which the most common oils may be used.

For the modes of preparing various kinds of paint, *see* COLOURS, and PAINTING.

PAINTERS. There are four sorts of painting, which are properly called trades. 1. House-painting, which is mostly plain work within, or without. 2. Ship-painting, which is also for the most part plain, but, generally, with a great deal of carved work, and gilding. 3. Sign-painting, which is mostly rough figure-work. 4. Coach-painting, which is partly plain, and partly in figures.

Plaisterers are not to exercise the trade of a painter in London, without serving an apprenticeship. 1 Jac. 1. c. 20. s. 4.

PAINTING is the art of representing all objects of nature visibly, by lines and colours on a plain surface. It has also the power of expressing, by the same means, conceptions and images of the mind, which do not actually exist in any of the usual forms of nature. It is to be considered as an art displaying, either conjointly, or separately, the powers of imagination and imitation: and may be divided into invention, which regards the original thought or conception of the subject; and into composition, design, and colouring, which regard the execution of the work.

Invention consists generally in the choice of such subjects, as are best calculated to answer some great and interesting end; and particularly in discovering, or selecting, such subjects as are capable of being most appropriately expressed by painting, and of producing a powerful effect by such means, as are distinctively placed within the compass of that art.

Composition regards the arrangement of the subject both as to forms, and to the general effects of light and shade, and of colour. It comprehends the general distribution and grouping of the figures, their combination or contrast, the choice of attitudes, the disposal of draperies, the situation of the scene itself, as well as the distribution and connection of all the various parts of scenery and ornament.

Design is used for the first idea of a large work drawn roughly, or in little, with an intention to be executed and finished at large.

Colouring regards, first, the infinite variety of hues with which nature distinguishes her forms, agreeably to the degree and mixture of the rays of light which their surfaces reflect; and, secondly, the distribution, apposition, and accompaniment of various hues or tints, so as to produce the effect most pleasing to the sight, a circumstance in which nature not always delights. It embraces also the light and shade of objects, as far as by the diminution, or increase, of these the harmony of tints before-mentioned can be effected; but that mixed effect of colour, and of light and shade, which is denominated chiaro-scuro, is more justly regarded as a branch of composition.

Course and methods of study requisite to attain the art of painting.—The knowledge of design is the basis of painting, and its various attainments the necessary steps, by which the painter must commence his advance in the art. The student having completed the various studies which lead to excellence in drawing, must proceed to transfer the principles he has learned to his canvas; and, before he can arrive at eminence, must acquire a complete mastery of the new materials in which he is to display at once the stores of his mind, and the skill of his hand. For this purpose, he must add to the knowledge he already possesses, the study of colours and colouring, in all their branches. It is the knowledge of this department of art which peculiarly characterises the profession he is about to undertake. The various branches of design have formed the commencement of his studies, and he may be supposed a perfect master of them; but these alone cannot constitute him a painter; neither can he acquire that title by the knowledge of every rule of invention or composition. If we consider a painter in regard of these last powers of skill, we rank him with the poet or the draughtsman; if in regard of anatomic knowledge or perspective, we confound him with the anatomist or the mathematician; if in regard of symmetry, grace, and proportions of form, we cannot distinguish him from the geometer or the sculptor. The painter, who is supposed the perfect imitator of nature, necessarily makes colouring his chief object, since he only considers nature as she is imitable; she is only imitable by him as she is visible; and she is only visible as she is coloured.

Although the perfect idea, therefore, of a painter depends on invention, composition, design, and colouring, conjointly, yet it is by the last of these only that he can establish a special idea of his art, since by this we distinguish him from such other artists as have for their object the various powers which can be expressed by design (whose art cannot come up to that perfect imitation of nature, which is within the scope of painting); and by this only we can be decidedly understood to speak of a painter.

To this it is to be added, that as colouring specifically distinguishes the art of the painter from all the other arts of design, so it is the ultimate accomplishment of all his studies in the art of painting.

We shall, therefore, first treat of colouring, and proceed to consider more minutely the component parts which form the art of colouring.

Colouring.—Colouring is that mode of art by which the artist imitates the appearance of colours in all natural objects, and gives to artificial objects those hues which are most calculated to please, or to deceive the sight.

It is the duty of the colourist to consider, that, as there are two sorts of objects, the natural or the real, and the artificial or the painted, so there are also two sorts of colours, viz. the natural, or that which makes all the objects in nature visible to us, and the artificial, or that which, by a judicious mixture of simple colours, imitates those natural ones in all their various situations and circumstances.

The painter must first endeavour to acquire a perfect knowledge of these two sorts of colours; of the natural, in order to distinguish with precision which of them he ought to imitate; and of the artificial, in order to compose the tint most proper for representing the natural colour. He will learn also, that the natural colour is of three sorts: 1st, the true colour of the object; 2d, the reflected colour; 3d, the colour of the light incidental to the object. In the artificial colours, he will distinguish their force and softness separately and by comparison, in order that he may use a proper judgment in heightening or attenuating them, according as his subject may require.

To this end he will also consider, that a picture is, for the most part, a flat superficies; that, some time after the colours are laid on, they necessarily lose their freshness; and that the distance at which a picture is viewed, takes from it much of its brightness and vigour; and it is therefore impossible to guard against these drawbacks on the effect of his pencil, without a complete mastery of that artifice which is the chief object of the art of colouring.

Although imitation is the principal aim of colouring, the painter must by no means be the slave of natural objects, but the judge and judicious imitator of them: he must not imitate all the colours which present themselves indifferently to his eyes; but he must choose the most proper for his purpose, and add or temper with others, to complete the beauty of effect in his work. He must sometimes abate the vivacity of life, and sometimes strive to heighten it, by superior force and brightness of colours, in order to convey to the eye, with precision and truth, the spirit and real character of the object. There are few, and those only among the greatest painters, who have arrived at the perfect management of this difficult part of the art.

On the apposition of colours, and on the knowledge of chiaro-scuro, depends all the harmony of colouring. In what that happy arrangement of colours consists, which produces effects delightful to the eye, no rules can pretend to ascertain. If the source of information in this point is not in the mind of the painter, he will in vain seek for it elsewhere. Improvement, however, may, and must, be superadded to natural discrimination: to acquire the necessary improvement, he will find the best school in the works of those great masters who have possessed the power of colouring in an eminent degree. Such are Titian and Rubens. But he must be careful that, in studying even these great examples of the art, he does not forget that he is only learning from them the road to nature, the final source of his imitation.

Of the few maxims which can be offered on the subject of colouring, the following are the least questionable:

We must learn to view nature to advantage, in order to represent her well. There are two manners of colouring: the one depending on habit, the other on the true knowledge of colours. The first is confined, the second unlimited.

The harmony of nature in her colours arises from objects participating of one another by reflection; for there is no light which does not strike some body; nor is there any enlightened body which does not reflect its light and colour at the same time, in proportion to the force of the light, and according to the nature of the colour. This participation of reflection in light and colour, constitutes that union of colouring which it is the business of the painter to imitate.

This desirable union of colour is sometimes considerably aided in pictures by the process of glazing; that is, by the use of colours which, having little body, are diaphanous; and are, by means of a light brush or pencil, passed over (or, as painters express it, *scumbled* over) such parts of the work as are unpleasantly staring, or otherwise discordant. This use of transparent colour is by some called toning, or tuning.

Variety of tints, very nearly of the same tone, employed in the same figure, and often upon the same part, with moderation, contribute much to harmony.

The turn of the parts, and the outlines which insensibly melt into their grounds and artfully disappear, bind the objects together, and preserve them in union: as they seem to conduct the eye beyond what it sees, and persuade it that it sees what it really does not see, or at least that it conceives that continuity which the extremities of the objects conceal.

Any loading or overcharging of colouring,

for whatever purpose it is used, must be so discreetly managed as not to destroy the character of the object.

The repetition of the same colour in a picture is to be avoided, unless where it serves to connect the various masses of a composition. The eye becomes tired with viewing the same object; it loves variety artfully presented to it.

The apparent value of colours in a picture (as in all things) arises from comparison.

Several colours which, placed unmixed by one another, have a kind of aërial brightness, when mixed together, produce a disagreeable earthy colour: for instance, ultramarine with fine yellow, or fine vermilion.

Colours which by mixture lose strength and become harmonious, are called broken colours, and contribute as greatly to the sweetness and softness of tones in pictures, as they subtract from their brightness.

Chiaro-scuro. — The knowledge of lights and shades evidently forms a part of that essential distinction of painting, which we have just described under the head of colouring, and is requisite to that part of colouring which refers to composition. But the incidence of particular lights and shades on bodies placed on certain planes, and exposed to certain lights, (a knowledge to be gained from the study of perspective), is a very small part of that general knowledge of effect which is denominated chiaro-scuro, by which is meant the art of skilfully distributing the lights and shades which ought to appear in a picture, as well for the repose as satisfaction of the eye. The incidence of light may be demonstrated by lines supposed to be drawn from the source of that light to the body enlightened: whereas the chiaro-scuro depends entirely on the painter's imagination, who, as he invents the objects, may dispose them to receive such lights and shades as he proposes for his picture, and introduce such accidents of colour as he deems most advantageous to the effect of the whole.

Chiaro-scuro, therefore, demands a perfect knowledge of the effects of light and shade, of aërial perspective, of the proportional force of colours, or of those qualities by which they appear to advance to, or recede from, the eye, and of their various degrees of transparency or opaqueness.

The art of chiaro-scuro consists, 1st, in connecting and combining the figures or objects of a composition in such masses of light and of shade, as are both the most pleasing to the eye, and the best calculated for the just developement and display of the subject. 2dly, In assigning to each object the colour most corresponding (on account of the force or qualities above-mentioned) to its respective place in the general mass or group, and, at the same time, best harmonizing with the other colours of the picture, either by its natural and proper tone, or by the reflected hues which it receives from adjoining, or surrounding, objects. The beauty of these reflexes depends on the skilful adaptation of transparent, or opaque, colours. 3dly, In the judicious introduction of such accidents, as contribute to strengthen the general effect and character of the work. It is on chiaro-scuro, says Mengs, that depends the expression of the character of a picture, whether it is gay, or gloomy, cheerful, or solemn.

Composition. — Composition may be divided into the general distribution of objects, the grouping, the choice of attitudes, the contrast, the cast of draperies, and the management of the back-ground, or the connection of the whole effect.

In composition, so far as regards the general distribution of objects, the painter ought to contrive that the spectator may, at the first sight, be struck with the general character of the subject, or at least may comprehend its principal scope. This effect is most readily produced by placing the most essential figures in the most conspicuous places, provided it can be done without violence or impropriety. Besides this distinctness in the general expression of the subject, the beauty of the composition will depend on the variety, connection, and contrast, displayed in the distribution of objects; provided, in like manner, that these are conformable to the nature of the subject, whether gay, familiar, full of motion and hurry, or still, solemn, and melancholy.

The grouping regards both design and chiaro-scuro. In the former, it respects the figures principally concerned in the expression of the subject, which must necessarily be near to, or distant from, one another, as their actions, conversations, or other mutual relations, require. In the latter, it regards those masses which are formed from objects which may be properly arranged together, and those effects of light, and shade, which are formed in consequence of such assemblage or union. These are the points to which the attention must be principally and diligently directed, in forming the groups of a composition.

The choice of attitudes is the principal subordinate division of grouping. Whatever attitude is given, it must not only contribute its due portion to the completion of the group, but the greatest care must be taken by the painter, that it does not appear to be introduced for that purpose merely. It must be appropriate to the character of the individual figure, and expressive of its requisite action; and it must, at the same time, combine whatever beauty of form can be shown by such a selection of turns, or views of the body, as the necessary circumstances will admit. The knowledge of generic characters, under the various modifi-

cations of sex, age, and condition; of the various operations of the passions in the human mind; and a thorough acquaintance with the circumstances of the history or other subjects to be represented; are the best guides to a good choice of attitudes.

The management of the back-ground, or connection of the general effect, is, of all other parts of composition, at once the most difficult to be defined, or performed. It consists in the general accordance and subordination of objects with, and to, one another, so that they shall all concur to constitute but one single object. It is to the whole what the grouping of lines, forms, and chiaroscuro is to a part. It is effected by a due combination of lights and shades, by an union of colours, and by such oppositions or contrasts as are sufficient to relieve the distinct groups, and to give repose to the eye. Amidst several groups (if the picture consists of such), it requires, that one should be justly predominant in force, and colour, and that all detached objects should be so united with their respective grounds, as to form together one general mass of repose, for the support of the principal object.

The satisfaction of the eye is the ultimate purpose of this difficult part of composition.

Invention. — It now remains to speak of the most arduous attainment of the painter, and which we have placed the last in the order of his studies, because it is that which gives the highest character to the artist, as it affords the greatest opportunities of displaying the powers of his mind.

Invention comprises every kind of subject which can be represented to sight; but it is generally divided into historical, allegorical, and mystical.

Invention simply historical, is the selection of such objects as plainly relate to, or represent, a subject. Its degrees are more, or less, valuable, according to its matter or subject, and its requisite properties are fidelity, and perspicuity. It extends also to the introduction of all such embellishments, as are consistent and congenial with the history represented, in the same manner, as in poetry. The same illustration by collateral erudition, the same enlivening by incidental ornament, the same blending of poetic imagery (not over-stepping truth), is admired in the painter, as in the poet.

Allegorical invention is a choice of objects which serve to represent either wholly, or partly, what they are not; and of which the expression arises from illusion.

Other works are partly allegorical, and partly historical; in which the spectator easily distinguishes the figures purely historical, from others mixed with them in the same picture, and entirely allegorical.

The first great requisite of allegorical painting is, that it be intelligible. An allegory not understood, is a loss of labour, both to painter, and spectator. For this purpose, it must, in general, consist of such symbols as are established on good authority, or, if new, are obvious to the mind.

In addition to this first requisite, the proper choice of allegory demands, either that the subject could in no other way be represented, or that it could not be represented by historical invention, in an equal degree of force and beauty.

Mystical invention respects the expression of such ideas as are inculcated in our minds by the precepts of religion.

The style of mystical painting is sometimes familiar and tender, as in subjects of the Holy Family, but chiefly majestic and elevated.

OF THE DIFFERENT CLASSES OF PAINTING.

Portraiture. — If the accurate imitation of nature is, on any occasion, capable of forming the principal merit of a picture, it must certainly be in portraiture, which not only represents a man in general, but such a one as may be distinguished from all other men. The greatest perfection of a portrait is extreme likeness, and the greatest fault is the resemblance of a person for whom it was not designed, unless we are inclined to except a still more grievous defect, viz. the want of resemblance to any person whatever. The resemblance of men to one another, is indeed frequently found in living nature, but it is seldom or never so complete and entire, but that some particular turn or view of the face will betray the difference: and it is the business of the artist ever to discriminate, and to appropriate to his pencil those peculiar features, lines, and turns of the face, the representation of which will effectually convey to the spectator the distinct especial idea of the person, whose portrait is set before him.

Various difficulties attend, and not seldom impede, the execution of this task. It is true, that there is not a single person in the world, of whatever age, sex, or condition, who has not a peculiar character, both in body, and face; but it is also the essential duty of portraiture, that it not only imitate what we see in nature, but that it exhibit such views of nature as are confessedly the most advantageous to the person represented. The moment that the idea raised by the sight of the portrait is inferior to that raised by the sight of the person, the labour of the artist sinks into the debasing region of caricature.

Likeness, however, being the essence of portrait, it is unquestionably the part of the painter not to pass over entirely defects, any more than beauties; since, by this means, the resemblance will be more complete. He is only to be aware that he strictly preserves that balance which constitutes the character of the object. It has been sometimes suggested by those who are

more willing to court favour than fame, that all appearances of deformity, when the air, temper, and general likeness of the face, can be discerned without them, ought to be omitted, or corrected, in portraiture; but this must be done at least with considerable discretion; for, by too strenuous endeavours to correct nature, it is always found that the painter insensibly falls into a habit of giving a general air to his portraits, as suitable to one person, as to another, or perhaps properly suited to none.

In the portraits of particularly distinguished characters, of men illustrious either for rank, virtue, great actions, or exalted talents, exactitude of representation, whether in beauties, or defects, cannot be too closely pursued. Portraits of such persons are to become the standing monuments of their high name to posterity; and in this instance every thing is precious that is faithful.

The resemblance, as well as every other excellence, of a portrait, depends on feature, expression, air, colouring, attitude, and attire; and that, not only individually, but viewed collectively.

The features require to be carefully examined and studied by inspection, in many different views, so that at the moment when the painter puts his pencil to the canvas, he may be possessed, not only of the apparent form of each particular feature according to the aspect in which he represents it, but of its real and characteristic form also, the full expression of which is not discernible in every view. Each feature should appear so distinctly shaped, as that an exact model of the real head could be formed from the picture, if requisite; and they must be at the same time so blended in the general mass of the face, that no one shall obtrude itself on the eye beyond the rest. The peculiar mode of touch, or execution, whereby each feature is best discriminated, can only be learned from practice, and the attentive study of the best masters.

It is requisite to observe, that the greatest care is to be used in a portrait, in order that the expression of the features be uniform and consistent with each other. Errors in this respect are among the most frequent in portrait-painting. The mouth is sometimes represented smiling, while the eyes are sad, and *vice versâ*, &c. The painter must therefore constantly bear in mind the general idea that he has formed of the countenance he intends to express, and must be watchful of the corresponding forms of the features, in moments of similar expression. The remark, here applied to the various minute parts of the face, may be extended to all the larger portions of the figure. The same expression must be clearly perceived in the motion or direction of the hands, arms, legs, and body, that appears to prevail in the countenance, and turn of the head. It is this combination only which can give the exact resemblance of the expression of nature, under the impulse of which no particular limb ever deviates from the general intention of the whole body.

The air principally regards the lines of the face or figure, the attire of the head or person, and the stature or make of the general form.

The proper lines of the face, or figure, depend on accuracy of drawing, and an entire agreement of the parts of the same form with one another. Nothing so entirely disguises or alters the appearance of an individual person, as the change of head-dress, whether it be the adjustment of hair, or attire. The greatest attention, therefore, is to be used in adapting the arrangement of this part of the portrait to the general character of the person represented.

The stature and make, in the same manner, contribute to the force of resemblance (as the least observation on nature will teach us), and never fail considerably to influence the air of the person. It is therefore requisite, for the truth of portrait, that this part of the picture should be as faithfully studied from the sitter, as the face itself.

Nothing varies more quickly, more discernibly, or more frequently, than the colour of a sitter's face. Great care must therefore be taken to establish an uniform judgment of the sitter in this respect also; for the colouring of the skin or complexion, being an effusion of nature, tending to discover the true tempers of persons, exactness of imitation here becomes essential to the exhibition of character. It may be therefore expedient to watch the first moments of the appearance of colour in the sitter, who, sooner or later, from a continuance in one posture, loses those spirits, which at his first sitting down, gave to every part of the face a livelier and fresher hue. There is no other point of painting in which the paradox may be more truly asserted, "that the painter, who only paints what he sees, will never arrive at perfect imitation."

Modes and materials of painting. — The different modes of painting now in use are:

Oil painting; preferable to all other methods, as it admits of a perfect gradation of tints in the most durable of all materials, except those of

Mosaic painting; in which an imitation of objects is produced by the junction of a great number of small pieces of natural marble of different colours fixed in stucco, or mortar, so that if the mortar be well prepared, the monuments of this art may descend to the most remote ages. *See* MOSAIC-WORK.

Fresco painting; which is performed with colours diluted in water, and laid on a wall newly plastered, with which they incorporate, and are sometimes as durable as the stucco itself.

Crayon painting; in which colours,

either simple or compound, are ground in water mixed with gum, and made into small rolls of a hard paste, which are then used on paper, or parchment.

Miniature painting; which consists of colours prepared with water or gum, and laid on vellum, or ivory. It is of course confined to works of a very small size.

Enamel painting; which is performed on copper, or gold, with mineral colours, dried by fire. This method is also very durable. *See* ENAMELLING.

Wax, or encaustic painting; performed by the mixture of wax with the varnish and colours.

Painting on glass, too well known to need description, and performed by various methods.

Painting in distemper; which is with colours mixed with size, white of eggs, or any thin glutinous substance, and used on paper, linen, silk, board, or wall.

Painting in water-colours, more properly called limning; it is performed with colours mixed with water, gum, size, paste, &c. on paper, silk, and various other materials.

To these is to be added elydoric painting, consisting of a mixed use of oil-colours and water.

Method of painting in fresco.—Before you begin to paint, it is necessary to apply two layers of stucco on the place where your work is to be executed. If you are to paint on a wall of brick, the first layer is easily applied; if of free-stone closely joined, it is necessary to make excavations in the stone, and to drive in nails or pegs of wood, in order to hold the layer together.

The first layer is made of good lime and a cement of pounded brick, or, which is better, river-sand, which latter forms a layer more uneven, and better fitted to attach the second smooth layer to its surface.

Before applying the second layer, on which you are to paint, it is requisite that the first is perfectly dry, as the lime while moist emits a pernicious effluvium.

When the first layer is perfectly dry, wet it again with water, in proportion to its dryness, that the second layer may more easily incorporate with it.

The second layer is composed of lime, slaked in the air, and exposed for a whole year, and of river-sand of an equal grain, and moderately fine. The surface of this second layer must be uniformly even. It is laid on with a trowel; and the workman is provided with a small piece of wood, to remove the large grains of sand, which, if they remained, might render the surface uneven.

To give a fine polish to this surface, a sheet of paper should be applied on it, and the trowel passed and repassed over the paper; this caution will prevent any little inequalities which might injure the effect of the painting at a distance

The workman must not extend the layer over a greater space than the painter is able to finish in a day, as it is necessary that the ground should always be fresh and moist under his pencil; and it is on this account, that the readiness of the artist's hand becomes so requisite a quality in the execution of works in fresco.

The ground being thus prepared, the painter begins his work; but as painting in fresco must be executed rapidly, and as there is not time to retouch any of the strokes of the brush with good effect, he will first have taken care to provide himself with large finished drawings in chalk, or paintings in distemper, of the same size as the work which he has to paint, so that he shall have only to copy these drawings on the wall.

These drawings are generally made on large sheets of paper pasted together, and have thence been generally termed cartoons (cartoni.)

The painter traces the outlines of the figures on the plaister, by passing a steel point over them, or pricking them closely, and passing very finely powdered charcoal through the pricked holes. He then proceeds to the completion of his work, having his chief tints ready prepared in separate earthen pots, and generally first trying their effect on a dry smooth tile, which quickly imbibing their moisture discovers the hue which they will have when dry on the wall.

All natural earths are good for painting in fresco. The colours are ground and tempered with water. It is to be remarked, that all the colours used in this method of painting brighten as they grow dry, excepting the red varnish, the brownish red ochre, ruth-ochre, and the blacks, particularly those that are passed through the fire.

The best colours are white, made of old lime, and white marble-dust (the proportional quantity of the latter depends on the quality of the lime, and must be found by trial, as too great a quantity of marble-dust will turn the colour black;) ultramarine-blue, the black of charcoal, yellow ochre, burnt vitriol, red earth, green of Verona, Venetian black, and burnt ochre.

Other colours, which require to be used with great precaution, are amel, or enamel-blue, and cinnabar. Enamel-blue must be applied instantaneously, and while the lime is very moist, otherwise it will not incorporate; and if you retouch with it, you must do it an hour, or more, after the first application of it, in order to increase its lustre.

Cinnabar has a splendour almost beyond all other colours, but it loses it when mixed with lime. It may, however, be employed in places not exposed to the air, if proper care be used in preparing it. For this purpose, reduce a quantity of the purest cinnabar to powder, put it into an earthen vessel, and pour lime-water on it two, or three,

times. By this process the cinnabar receives some impression from the lime-water, and you may then use it with greater safety.

The white of lime is formed by mixing lime, slaked a long time before, with good water. The lime deposits a sediment at the bottom of the vessel; when the water is poured off, this sediment is the white of lime.

Another kind of white may likewise be made from egg-shells, pounded, in great quantities, and boiled in water, together with quick-lime, and afterwards put into a strainer and washed repeatedly with spring water.

The shells must be again pounded until the water employed for that purpose becomes pure and limpid; and when the shells are completely reduced to powder, they are ground in water, made up in small pieces, and dried in the sun.

The effect of this colour must be ascertained by experiment.

Ochres of all kinds make good colours for fresco, being previously burnt in iron boxes.

Naples yellow is dangerous to be used, when the painting is much exposed to the air.

Blacks, from charcoal, peach-stones, and vine-twigs, are good; that extracted from bones, has been said to be of no value for this purpose.

There is another black used by the Italians, which they called fescia da botta. It is made of the lees of burnt wine.

Roman vitriol gathered at the furnaces, and called burnt vitriol, being afterwards ground in spirits of wine, resists the air extremely well. There is also a red extract from this preparation, somewhat like that of lac. This colour is a good preparatory for the layers where cinnabar is afterwards to be used; draperies painted with these two colours are as bright as fine lac used with oil.

Ultramarine never changes, and seems to communicate its permanent quality to the colours with which it is mixed.

Distemper.—All colours are proper for distemper, except the white of lime, which is used in fresco only.

Azure and ultramarine must be used with a paste made of glove-skin, or parchment, as they will turn green when mixed with yolks of eggs.

If the work be on walls, care must be taken that they are quite dry. The painter must even lay on two layers of hot paste before he applies the colours, which, if he pleases, he may also temper with paste, the composition of eggs and fig-tree branches being only for retouching, and the paste rendering the work more durable. When used, it must be kept hot by fire. This paste, as has been said, is made of glove-skin or parchment.

All their designs for tapestry were made on paper, in the same manner as has been mentioned in the account of the cartoons used for fresco-painting.

When a painter in distemper would work on cloth, he must choose that which is very old and smooth; then press pounded plaister with glove-skin paste, and lay it over the cloth; when dry, add another layer of the same paste.

All the colours are pounded with water, and as the painter wants them for his work, he tempers each with paste-water; or if he will only make use of yolks of eggs, he takes of water one glass, to which he adds an equal quantity of vinegar, the yolk, white, and shell of an egg, and some ends of fig-tree branches cut into small pieces, and beats them all well together in an earthen pan.

If he wishes to varnish his picture when finished, he must rub it with the white of an egg well beaten, and then put on a single coat of varnish.

Oil-painting.—The principal advantage of oil-painting over other methods consists in the colours drying less speedily, so that it allows the painter to finish, smooth, and retouch his works with greater care and precision. The colours also being more blended together, produce more agreeable gradations, and a more delicate effect.

As the superior beauty of oil-painting depends on the vividness, and delicacy, of durable tints, we shall present the student with the best rules drawn from a careful study of the works of Vandyck, and Rembrandt, two of the most remarkable colourists in different styles. These rules are arranged in so easy a method, that the student may be led, step by step, through all the difficulties of this nice and pleasing progress.

We shall first treat of the painting of flesh, next of draperies, then of the back ground, and lastly of landscapes.

OF PAINTING FLESH.

Principal colours from which all the tints of the flesh are made, and their qualities in painting.—Flake-white is the best white known to us. This colour should be ground with the finest poppy-oil that can be produced. It is often found to turn yellow, on account of the oil, generally sold by that name, not being really drawn from poppies.

White comes forward to the eye with yellows and reds, but retires with blues and greens. It is the nature of all whites to sink into whatever ground they are laid on, therefore they should be laid on white grounds.

Ivory-black is the best black: it is a colour which mixes kindly with all the others. It is the true shade for blue; and when mixed with a little Indian red, it is the best general shadow-colour that can be used. It is generally ground with linseed-oil, and used with drying-oil.

Black is a cold retiring colour.

Ultramarine is the finest blue in the world: it is a tender retiring colour, and never glares, and is a beautiful glazing colour. It is used with poppy-oil.

Prussian blue is a very fine blue, and a kind-working colour: it is ground with linseed-oil, though nut-oil is more proper. It should never be used in the flesh, but in green tints, and the eyes.

Light ochre is a good mixing colour, and of great use in the flesh; it is usually ground with linseed-oil, but nut-oil is better. All yellows are strengthened with red, and weakened with blues and greens.

Light red is nothing but fine light ochre burnt. This and white, in mixing, produce a most perfect flesh-colour. It is a beautiful clean colour; but too strong for the white, and therefore will grow darker. It should be ground, and used with nut-oil.

No vermilion, but what is made of the true native cinnabar, should be used. It will not glaze; but is a fine colour when it is glazed. It is ground with linseed-oil, and should be used with drying-oil.

Carmine is the most beautiful crimson: it is a middle colour, between lake and vermilion; is a fine working colour, and glazes well. It should be ground with nut-oil, and used with drying-oil.

Lake is a tender deep red, but of no strong body; therefore it should be strengthened with Indian red. It is the best glazing colour that can be used. It is ground with linseed-oil, and used with drying-oil.

Indian red is a strong pleasant working colour, but will not glaze well; and when mixed with white, falls a little into lead: it is ground and used as the lake.

Brown pink is a fine glazing colour, but of no strong body. In the flesh it should never join or mix with the lights, because this colour, and white, antipathize, and mix of a warm dirty hue: for which reason their joinings should be blended with a cool middle tint. In glazing of shadows it should be laid before the other colours that are to enrich it; it is one of the finishing colours, and therefore should never be used in the first painting. It is strengthened with burnt umber, and weakened with terraverte; ground with linseed-oil, and used with drying-oil.

Burnt umber is a fine warm brown, and a good working strong colour: it is of great use in the hair, and mixes finely with the warm shade.

Principal tints, composed from the foregoing principal colours, and necessary for painting flesh. — Light red tint is made of light red, and white: it is the best conditioned of all colours, for the general ground of the flesh. With this colour and the shade-tint, you should make out all the flesh, like claro-obscuro, or mezzotinto. Remember, that this colour will grow darker, because it is in its nature too strong for the white; therefore you should improve it, by mixing vermilion, and white, with it, in proportion to the fairness of the complexion.

Vermilion tint is only vermilion, and white, mixed to a middle tint; it is the most brilliant light red that can be. It agrees best with the white, light red, and yellow tints.

Carmine tint is carmine and white only, mixed to a middle tint; it is, of all colours, the most beautiful red for the cheeks and lips; it is one of the finishing colours, and should never be used in the first painting, but laid upon the finishing colours without mixing.

Rose tint is made of the red shade, and white, mixed to a middle degree, or lighter; it is one of the cleanest and most delicate tints that can be used in the flesh, for clearing up the heavy dirty colours, and, in changing, will sympathise and mix kindly.

Yellow tint is often made of Naples yellow and white; but it is as well to use light ochre and white, which is a good working colour. The ochre is too strong for the white; therefore you should make a little allowance in using it. It follows, that the light red tints, and yellows, should always be laid before the blues. If you lay too much of it, you may recover the ground it was laid on with the light red tints.

Blue tint is made of ultramarine and white, mixed to a lightish azure; it is a pleasant-working colour; with it you should blend the gradations. It follows the yellows, and with them it makes the greens; and with the reds it produces the purples. No colour is so proper for blending down, or softening the lights into keeping.

Lead tint is made of ivory-black, and fine white, mixed to a middle degree; it is a retiring colour, and therefore is of great use in the gradations, and in the eyes.

Green tint is made of Prussian blue, light ochre, and white. This colour will dirty the lights, and should be laid sparingly in the middle tints. It is of most use in the red shadows, where they are too strong.

Shade tint is made of lake, Indian red, black, and white, mixed to a beautiful murrey colour, of a middle tint. This is the best mixture for the general ground of shadows. It mixes well with the lights, and produces a pleasant clean colour, a little inclined to the reddish-pearl. As all the four colours of its composition are of a friendly sympathising nature, so consequently this will be the same, and therefore may be easily changed by the addition of any other colours.

Red shade is nothing but lake, and a very little Indian red. It is an excellent working colour, and a good glazer; it strengthens the shadows on the shade-tint, and receives, when it is wet, the green, and blue, tints agreeably. It is a good ground for all dark shadows.

Warm shade is made of lake, and brown

pink, mixed to a middle degree. It is a fine colour for strengthening the shadows on the shade-tint, when they are wet, or dry. Take care that it does not touch the lights, because they mix of a dirty colour, and therefore should be softened off with a tender cold tint.

Dark shade is made of ivory-black, and a little Indian red only. This colour mixes very kindly with the red shade, and blends agreeably with the middle tints in the dead colouring. It is excellent for glazing the eyebrows, and the darkest shadows.

Process. — The process of oil-painting, particularly in the colouring of flesh and in landscape, is to be divided into three stages, or paintings.

The colours and tints necessary for the first, and second, stages of painting flesh, are; 1. flake, or fine white; 2. light ochre and its tints; 3. light red and its two tints; 4. vermilion and its tint; 5. a tint composed of lake, vermilion, and white; 6. rose tint; 7. blue tint; 8. lead tint; 9. green tint; 10. half-shade tint, made of Indian red and white; 11. shade tint; 12. red shades; 13. warm shade.

The finishing pallet for a complexion requires five more, viz. 1. carmine and its tint; 2. lake; 3. brown pink; 4. ivory-black; 5. Prussian blue.

First stage, or dead-colouring of flesh. — The first lay of colours consists of two parts; the one is the work of the shadows only, and the other that of the lights.

The work of the shadows is, to make out all the drawing very correctly with the shade tint, in the same manner as if it was to be done with this colour only; remembering to drive or lay the colour sparingly. The lights should be all laid in with the light red tint, in different degrees, as we see them in nature. These two colours united, produce a clean, tender, middle tint. In uniting the light, and shades, you should use a long softener, about the size of a large swan-quill, which will help to bring the work into character, and leave the colouring more delicate; then go over the darkest shadows with the red or warm shade, which will finish the first lay.

The warm shade being laid on the shade tint, improves it to a warmer hue; but if laid instead of the shade tints, it will dirty and spoil the colours it mixes with; and if the red shade be laid first, instead of the shade tint, the shadows would then appear too red; therefore, notwithstanding these two colours are the best for the shadows, yet they are too strong to be laid alone, which is a proof of the great use and merit of the shade tint. Here we may observe, that the shade, and light red, tints are so friendly in their nature, that even in continually altering and changing, they always produce a clean colour of a pearly hue.

Next. — In order to finish the first painting, improve the reds and yellows to the complexion, and after them the blues; observing, that the blues and the reds make the purple, and on the yellows produce the green. The same method is to be understood of the shadows; but be sure to leave them clean, and not too dark; therefore allowance should be made in the grounds with the light red, because glazing them will make them darker. When the cloth is of a dark or bad colour, there must be a strong body of colour laid all over the shadows, such as will not sink into the ground, but appear warm, and a little lighter than the life, so that it may be of the same forwardness to finish, as if it had been a light ground; therefore the business of dead-colouring is, that you leave it always in the same order for finishing, though the colour of the cloth be quite the reverse.

The grounds of shadows, in what we call the dead-colouring, should be such as will support the character of the finishing colours; which ground must be clean, and a little lighter than the finishing colours, because the finishing of the shadows is glazing; and no other method than glazing can leave such brilliancy and beauty as they ought to have. If you begin the first painting with glazing, it will stare, and be of no use; and the solid colours which are laid on it, will look heavy and dull; therefore, all shadows and colours that are to be glazed, should be done with colours of a clean solid body, because the glazing is more lasting, and has the best effect, on such colours. Remember to leave no roughness, that is, none such as will appear rough, and interrupt or hurt the character of the finishing colours; which, by examining the work while it is wet with a soft tool, or when it is dry with a knife, may be avoided, as it will easily take off the knots and roughest parts.

The light red and white improved is superior to all other colours for the first lay or ground; which should be always done with a full pencil of a stiff colour, made brighter than the light, because it will sink a little in drying. The greater the body, and quantity of colour, and the stiffer it is laid, the less it will sink. Every colour in drying will sink, and partake, in proportion to its body, of the colour it is laid on; therefore, all the lights of the flesh, if not laid on a light ground, must consequently change a little from the life, if there be not allowance made. The shade tint for the shadows should fall into the rose-tint, as the complexion grows delicate; all which should be lightly united, with a soft long pointed hog-tool, to the ngnts, making out the whole like mezzotinto.

Second painting, or second stage. — The second painting begins with laying on the least quantity, that can be, of poppy-oil; then wipe it almost all off, with a dry piece of a silk handkerchief.

The second painting is also divided into two parts: one, the first lay of the second painting; which is scumbling the lights, and glazing the shadows; the other, finishing the complexion with the virgin tints, and improving, as far as you can, without daubing.

First. — Scumbling is going over the lights, where they are to be changep, with the light red tints, or some other of their own colours, such as will always clear and improve the complexion, with short stiff pencils; but such parts only as require it, otherwise the beauty of the first painting will be spoiled.

The light red tint improved is the best colour for scumbling, and improving the complexion in general. Where the shadows and drawing are to be corrected, you should do it with the shade tint, by driving the colour very stiff and bare, that you may the easier retouch, and change, it with the finishing tints. Some parts of the shadows should be glazed with some of the transparent shadow-colours, such as will improve it, and come very near to the life; but be sure not to lay on too much of it, for fear of losing the hue of the first painting, the ground of which should always appear through the glazing. Be very careful in uniting the lights, and shades, that they do not mix dead and mealy; for the more the lights mix with the shades, the more mealy those shades will appear. Thus far the complexion is prepared and improved, in order to receive the virgin tints.

Second. — Go over the complexion with the virgin tints. These are the colours which improve the colouring to the greatest perfection, both in the lights, and shadows.

This should be done in the same manner as you laid them in the second part of the first painting; that is, with the reds, yellows, and blues, blending them with delicate light touches of the tender middle tints, without softening. Leave the tints, and their grounds, clean and distinct, and be content to leave off whilst the work is safe and unsullied, postponing what is farther required for the next sitting; for, in attempting the finishing touches before the other is dry, you will lose the spirit and drawing, and your colours will become of a dirty hue.

Third painting, or finishing. — It is to be supposed, the complexion now wants very little more than a few light touches; therefore there will be no occasion for colouring.

Begin with correcting all the glazing; first, where the glazing serves as a ground or under part; then determine what should be done next, before you do it, so that you may be able to make the alteration on the part with one stroke of the pencil. By this method you preserve both the glazing, and the tints; but if it happens that you cannot lay such a variety of tints and finishing colours as you intended, it is much better to leave off while the work is safe and in good order; because those few touches, which would endanger the beauty of the colouring, may easily be done, if you have patience to stay till the colours are dry; and then, without oiling, add those finishings with free light strokes of the pencil.

It is much easier to soften the over-strong tints when they are dry, than when they are wet; because you may add the very colours that are wanting, without endangering the dry work. If any of the colours of the pallet want to be a little changed to the life, when you are painting, it is much better to do it with the knife on the pallet than with the pencil, because the knife will mix and leave it in good order for the pencil.

Of painting draperies.

In order to show the nature, and different degrees, of colours of tints used in painting draperies, we must first determine how many divisions are absolutely necessary to make the first lay of colours, and after that the reflections and finishing tints.

The right method of painting draperies in general is to make out the whole, or the first lay, with three colours only, viz. the lights, middle tint, and shade tint.

Observe that the lights should rather incline to a warmish hue; and the middle tint should be made of friendly-working colours, such as will always mix of a clean, tender, coldish hue. The shade tint should be made of the same colours as the middle tint, only with less light; therefore this tint will also mix of a tender clean colour. The beauty and character of the folds, the shade, attitude, and principal lights, and shades, are all to be considered, and made with these three colours only; which should be done to your satisfaction, before you add any of the reflects, or finishing tints.

The reflections of draperies and satins are generally productions of their own, and are always lighter than the shadows on which they are found; and being produced by light, will consequently have a light warm colour, mixed with the local colour that receives them. Here it will be necessary to notice the general method of managing the colours of the first lay, and those of the reflections, and finishing tints.

In the first lay, the high lights should be laid with plenty of stiff colours, and then shaped and softened into character with the middle tint very correctly. Where the gradations of the lights are slow, as in the large parts, it will be proper to lay the middle tint first at their extremities, with a tool that will drive the colour, and leave it sparingly; because the lights will mix and lie the better upon it. Next, make out all the parts of the shadows with the tint driven bare. After this comes the middle tint, for the several lights, and gradations; which should be very nicely wrought up to character

without touching any of the high lights which finish the first lay.

The reflects, and finishing tints, are, in general, the antipathies of the first lays: they will, without great care, dirty the colours on which they are laid; and therefore should be laid with a delicate light touch, without softening. If it be overdone, endeavour to recover it with the colour of the part on which it was laid; this may be done directly, or when it is dry. Whether the reflects proceed from the same colour, or any other, the method of using them is the same.

But before we proceed to the particular colours, it will be proper to make some observations on their grounds.

It often happens, that the colour of the cloth is very improper for the ground of the drapery; and when it is so, you should change it with those colours which are most proper to improve and support the finishing colours. This method of dead-colouring must consequently preserve them in the greatest lustre. In dead-colouring, you should lay the lights, and shades, in a manner so as only to show a faint idea of them, with regard to the shape and roundings of the figure. If you have a design to work from, then it will be proper to make all the large and principal parts in their places: which should always be done with a colour that is clean, and lighter than the intended drapery, though, in general, of the same hue; and let the shadows be no darker than a middle tint. These should be mixed and broke in a tender manner, and then softened with a large tool, so that nothing rough and uneven is left to interrupt or hurt the character of the finishing colours.

White satin.—All whites should be painted on white grounds, laid with a good body of colour, because this colour sinks more into the ground than any other.

There are four degrees of colours in the first lay to white satin. The first is the fine white for the lights; the second is the first tint, which is made of fine white and a little ivory-black, mixed to an exact middle degree between the white, and the middle, tint. This colour follows the white; and it is with this you should shape the lights into character, before you lay on any other; and take care that this first tint appear distinctly between the white, and the middle tint, otherwise the beauty and the character of the satin will be spoiled.

The middle tint should be made of white, black, and a little Indian red. These three colours are very friendly, and mix to a beautiful clear colour of a pearly hue, which has the true brightness and warmth of the general hue of the satin. Remember to allow for the red hue changing a little to the lead. If there be occasion to make any part in the middle tint lighter, do it with the first tint only. This colour should also be laid sparingly before the white, in all the little lights that happen in the middle tints, and shadows; on which you should lay the white with one light touch, and be sure not to cover all the parts that were made with the first tint; if you do, it will spoil the character, and look like a spot, for want of the softening edge or border, which must be between the white, and the middle tint. The shade tint should be made of the same colour as the middle tint, but with less white, so that it is dark enough for the shadows in general; with which make out all the parts of the shadows nicely to character, which is the work of the first lay.

Next follow the reflects, and finishing tints.

Brown ochre, mixed with the colour of the light, is the most useful colour in general for all reflects in draperies, that are produced from their own colours. All accidental reflexes are made with the colour of the parts from which they are produced, and the local colours that receive them. There are but two reflecting tints wanted for draperies in general; one should be lighter than the middle tint, the other darker. These colours may be a little changed on the pallet with the first, and middle, tints, as occasion requires, or lightly broken on the part that receives them; but this last method is not so safe as the other. The tint sufficient for blending the dark shadows to the mellow tender hue, is made with the shade tint, and a little brown ochre, which should be laid on very sparingly, with soft light touches, for fear of making them dull and heavy; if it is overdone, recover it with the colour it was laid upon.

We often see a little blue used in the first tint of white satin.

Blue satins. — Blue satin is made of Prussian blue, and fine white.

The best ground for blue is, white for the lights, and black and white for the shadows.

The first lay of colours for blue is divided into three degrees or tints. First make the middle tint of a beautiful azure; then mix the colour for the light about a middle degree, between that and white. Make the shade tint dark enough for the shadows in general. All the broad lights should be laid with plenty of colour, and shaped to character with the middle tint, before you lay on any other colours. Remember, the less colours are mixed, the better they will appear and stand; for the lights of blue, should be managed with as much care as those of white, satin. Next follow with the rest of the middle tint, and then make out all the shadows. The more you drive the shade tint, the better it will receive the reflects, and finishing tints. The shadows should be strengthened and blended with ivory-black, and some of their own colour, which will mix with them into a tender mellow hue.

The reflects are made as those of white satin, that is, with ochre, and some of the

lights; which should be perfectly done, as you intend them, at once painting. The shadows, when dry, may be a little improved, if there be occasion to alter them, with the colours they were made with. The Prussian proper to be used, is that which looks of the most beautiful azure before it is ground; and the sooner it is used after it is ground, the better it will work, and appear.

Velvet may be painted at once. The method is, to make out the first lay with the middle tint, and shade tint; on which lay the high lights, with light touches, and finish the shadows in the same manner as those of satin; but the nearest imitation of velvet is done by glazing; the method of which is, to prepare a ground, or dead-colouring, with such colours as will, when dry, bear out, and support, the glazing colour in its highest perfection. The nature of the glazing colour is to be of a fine transparent quality, and used simply with oil only, so that whatever ground it be laid on, the whole may appear distinctly through it. The best ground for blue is made with white, and ivory-black: the white is for the high lights, which, with the middle tint, and shade tint, makes out the first lay like mezzotinto. Remember to make the middle tint lighter in proportion to the glazing, because that will make it darker. It is often necessary to cover all but the high lights, with a thin glazing, laid in less quantity, than if it were to be done once only. If any of it touch the lights, wipe it off with a clean rag. The very high lights should be improved, and made of a fine white, and left to dry. The glazing colour is Prussian, ground very fine with nut-oil; and should be laid with a large stiffish tool. It is on the last glazing we should strengthen, and finish, the shadows.

The greatest fault in the colouring of draperies is the painting the shadows with strong glaring colours, which destroy the beauty of the lights. This is not only the reverse of art, but of nature, whose beauty always diminishes in proportion with the lights. For this reason, take care to blend and soften the shadows with such friendly colours, as will agree with their local character and obscurity. Here observe, that glazing the middle tint, which is made of black and white, will not produce a colour so blue, as if it had been prepared with Prussian, and white; yet this colour will preserve the beauty of the lights in the highest perfection, by reason of its tender obscure hue, when the blueness of the other would only diminish them. This method of glazing the blue is the general rule for all glazing.

When glazing blue, the lights may be glazed with ultramarine, though all the other parts are done with Prussian. This method saves a great quantity of that valuable colour, and answers the purpose as well as if it had been done with ultramarine.

Though this general method of painting satins is to make the first lay of colours with three degrees, or tints, yet you should understand, in using them, that they produce two more; for the mixing of two different colours together on the cloth will make another of a middle tint between them; so it is with the lights, and middle tints, and with the middle tint, and shade tint: the first answers to the first tint in white satin, and the last will consequently be a sort of gradating, or half-shade.

If the lights and middle tint mix to a beautiful clean colour, of a middle hue between both, there will be no occasion for a colour to go between them, as in blue satin: but if, in mixing, they produce a tint inclined to a dirty warm hue, then another of a sympathising nature should be laid between them, in order to preserve the beauty of the lights, as the first tint in the white satin; for if it were not so, the red in the middle tint would certainly dirty and spoil the white.

It is highly necessary to understand these principles of the first lay of colours, in order to have a perfect knowledge of the general rule of colouring.

Scarlet and crimson. — A light yellow red, made of light ochre, light red, and white, is the proper ground for scarlet; the shadows are Indian red, and in the darkest parts mixed with a very light black.

The second painting should be a little lighter than you intend the finishing colour, that is, in proportion to the glazing, which will make it darker.

The high lights are vermilion, and white, for satin, and velvet, and vermilion for cloth. The middle tint is vermilion, with a very little lake, or Indian red; the shade tint is made with Indian red, and lake, with the addition of a little black in the darkest shadows. The difference between scarlet, and crimson, is, that the high lights of crimson are whiter, and the middle tint is made darker. Their reflects are made with light red, and vermilion. The high light should be laid and managed in the same manner as those of the blue, for fear of dirting them; and sometimes they require to be touched over the second time before we glaze them. The more the colours of the second painting are driven, the easier and better they may be managed to character; but the high lights should have a good body of colour, and be left with a delicate light touch. After it is well dry, finish with glazing the whole with fine lake, and improve the reflects and shadows. Remember that the scarlet requires but a very thin glazing; and it is better to glaze the crimson twice over, than lay too much at once painting.

Pink-colour.—There are two different methods of painting a pink colour; one is by glazing, the other is done with a body of colours at one painting. The same grounds

do for both: which should be a whitish colour, inclining to a yellow, for the lights: and Indian red, lake, and white, for the shadows.

The second painting for the glazing method, is done with the same colours, and a little vermilion, and white, for the high lights. When it is dry, glaze it with fine lake, and then break and soften the colours into harmony directly.

The other method is to make the high lights with carmine, and white; the middle tint with lake, white, and a little carmine; and the shadows with lake, and Indian red, with a little vermilion for the reflections. But remember, the shadows will require to be broken with some tender obscure tint.

Yellow. — The ground for yellow should be a yellowish white for the lights, and a mixture of the ochres for the shadows.

There are the same number of tints in the yellow, as there are in the white satin, and the method of using them is the very same. The lights are made with king's yellow, ground with clean good drying oil. The first tint is light ochre, changed with a little of the pearl tint made with the dark shade, and white, which should be laid and managed as the first tint in white satin. The middle tint is a mixture of the light, and brown ochre, softened with the pearl tint. The shade tint is made with brown pink, and brown ochre; these belong to the first lay.

The reflects are light ochre, and sometimes in the warmest parts mixed with a little light red. The shadows are strengthened with brown pink, and burnt umber.

Green. — The proper ground for green is a light yellow green, which is made of light ochre, a little white, and Prussian blue, for the lights, and the ochre, brown pink, and Prussian, for the shadows.

The finest green for draperies is made of king's yellow, Prussian blue, and brown pink. The high lights are king's yellow, and a very little Prussian; the middle tint should have more Prussian; and the shadow tint is made with some of the middle tint, brown pink, and more Prussian; but the darkest shadows are brown pink and a little Prussian. The lights, and middle tint, should be managed in the same manner, as those of the blues. The shadow tint should be kept entirely from the lights, because the brown tint that is in it will, in mixing, dirty them, as the black does those of the blue. Remember to allow for their drying a little darker; and that the king's yellow must be ground with good drying oil; for the longer it is drying, the more it will change and grow darker; and the sooner it is used, the better it will stand. It is proper to have two sorts of king's yellow, one to be very light, for the high lights of velvet.

Changeable colours. — Changeable colours are made with four principal tints, viz. the high lights, middle tint, shade tint, and reflecting tint.

The greatest art lies in finding the exact colour of the middle tint, because it has more of the general hue of the silk than any of the others. The shade tint is of the same hue with the middle tint, though it is dark enough for the shadows. The high tints, though often very different from the middle tint, should be of friendly-working colour, that will, in mixing with it, produce a tint of a clean hue.

The method of painting silks is to make out the folds with the shade tint, and then fill them up in the lights with the middle int. This first lay should be done to your satisfaction before you add any other colours; and the stiffer the middle tint is used, the better the high lights may be laid upon it. The reflecting tint falls generally upon the gradating half-shades, and should be laid with tender touches sparingly, lest it spoil the first lay.

This method of painting answers for all coloured silks, as well as changeable, with this difference only; that the plain colours require not so much art in matching the tints, as the changeable. The last part of the work is the finishing and strengthening the shadows with an obscure tint, a little inclining to a mellowish hue; such as will not catch the eye, and interrupt the beauty of the lights.

Black. — The best ground for black is light red for the lights, and Indian red, and a little black, for the shadows.

The finishing colours are, for the lights, black, white, and a little lake. The middle tint has less white, and more lake and black; the shade tint is made of an equal quantity of lake and brown pink, with a very little black.

The method of painting black is very different from that of other colours; for as in these the principal thing is to leave their lights clear and brilliant; so in black, it is to keep the shadows clear and transparent. Therefore begin with the shade tint, and glaze over all the shadows with it. Next lay in the darkest shadows with black, and a little of the shade tint, very correctly. After that, fill up the whole breadth of lights with the middle tint only. All which should be done exactly to the character of the satin velvet, cloth, &c. &c. and then finish with the high lights.

Here observe, the ground being red, will bear out and support the reds, which are used in the finishing colours. The lake in the lights takes off the cold hue, and gives it a more beautiful colour. If the shade tint was of any other colour than a transparent warm hue, the shadows would consequently be black and heavy; because no other colours can preserve the warm brilliancy which is wanting in the shadows of the black, like lake, and brown pink. Black is of a cold heavy nature, and always too

strong for any other colour; therefore you should make an allowance in using it. There will be a few reflects in satin, which should be added as those of other colours; but they should be made of strong colours, such as burnt umber, or brown ochre, mixed with a little shade tint.

Though the grounds mentioned for the draperies are absolutely necessary for the principal, and nearest, figures in a picture, such as a single portrait or the like; yet for figures which are placed behind the principal, or front, figures, their grounds should always be fainter in proportion to their local finishing colours.

Linen. — The colours used in linen are the same as those in white satin, except the first tint, which is made of white, and ultramarine ashes, instead of the black, and mixed to a very light bluish tint.

In the dead-colouring, take particular care that the grounds are laid very white, and broad, in the lights. The shadows are made with black, white, and a little Indian red, like the middle tint of white satin. These should be left very light and clean, in order to support the finishing colours.

The second painting begins with glazing all the lights, with a stiff pencil, and fine white only, driven bare, without using any oil. The shadows may be scumbled with poppy-oil, and some of the colour they were made of. This is the first lay, on which you are to follow with the finishing colours directly. The middle tint of white satin is the best colour for the general hue of the shadows. With this and white, in different degrees, make out all the parts to character, with free light touches, without softening; then, with a large long-pointed pencil, and fine white, lay the high lights very nicely with one stroke. After this comes the fine light bluish tint, which should be mixed light, and laid in the tender gradations, very sparingly and lightly without filling them up.

Remember, the first lay should be left clear and distinct; the more it appears, the better. It is the overmixing and joining all the colours together, which spoils the beauty of the character; therefore it is better to let it dry before we add the reflects, and finishing tints.

The method of letting the beautiful clear colour dry, before you add the warm reflects, and harmonizing tints, prevents them from mixing, and dirting each other.

The principal blending colours used in the reflects are the yellow tint, green tint, and rose tint; which last is made of lake, Indian red, and white. Glazing the pearl, and lead-colour, with white, though it seems to answer our purpose at the time when it is done, will certainly sink, and be lost in the grounds on which it is laid; therefore you should make the dead-colouring as white as you intend the finishing colours, by reason they will sink a little in proportion to the colour of the cloth, which the glazing with pure white only will recover.

OF PAINTING BACK GROUNDS.

The principal colours that are necessary for painting of back-grounds, as walls, buildings, or the like, are white, black, Indian red, light and brown ochre, Prussian, and burnt umber; from which the eight principal tints are made, as follows:

1. Pearl is made of black, white, and a little Indian red.
2. Lead, of black and white, mixed to a dark lead-colour.
3. Yellow, of a brown ochre and white.
4. Olive, of light ochre, Prussian, and white.
5. Flesh, of Indian red and white, mixed to a middle tint.
6. Murrey, of Indian red, white, and a little black, mixed to a kind of purple, of a middle tint.
7. Stone, of white, umber, black, and Indian red.
8. Dark shade, of black, and Indian red, only.

Here the lead tint serves for the blues, the flesh tint mixes agreeably with the lead, and the murrey is a very good blending colour, and of a great use where the olive is too strong; the umber, white, and dark shade, will produce a fine variety of stone colours; the dark shade and umber, used plentifully with drying oil, make an excellent warm shadow-colour. All the colours should be laid with drying oil only, because they mix and set the better with the softener.

Where the marks of the trowel are so strong in the priming of the cloth, that one body of colours will not be sufficient to conceal it, lay a colour to prevent it, which should be dry, before you begin with those parts you expect to finish at once painting.

Process. — The process of painting back-ground is divided into two parts, in stages; the first is the work of the first lay, the second that of the finishing tints.

Begin the first lay from the shadowed side of the head, and paint the lights first; from them go into the gradations and shadows, which should be done with a stiffish tool, very sparingly, with the dark shade and white, a little changed with the colours that will give it more of the required hue, but very near, in regard to tone and strength, leaving them like mezzotinto.

The dark, and warm, shadows should be laid before the colours that join them. This do with the dark shade and umber, driven with drying oil. If those colours were laid on first, they would spoil the transparency, which is their greatest beauty. The more the first lay is driven, the easier and better you may change it with the finishing tints, therefore you may lay them with the greater body.

The second part is to follow directly,

whilst the first lay is wet, with those tints that are the most proper to harmonise and finish with.

Begin with the lights first, and remember, as you heighten and finish them, to do it with warmer colours; and let those be accompanied with fine tender cold tints. The lightest parts of the ground should be painted with a variety of light, warm, clear colours, which vanish and lose their strength imperceptibly in their gradations. Take care that you do not cover too much of the first lay, but consider it as the principal colour.

From the lights, go to the gradations and shadows; for when the lights are well adapted to produce and support the figure, it is easy to fall from them, into whatever kind of shadows you find most proper; then soften and blend the whole with a long large hog-tool; which, with the strength and body of the drying oil, will melt and sweeten altogether, in such a manner, as will seem surprisingly finished. Remember the tints will sink, and lose a little of their strength and beauty in drying. All grounds, as walls, &c. should be finished at once painting; but if they want to be changed, glaze them with a little of the dark shade and drying oil, driven very bare; on which, with a few light touches of the colour that is wanting, you may improve their hue. The dark shadows may also be strengthened and improved by glazing, which should be done after the figures are nearly finished, for fear of making them too strong.

Curtains should be dead-coloured when we paint the ground; and should be done with clean colours, of a near hue to the intended curtain, such as will support the finishing colours; do it with a tender sort of keeping, and near in regard to their tone in the lights, but much softer in the shadows; all which should be mixed and broken with the colours of the ground. It will often happen, that we cannot make the folds the first painting; we should then leave the masses of light and shadow, in regard to the keeping of the picture, broad and well united together, such as may seem easy to finish on. The colours of the landscape, in backgrounds, should be broken and softened also with those of the parts which join them. This method will make all the parts of the ground, as it were, of one piece.

The sky should be broken with the lead, and the flesh, tints. The murrey tint is of great use in the grounds of distant objects; and the umber and dark shades in the near grounds. The greens should be more beautiful than you intend them, because they will fade and grow darker. After all is painted, go over the whole very lightly with the softener, as you did the grounds, which will make it look agreeably finished.

OF PAINTING LANDSCAPES.

The principal colours used in landscapes are, 1. flake white; 2. white lead, or common white; 3. fine light ochre; 4. brown ochre; 5. brown pink; 6. burnt umber; 7. ivory-black; 8. Prussian blue; 9. ultramarine; 10. terreverte; 11. lake; 12. Indian red; 13. vermilion, or native cinnabar; 14. king's yellow.

The principal tints are, 1. light ochre and white; 2. light ochre, Prussian blue and white; 3. light ochre and Prussian blue; 4. the same darker; 5. Terreverte and Prussian blue; 6. brown pink and Prussian blue; 7. brown pink and brown ochre; 8. brown pink, ochre, and Prussian blue; 9. Indian red and white; 10. ivory-black, Indian red, and lake.

The colours necessary for dead-colouring are common white, light ochre, brown ochre, burnt umber, Indian red, ivory-black, and Prussian blue.

The principal colours and tints for painting the sky are fine white, ultramarine, Prussian blue, light ochre, vermilion, lake, and Indian red.

The tints are, a fine azure, lighter azure, light ochre and white, vermilion and white; and a tint made of white, a little vermilion, and some of the light azure, at discretion.

Process. — Sketch, or rub in, your design faintly, with burnt umber used with drying oil, and a little oil of turpentine; leaving the colour of the cloth for the lights. Remember, in doing this, to leave no part of the shadows so dark as you intend the first lay or dead-colouring, which also is to be lighter than the finishing colours. Though the foliage of the trees is to be only rubbed in faintly, yet the trunks and bodies should be in their proper shapes, with their breadths of light and shadow. All kinds of buildings should be done in the same manner, leaving the colour of the cloth for their lights. The figures on the fore-ground may also be sketched in the same manner, and then left to dry.

FIRST PAINTING, OR DEAD-COLOURING.

Let the first lay, or dead-colouring, be without any bright, glaring, or strong dark colours; so that the effect is made more to receive, and preserve, the finishing colours, than to show them in their first painting.

The sky should be done first, then all the distances; and so work downwards to the middle group, and from that to the foreground, and nearest parts. Remember, all the parts of each group, as trees, buildings, or the like, are all painted with the group they belong to.

The greatest secret in dead-colouring is, to find the two colours which serve for the ground of shadows in general, the sky excepted; and the method of using them with the lights; the first of which is the dark shade with a little lake in it; the other colour is only burnt umber. These should be a little changed to the natural hue of the

objects, and then laid on with drying oil, in the same manner as we shade with Indian ink, which is a kind of glazing, and as such they should be left; otherwise they will be dark and heavy, and therefore would be entirely spoiled for the finishing glazing. Both these colours mix and sympathise agreeably with all the lights, but should be laid before them.

The sky.—The sky should be laid with a good body of colours, and left with a faint resemblance of the principal clouds more in the manner of claro obscuro than with finishing colours; the whiter it is left, the better it will bear out and support them; the distances should be made out faint and obscurely, with the dark shades, and some of their lights in different degrees, and laid so, as best to find, and show, their principal parts. All the grounds of the trees should be laid or rubbed in, enough only to leave an idea of their shapes and shadows faintly. The ground of their shadows must be clean, and lighter than their finishing colours.

In painting the lights, it is better to incline more to the middle tint, than to the very high lights; and observe to leave them with a sufficient body of clean colours, which will preserve the finishing colours better; all which may be done with a few tints. After this, go over the whole with a sweetener very lightly, which will soften, and mix, the colours agreeably for finishing.

SECOND PAINTING.

Begin with the sky, and lay in all the azure, and colours of the horizon; then soften them; after that, lay in the general tint of the clouds, and finish on it with the high lights, and the other tints that are wanting, with light tender touches; then soften the whole with a sweetener, very lightly. The finishing of the sky should be done all at one painting, because the tender character of the clouds will not do so well as when the whole is wet. Observe, that the stiffer the azure and colours of the horizon are laid, the better the clouds may be painted upon them.

The greatest distances are chiefly made with the colour of the sky; as they grow nearer and darker, glaze and scumble the parts very thin, with such glazing shadow-colours as come nearest to the general hue of the group the objects are in. This glazing should be understood of a darkish hue; and that the first painting or dead-colour should be seen through it distinctly. On this lay, or ground, add the finishing colours.

Now, supposing this glazed ground properly adapted to the object and place, it will be easy to find the other colours, which are wanted for the lights and finishings of the same; but in laying them you must take care not to spoil the glazing; therefore be very exact in making those colours on the pallet, and then be sure to lay them with light free touches.

Before we proceed any farther, it will be proper to say something of the most useful glazing colours.

Lake, terreverte, Prussian blue, and brown pink, are the four principal. The more you manage them like Indian ink, and the more distinctly you leave them, the better their transparent beauty will stand and appear, provided you do it with good drying oil. After these four glazing colours, burnt umber is a very good glazing warm brown, and of great use in the broken grounds and nearest parts; but the most agreeable colour for the darkest shadows, is the dark shade improved with lake. It is a fine warm shade; mixes harmoniously with all the lights, as well as the shadows; and is excellent in the trunks and bodies of trees, and in all kinds of buildings.

Make out all the ground of the objects with such glazing shadow-colours, as seem nearest to the natural hue of the object in that situation; but as the principal glazing colours themselves are often too strong and glaring, they should therefore be a little changed, and softened with such colours as are of a near resemblance to themselves, and the objects: thus if it is in the distances, the terreverte and the azure, which are the principal glazing colours, may be improved and made lighter with some of the sky-tints; and as the distance comes nearer with the purple. In the middle group, the terreverte and Prussian blue may be changed with some of the green tints; such as are made without white, for white is the destruction of all glazing colours. As you approach the first group, there is less occasion for changing them; but the fore-ground and its objects require all the strength and force of glazing, which the colours are capable of producing.

After this glazing ground, follow with strengthening the same in the shadows, and darkest places, in such manner as will seem easy to finish; which is the first lay of the second painting.

The colours that come next for finishing, are in the degree of middle tints; these should be carefully laid over the greatest breadth of lights, in such manner as not to spoil and cover too much of the glazing. Do it with a good body of colour, as stiff, as the pencil can agreeably manage. Remember, the colours of the middle tint should be of a clean beautiful hue. According to these methods, it will be easy to finish all the second painting down from the sky, through the middle group. As you come to the first group, where all the objects should be perfectly finished, finish their under, or most distant, parts, before you paint any of the other, which appear nearer. Observe this method down to the last and nearest objects of the picture: and where it so happens that painting one tree over another does not please forbear the second until the first is

dry. Thin near trees of different colours will do better, if you let the under parts dry before you add the finishing colours.

THIRD AND LAST PAINTING.

If oiling be necessary, lay on the least possible quantity: which should be done with a stump tool or pencil, exactly proportioned to the place, so as to oil no more than is wanted; then wipe the whole place that is oiled, with a piece of silk handkerchief.

When going to finish any objects, remember to use a great variety of tints, very nearly of the same colour, but most of all when finishing trees. This gives a richness to the colouring, and produces harmony. The greens will fade, and grow darker; therefore it is highly necessary to improve and force them, by exaggerating the lights, and making an allowance in using them so much the lighter. For the same reason, great care should be taken not to overcharge and spoil the beauty of the glazing, lest it become dull and heavy.

The method of painting near trees is, to make the first lay very near to nature, though not quite so dark, but more in the degree of a middle tint, and follow it with strengthening the shadows; then the middle tints; and last of all lay the high lights and finishing colours. All this cannot be done, as it should be, at one painting, therefore the best way is, to do no more than the first lay with the faint shadows, and leave it to dry.

Then begin with improving the middle tints and shadows, and let them dry.

The third and last work is, adding all the lights and finishing colours in the best manner possible. This method of leaving the first, and second, parts to dry separately, not only makes the whole much easier, and more agreeable, but leaves the colours in the greatest perfection; because most of the work may be done with scumbling and glazing, and some parts without oiling. The lights also may be laid with a better body of colour, which will not be mixed, and spoiled, with the wet ground.

The figures in the landscape are the last work of the picture; those in the fore-ground should be done first, and those in the distances should be done next; for after the figures in the first and farthest group are painted, it will be much easier to find the proportions of those in the middle parts of the picture. And observe, that the shadows of the figures should be of the same hue, or colour, with those of the group or place they are in.

MINIATURE.

This art of painting is practised, either on vellum, or ivory.

The best method, in painting on vellum, is to glue the edge of the vellum to a copper-plate or board, over which it is strained, in this manner: let your vellum be every way a finger's breadth larger than what you strain it on. Moisten the fair side of the vellum with a piece of fine wet linen, and put a piece of white paper to the other side. Then apply it to the plate or board, stretching it equally in all directions, lap the edges nicely round and glue them, taking care to let no glue pass under the part of the vellum, on which you mean to paint. When the glue dries, and the edges of your vellum are thus fastened, you may proceed with your work; or you may (agreeably to the practice of some painters) previously give the vellum a light wash of white lead well purified, to serve as a ground.

But ivory being the material most frequently used at present for painting in miniature, the following are the most approved rules for painting on it.

It is scarcely necessary to remark, that the first essential point towards excellence in this, as in all other branches of painting, is a thorough and well-grounded knowledge in drawing, both from plaister, and from the life; without correctness of drawing the greatest brilliancy of tints will at last be unsatisfactory. We should therefore recommend to the student in miniature, to continue, at his leisure hours, to copy from large drawings or busts, in chalks or water-colours, as correctly as possible, which affords the best means of giving facility to the hand in the drawing of smaller figures.

Painting in miniature is of all the most delicate and tedious in its process, being performed wholly with the point of the pencil. It is only fitted for works of a small size, and must be viewed near.

COLOURS USED IN MINIATURE PAINTING.

In painting the face, the yellows that are used are five, viz. gall-stone, terra Sienna, Nottingham ochre, Roman ochre, and Naples yellow; the latter three of which are opaque colours, the other transparent. The greens are confined to one, which is sap-green. The blues are verditer, Prussian, indigo, smalt, ultramarine, and Antwerp. The reds are, carmine, drop-lake, Chinese vermilion, and Indian red. Under the class of reds, may also be put burnt terra Sienna, its colour inclining much that way, though more to the orange. The only browns, if any are used in the face, are burnt umber, and terra de Cassel, and they are only to be used in the mixture of dark shades.

For painting draperies, we shall only add to the above colours, lamp-black, king's-yellow, and flake white.

QUALITIES OF THE ABOVE COLOURS WHEN USED IN MINIATURE.

Yellows.—Gall-stone is one of the finest and brightest colours, and a lasting one; but it should be sparingly used in the flesh-tints, its brilliancy being apt to overpower all the other colours.

Terra di Sienna unburnt, is of a greasy nature, but is used as a warm yellow: burned, it is more beautiful, partaking of three tints, yellow, red, and brown.

Nottingham ochre works well; but on account of its heavy qualities must be used with caution.

Roman ocnre is used with success in miniature painting, as it works, when properly portioned with gum water, extremely sharp and neat; and being in itself a warm colour, communicates that quality to the tints it is worked in.

Naples yellow, although adopted by some artists, is of a sickly hue, and has this very bad quality, that it absorbs all colours that are either worked on it, or mixed with it.

Blues. — Ultramarine excels all others in permanency.

Prussian blue has no substitute, on account of its strength of effect, and transparency.

Smalt is so hard, that nothing but an agate flag, and muller, will pulverize it sufficiently. It is not to be depended on for permanency.

Indigo is a useful blue, though it must be sparingly used, on account of its extreme depth of colour, nearly approaching to black; the best is called the rock indigo. The way to judge of its qualities is to break it, and, if good, it will have a copperish hue; but if bad, it will be of a dead blackish cast.

Verditer is a fine blue, and much used by miniature painters, not only in their sky-grounds, but likewise in the delicate parts of the face. It requires to be very finely ground on a hard flag. As to durability, it changes in time to a dirty greenish colour; on account of its being made from copper, care should be taken not to put the pencil it is used with much in the mouth, as its qualities are pernicious.

Antwerp blue is extremely deceptive, being, when dry, a most beautiful bright blue; but when wet and prepared, a very dingy colour, and totally unfit for the face of a miniature. It may be used in blue draperies or back-grounds, but in nothing else.

Sap-green is a highly useful colour, when judiciously mixed with other colours: producing warm fleshy tints, which cannot be produced without it. Its extreme transparency and its permanency, are strong recommendations in its favour.

Reds. — Carmine, is a fine bright crimson, inclining to the scarlet, and is rather an opaque colour; from it a variety of fine tints may be made. There are various kinds of it prepared by chemists, but the deep kind is the best, the lighter sort being frequently made so by adulteration.

Drop-lake, made from the shearings of scarlet cloth, is a pleasing crimson colour; its inclining to the purple makes it peculiarly useful for the carnation tints in painting delicate subjects.

Chinese vermilion, when good, is a bright red, and useful in miniature pictures, though not to be freely used, its opacity rendering it dangerous to mix much with other colours; but by itself, in touching the parts that require extreme brightness, it is of wonderful service. It is very difficult to find the real kind, the common vermilion, mixed with lake or carmine, being a general substitute; but the spurious, and genuine, kinds very materially differ in working, the former being thick and heavy, the other the contrary.

The native or mineral cinnabar, or vermilion, is likewise very fine in Spain; and the French have mines of it in Normandy. There is a method of preparing factitious cinnabar; viz. Take six ounces of sulphur, and eight of quicksilver, mix them well; then set them on the fire, till part of the sulphur is consumed, and the powder remains black; after this, it is sublimed twice in open pots, at the bottom of which the cinnabar remains very heavy, and streaked with the lines or needles, some red, and others brilliant like silver; then take it and purify it in the following manner: grind it well in fair water, on a marble, put it into a glass, or earthen, vessel to dry, then put urine to it, and mix it so that it be thoroughly wet, and swim; then let it settle, and the cinnabar being precipitated or fallen, pour off the urine by inclination, and put fresh in the room of it, leaving it so all night, and repeating the same every four or five days, till the cinnabar is thoroughly purified. Continue the process with beating up the white of an egg, which, mixing with fair water, pour it upon the cinnabar, and stir the whole about with a walnut-tree stick; change this liquor two or three times as above, and keep the vessel close covered from dust; when used for water-colours, temper it with gum-water, and a small quantity of saffron dissolved will add to its brilliancy.

Indian red is an excellent colour, not only for touching the deep red parts, but likewise in strong flesh tints, in bright back-grounds, and draperies.

Browns. — Umber is very greasy, and mixes unkindly; but when burnt, is very useful in many parts of miniature.

Terra de Cassel, or Vandyck brown, so called from the very great estimation the inimitable painter of that name held it in, is the finest rich brown in the world; in itself producing a more beautiful colour than can be formed by the junction of any colours whatever. It is, in its natural state, rather coarse and sandy; but when prepared, it amply repays the labour.

Lamp-black is useful for mixing in hair colour, and in painting draperies. The smoke of a candle received on a plate, is found the best, being blacker than the common lamp-black.

King's yellow is a bright opaque colour, admirably calculated for painting lace, gilt buttons, &c. &c. but is a rank poison, therefore should be cautiously used.

Flake white, or refined white lead, is not to be used by itself as a white, for it will invariably turn black, a circumstance which should be nicely attended to by all artists. If used in miniature painting, for linen, &c. it should be immediately covered with a glass, which method is the only one which stands a chance of preserving its purity.

Among the above necessary colours, there are three which require to be burnt, viz. terra di Sienna, umber, and lamp-black. For this purpose, the two former are to be put in a crucible, which is to be covered and placed on a hot fire, and when you think that the lump of colour is hot through, take the crucible from the fire, and let the colour cool.

The lamp-black is to be prepared thus: take some of the common kind; put it on a clean fire-shovel or plate of iron, over the fire; immediately on receiving the heat, it will begin to smoke, on the ceasing of which you will find your lamp-black freed from the oily substance it originally contained, and fit for immediate use.

Gum-water. — Choose the large white pieces of gum arabic, which are brittle and clear. Put them into a clean phial, and pour water on them, well-strained and divested of all sandy particles. Let the gum-water be about the thickness of water-gruel, that is, so thick that you can feel it in your fingers. The fresher made the better.

GRINDING THE COLOURS, AND PREPARING THEM FOR THE PALLET.

Provide yourself, if possible, with an agate flag, and muller; or, if not conveniently to be had, glass ones may be substituted. The glass muller, and flag, must be lightly roughened with fine flour emery, which will give a surface of some continuance. After being particularly careful that the flag, &c. are quite clean, lay some of the colour to be ground on it, bruising it whilst dry, gently with the muller; then put a few drops of water on it, and grind it very carefully, not making it too wet, as that will prevent it from keeping sufficiently under the muller. When you think it is finely ground in the water, take the pallet-knife, or a thin-edged piece of ivory, scrape the colour together in a little heap on the flag, which let dry for a short time, then add gum-water to it gradually, having a piece of ivory near you, on which you are frequently to lay some of the colour with a camel-hair pencil, thin; and if you perceive the colour in the smallest degree to shine, when dry, it is gummed enough; then you are to scrape it off your flag, and transfer it to your pallet.

There are some colours which will not bear a sufficient quantity of gum to make them shine, without injuring their qualities, as smalt, ultramarine, and verditer blues.

OF HAIR PENCILS. — MANNER OF CHOOSING THEM, &c.

Pencils for painting in miniature are not made of camels' hair, but of the tips of squirrels' tails, and of these there are two kinds, the dark brown, and yellowish red. Pencils made of the latter kind are called sable pencils, and are of a stiffer nature than the others. They are a useful kind of pencil, as long as the fine flue at the end of the hair remains, on account of their elasticity; but the instant the flue is worn off, they, from their harshness, become useless; at all events, no pencil can be superior to one made of the common kind of hair. The error too prevalent amongst young miniature painters, is that of preferring a very small pencil for their work, vainly hoping, by the assistance of such a one, to execute their picture with more neatness and accuracy; but this is an error which experience testifies; for the finest and most highly-finished pictures are executed with a middle-sized pencil, the point of which being not only sufficiently neat, but from its body containing a quantity of colour in fluid, enables the artist to give that mellow, firm touch, which is so generally admired by connoisseurs. The young artist should choose his pencil, with a good spring, and point, both of which he will know by drawing the pencil lightly through his mouth, and touching it on his thumb-nail; if he find it, on being moderately wet, to spring again into its form, after being bent, it is so far good; but there are many pencils possessed of that quality, which are deficient in another material one, namely, that of a good point. They should be cautiously looked to, by turning the pencil round on the nail, in every direction, observing whether the hairs at the point keep together of a length, none shooting out on either side (which is often occasioned by the pencil-maker putting the hair into the quill with a twist in it.) All these defects being carefully guarded against, a principal material for miniature painting may be presumed upon.

IVORY.—METHOD OF CHOOSING, BLEACHING, AND PREPARING IT.

Of ivory there are various kinds, the distinction of which in this art is of very material consequence. Ivory, newly cut, and full of sap, is not easily to be judged of; the general transparency it exhibits, in that state, almost precluding the possibility of discovering whether it is coarse-grained, or fine; streaky, or the contrary; unless to the artist, who, by a long course of experience, is familiarised to it. The best way to discover the quality of it is, by holding it grainways to the light, then holding it up and looking through it, still turning it from side to side,

and very narrowly observing whether there are any streaks in it; this, unless the ivory is very freshly cut, will be easily discovered. There is a species of ivory which is very bad for painting on, although it has no streaks in it, being of a horny coarse nature, which will never suffer the colours to be thrown out in a brilliant manner; you are therefore not only to be cautious in choosing ivory free from streaks, but likewise that which has the finest grain, and close. We shall now proceed to treat on the manner of preparing the ivory.

You are to heat a smoothing iron in so small a degree, that you can hold your hand on the face of it, so long as you can reckon three or four in moderate time; then put your ivory between a clean piece of folded paper, on which place the hot iron, turning your ivory frequently, until it becomes a *transparent* white; for you are to observe very particularly, that an *opaque* white will not answer for face-painting in miniature, as it would give a harshness and unpleasant appearance to the picture.

When you think your ivory is sufficiently white for your purpose, lay it under some flat weight until it cools, as that will prevent its warping. Then proceed to prepare it: for which purpose you must pound some pumice-stone in a mortar, as clear and fine as possible, which put into a fine linen or cambric bag, tying it, about midway, tight, but leaving room for the pumice-dust to sift through the bottom. Then get a long mustard-bottle, perfectly clean and dry, in which suspend the pumice-dust, covering the top with the muzzle of the bag, so that nothing can come out; then shake the bottle smartly in your hand, when the fine particles of the pumice will sift out, and remain at the bottom of the bottle, thereby preventing any coarse grains from being amongst what you are going to use, which would very materially injure your ivory. Your pumice-dust being prepared, scrape the leaves of ivory with a sharp pen-knife, until the scratches of the cutting-saw are entirely obliterated; then take either a piece of Dutch polishing rush, or a piece of middling fine patent glass paper, and carefully polish your ivory with it, not by passing your hand backwards and forwards, but in a circular manner, until you have it pretty level; then strew some of your pumice-dust on the ivory, and put a few drops of water on it: which done, with your muller work on it in a circular manner as before, until you find every part has equally received the pumice, which you will know by its exhibiting a dead, grave appearance; those parts which have not received the pumice continuing to shine in spots, which you must still labour to do away with your pumice and muller. When you find it pumiced to your satisfaction, take a clean sponge and fair water, with which gently wash your ivory free from the pumice-dust; taking care not to rub it hard, lest you give the ivory a gloss that would prevent your colours from adhering equally and agreeably: after this, lay your ivory to dry, and in a few hours it will be fit for use. Then paste it on a piece of wove paper, by touching the back of it *merely at the edges*; as gum-water, or any other cement, being put near the *centre* of your ivory, may cause a dark unpleasant spot perhaps to appear through, in the very part where the face is to be painted.

INSTRUCTIONS FOR MIXING COMPOUND TINTS FOR THE FACE.

Purple is formed of either ultramarine, Prussian blue, smalt, or indigo, mixed with either carmine, or drop-lake. Ultramarine, although the most beautiful and brilliant of colours by itself, yet in any mixture it loses that perfection; but still retains a sufficient scare of brightness to render it a desirable tint in the purplish grey shadows of the face. Prussian blue, mixed as before-mentioned, makes a bright, or dark purple, according as the quantities of either colours are portioned; but indigo makes still darker, owing to its great natural depth of colour. Smalt and carmine, or lake, form nearly the same tint as ultramarine, and may be used nearly for the same purposes.

Grey. — Of grey tints there are various kinds, according to the subjects they are required for. A warm grey tint may be made by duly portioning burnt terra Sienna, Prussian blue, and drop-lake: the more terra Sienna in it, the warmer the tint; the more Prussian blue and lake, the colder. Another grey tint, used with success by some eminent miniature painters, was composed of Prussian blue, and Chinese vermilion; but on account of the unkind manner, with which vermilion incorporates with any other colour, it required a greater proportion of gum than ordinary to make them work or keep together. A third grey tint, which is an excellent one, is formed of drop-lake, sap green, and Prussian blue.

Olive tints.—A very fine olive tint is formed of gall stone, Nottingham ochre, and carmine, or lake; and another of sap green and lake simply.

Of hair tints. — A beautiful hair colour, either dark, or light, according to the quantities of colours, is made of carmine, lamp-black, and sap green. The manner of forming it is only to be acquired by practice; but when once attained, will be found worth the time of the trial. That very difficult tint, which is often to be met with in children's hair, by the proper junction of these colours will be produced to perfection. Other hair tints may be made of terra de Cassel simply, or by the addition of lamp-black. Some excellent painters make all their hair tints of burnt terra Sienna, lamp-black, and Nottingham ochre the latter being added only

when there is light hair wanting to be represented. Burnt umber has been substituted for terra Sienna, along with the lamp-black, and forms a good tint; but care must be taken to avoid either the greenish, or reddish, casts, which it is apt to produce.

Tints for fine linen, gauze, &c. — Of all tints in transparent painting, such as are the miniature works of the present day, there are none more difficult to ascertain; for the delicacy not only of mixture, but the delicacy of touch, conveys the idea of beauty in the thinness and folding of fine linen or gauze, the true painting of which throws a veil over the defects in other parts of the picture. We shall therefore only observe, that any of the tints, under the head of grey, will, properly managed, answer the purpose. Having now pointed out the manner of preparing the delicate transparent tints for miniature painting, we proceed to treat of the grosser ones, namely, those for draperies.

OF COLOURS PROPER FOR MEN'S DRAPERIES.

We shall, under this head, make some general observations: the first of which is, that in all cloth draperies for men's portraits, it is necessary to add some flake white, as it not only gives the colour the dead appearance which cloth exhibits, but likewise its being incorporated with the flake white, gives it a body which makes the flesh tints appear to more advantage. The next observation is, that, in grinding up your draperies, you are to make them appear several degrees lighter in colour, than you want them to be when dry; because the flake white is so very heavy, that, after you float in your coat, it will sink to the bottom, and leave your colours several degrees darker than when it was wet; and finally, you are not to be too heavy or thick in floating in your draperies, but merely to see that your colour is evenly spread over the part.

There are four modes of working in miniature painting; namely, floating, washing in, handling, and marking. The first process, which is *floating*, and is chiefly used for draperies, is thus performed: Having marked with your pencil where your drapery is to be, grind up your colour on your flag (not putting a quantity of gum water, sufficient to make it shine, as it would frustrate your purpose); then take a large soft hair pencil, and having previously laid your ivory on a very level table, fill your pencil plentifully with the colour, and lay it quick all over the parts of the ivory you want covered, seeing that it runs on every part equally, which, if kept in a proper fluid state, it will readily do; then lay it in some place to dry, where it is not likely to receive dust, when you will have a fine level surface ready to work the shadows of your drapery on in a couple of hours. *Washing in* is performed when your picture is on your desk, by filling your pencil moderately with colour, and giving a very broad stroke rather faintly, as the contrary would not answer; this manner is chiefly used in beginning the hair, back grounds, and likewise in laying on the general flesh tint of the face. It is also used in the first touches of the dark shadows, which ought to be begun faint and broad. *Handling* is the manner in which all the fleshy parts of the miniature must be worked, after the first washing in; and lastly, *marking* consists in the sharp-spirited touches given to the different features, in order to give that animated appearance so necessary to constitute a fine picture.

Black drapery is formed of lamp-black burnt, and flake white; and must be laid in with a good deal of the latter, as otherwise it would be very difficult to manage the shadows so, as to produce a pleasing effect.

Blue drapery may be made of either Prussian blue, or Antwerp blue, mixed with white; indigo being too much inclined to a blackish cast.

Green drapery is well made of king's yellow, and Prussian and Antwerp blue. The more blue, the darker the green; and the more yellow, the contrary.

Yellow drapery cannot be so well represented by any colour as king's yellow, laid thin, with a moderate quantity of gum in it.

Drab-colour is well represented by a judicious mixture of umber in its raw state, and flake white.

A queen's brown, as it is called, is made of burnt Roman ochre, a little lamp black and lake, with flake white amongst it.

Claret colour may be well represented by a mixture of terra de Cassel, a little lamp-black, and lake. The more black and lake, the deeper the colour.

Dark brown can be formed by a junction of Nottingham ochre, lake, and lamp-black.

Lilac is made of carmine, Prussian blue, and flake white.

Grey can be formed only of lamp black, flake white, and the smallest quantity of lake laid in very thin.

Reddish brown is best made of Indian red, very little lamp-black, and flake white.

Scarlet is a colour very difficult to lay down rules for making, as in some pictures it is dangerous to make it too bright, for fear of injuring the effect of the face, by its brilliancy catching the eye too readily; consequently, if the subject to be painted from life be very pale, a great risk is incurred by inserting a very bright scarlet in the picture. We shall therefore only mention, that a very bright scarlet is made of Chinese vermilion, and carmine, ground together (without any flake white); and if you want it still rendered brighter, when it is dry, fill your pencil with plain carmine, mixed with thin gum-water, and glaze it over nicely; but if, on the contrary, you wish to sadden, or take away a share of its brilliancy, add a

little flake white to it, and that will have the desired effect.

OF PAINTING THE FACE IN MINIATURE.

You are first to provide yourself with a mahogany desk for painting on, which is a box about fourteen inches high, and a foot-board on the top; there is to be a lid covered with green cloth, which is to have a pair of small hinges at the front, and to lift occasionally with a supporting rail at the back, and notches, so as readily to adjust it to any height. About the middle of the green cloth there is to be a slip of very thin mahogany, glued at each end, but the centre of it left free, to fasten your ivory by, slipping it between the mahogany and green cloth.

The next thing you are to observe is the choice of your light, which in this kind of painting cannot be too particularly attended to; it not being like oil painting, where the rays of the sun may be kept out by blinds, &c. without causing any material inconvenience. A north light, or as nearly as possible to it, must be attained. If there are more windows than one in the room, the second must be closed, so as to admit no light; and the one you sit at, must have a green baize curtain against the lower part of it, to reach about a foot higher than your head, as you sit at your painting desk, with your left hand towards the light.

Having placed your object at the distance of about a yard and a half from you, begin drawing the outlines of the face, with the utmost precision. When you have them drawn correctly, begin to lay in the colour, faintly, of the iris of the eye, the shadows under the eye-brows in a grey tint, and under the nose rather a warm purple, in broad faint washes: ever keeping this in your mind; that you must, in the process of painting the face of a miniature picture, go on faintly at the beginning, and not hurry in your colours, as such conduct will, inevitably, make your tints look dirty, and your picture harsh and disagreeable Having, as before observed, laid in your grey tints where your shadows are to fall, go on heightening them by degrees, working in hatches with a middling full pencil, not too washy, nor too dry; as the former would be the means of muddying your colours, and the latter would make them raw. When you have pretty strongly marked out, and worked up the shadows, mix a wash of either gall-stone, or Nottingham ochre, and drop-lake, with which faintly go over the fleshy parts of the face, where the shadows do not come, and then proceed to heighten the carnations on the cheeks, the colour of the beard, if any such appears, still working in the handling manner already mentioned, in various directions; so that, after some time working, the intersections appear like so many nice points or dots. Observe, as a general rule, that it is much easier to warm the tints of your face, than to cool them, by working proper colours over it. It is therefore best to begin with cool greys and purples; and towards the finishing of the picture, to add warmth, if necessary, by gradually working such colours as gall-stone, terra Sienna, or the like, over it, in addition to the carmine or lake that may be necessary to produce the tint of nature.

ELYDORIC PAINTING.

This method of painting was invented by M. Vincent, of Montpetit. It takes its name from two Greek words expressing oil, and water, both these liquids being employed in its execution.

Its principal advantages are, that the artist is able to add to the mellowness of oil-painting, the freshness of water-colours, and the high finishing of miniature, in such a manner, that the work appears like a large picture seen though a diminishing glass.

The following is the manner of proceeding: A piece of very fine linen or white taffety is sized with starch in the most equal manner possible; or pieces of glass about two inches square, the angles of which are blunted, in order that the cloth may be without wrinkles.

When these pieces of cloth are sufficiently dry, a layer of white lead finely ground in oil of pinks, or poppies (the whitest that can be procured) is applied on them with a knife. To this layer, when dry enough to admit of scraping, more may be added if necessary.

As it is of the greatest importance for the preservation of this kind of painting, that the layers are purged of oil, in order that they may imbibe the colours laid on them, it is necessary, that their surface be made very smooth, and be very dry and hard.

The artist is next provided with a circle of copper, nearly two inches in diameter, and one-fourth of an inch in height, extremely thin, and painted on the inside with black. This circle is employed to contain the water on the surface of the picture.

Water distilled from rain, or snow, is preferable to any other: ordinary water, on account of the salts which it contains, being pernicious to this mode of painting.

The colours also must be ground between two Oriental agates, most carefully preserved from dust, and mixed with oil of poppies, or any other siccative oil, which has been extracted without fire, and limpid as water.

All the colours being ground, are placed in a small heap, on a piece of glass covered with distilled water in a tin box.

The materials being thus prepared, the subject to be painted is faintly traced with a black-lead pencil on one of the pieces of cloth above-mentioned.

The tints are formed on the pallet from

the little heaps under the water, and the pallet placed as usual in the left hand.

The picture is held between the thumb and fore finger, supported by the middle, and the necessary pencils between the third and little fingers. The hand rests on the back of a chair, to give a full liberty of bringing the work near, or removing it from the eye.

The pencils are cleaned with essence of rectified turpentine.

After having made the rough draught with the colours still fresh, the circle of copper, which ought to surround the picture, is fitted, exactly to the surface.

The distilled water is poured within this circle till it rises to the height of one-eighth of an inch, and the eye is held perpendicular over the object. The third finger of the right hand must rest on the internal right angle of the picture.

The artist retouches his work, adding colour, and softening as he finds requisite.

As soon as the oil swims on the top, the water is poured off, and the picture carefully covered with a watch-glass, and dried in a box by a gentle heat.

When it is dry enough to be scraped nearly smooth with a knife, the artist repeats the same method till he is satisfied with his work.

It is at this period that the advantage of this new method particularly shows itself for the purpose of finishing; as the water poured on the picture discovers every fault of the pencil, and gives the power of correcting and perfecting with certainty.

When the work is finished, it is put under a crystal, from which the external air is excluded, and it is then dried by means of a gentle heat.

PAJACK, a Russian corn-measure.

PAKFONG, or White Copper, a metal composed of copper, nickel, and zinc. The zinc amounts to nearly one half of the whole, and the proportions of copper and nickel are as 5 to 13. This compound metal is much used among the Chinese.

PALENDAR, a kind of coasting vessel.

PALLADIUM, a metal discovered by Dr. Wollaston, in the year 1803. It exists in the ores of platina. It is hard, malleable, of a white colour, like platina, ductile, and capable of receiving a fine polish. It fuses with difficulty, and is not altered by exposure to the air at common temperatures. Its specific gravity, is 11.3. It is soluble in aqua-regia, forming a beautiful red solution. Muriate of tin precipitates it of a dark orange colour, and prussiate of potash of an olive colour; it has not been applied to any use, except in the construction of some parts of some philosophical instruments.

PALLET, among painters, a little oval piece of wood, or ivory, with a hole through which to put the thumb of the left hand. It is to hold the several colours on, ready for the pencil.

PALLET, among potters, &c. a wooden instrument for forming, beating, and rounding their works; of these they have a large oval one with a handle; others are round, or hollowed triangularly; others like large knives, to pare off what is superfluous in their moulds.

PALLET, in gilding, an instrument made of a squirrel's tail, to take up the gold leaves, and extend them on the matter to be gilt.

PALM-BERRIES. Unripe dates are thus called. *See* DATES.

PALM-OIL. (Ger. *Palmol.* Du. *Palmolie.* Da. *Palmeolie.* Sw. *Palmolja.* Fr. *Huile de Palme, Huile de Senegal, Pumicin.* It. *Olio di Palma.* Sp. *Aceite de palma.* Port. *Oleo de palma.* Lat. *Oleum palmæ,* seu *Elais.*) This oil is said to be the produce of the *palma spinosa major;* the fruit or nuts of which are full of oil. It is obtained by boiling them in water, when the oleaginous particles rise to the surface, they are skimmed off, and strained for use. The oil, as it comes to us, is about the consistence of an ointment, and of an orange colour; of a strong but not disagreeable smell, and having very little taste. By long keeping it loses its colour, and becomes white, when it ought to be rejected. The tree which yields palm-oil grows in most parts of Asia, Africa, and America, more especially on the coast of Guinea, in the Cape de Verd islands, and in Jamaica and Barbadoes. The negroes are fond of the oil, which sometimes makes an ingredient of their food. It is used in medicine, by way of embrocation, for strains and rheumatic pains; it is also now frequently mixed up with soap, and reckoned a cosmetic.

PAMPHLET, a small book, usually printed in the octavo form; and sold unbound. No person shall sell, or expose to sale, any pamphlet without name and place of abode of the printer, on pain of 20*l.* and costs. 10 Ann. c. 50. *See* NEWSPAPERS.

PAN, (Ger. *Pfannen.* Du. *Pannen.* Da. *Pander.* Sw. *Pannor.* Fr. *Poêles.* It. *Padelle.* Sp. *Sartenes.* Port. *Sartagens, Frigideiras.* Rus. *Skoworodü.* Pol. *Pately,*) a broad and shallow vessel, usually made of copper or iron, and of various dimensions, according to the different uses to which it is to be applied. Besides the pans used for culinary purposes, there are articles of this kind manufactured for the sugar-houses, for salt-works, &c. &c.

PAN, the part of the lock of a gun, that holds the powder.

PANJONIA, a species of crystal, so called from the particularly angular shape in which it is found, being derived from two Greek words expressive of that particularity.

PANNEL, *in joinery,* is a tympanum, or square piece of thin wood, sometimes carved,

framed, or grooved in a larger piece, between two upright pieces, and two cross pieces.

PANNEL, *in law*, is the schedule of the jurors returned by the sheriff, to pass upon any trial.

PANNEL, *in masonry*, is one of the faces of a hewn stone.

PANNIER, a basket or a wicker vessel, in which fruit, or other things, are carried on a horse. Panniers are much used in the wine countries, for conveying the grapes to the press; but panniers of this description are generally carried upon men's backs, for which purpose they are of a suitable form.

PANORAMA, a picture exhibiting a succession of objects, such as may be by the rays of light intercepted by the surface of a hollow sphere, or cylinder, from all points of external objects to the eye, or the centre of the sphere, or at a fixed point in the axis of the cylinder.

PAN-SAPAN. *See* SAPAN-WOOD.

PANTHERS' SKINS. The panther measures about six feet and a half, and sometimes nearly seven feet from nose to tail, which last is about three feet long. The colour of the panther is a bright and beautiful, tawny yellow, thickly marked all over the upper parts of the body, shoulders, and thighs, with roundish black spots, disposed into circles, consisting of four, or five, separate spots; and there is commonly, but not always, a central spot in each circle, in which particular, as well as in its superior size, and deeper colour, the panther differs from the leopard. On the face and legs the spots are single, and along the top of the back is a row of oblong spots, which are still longer as they approach the tail. The breast, and belly, are white; the former marked with transverse dusky stripes, the latter, and the tail, with large irregular black spots. The skins of the panther are brought from Africa, and are employed in the same manner as those of the leopard.

PANTILE, is that species of tile, which being concave, is employed in the formation of gutters, on the tops of houses. These tiles are subject to an excise duty. *See* BRICKS.

PAPER, (Ger. and Du. *Papier*. Da. *Papir*. Sw. *Papper*. Fr. *Papier*. It. *Carta*. Sp. and Port. *Papel*. Rus. *Bumaga*. Pol. *Papier*. Lat. *Charta*,) sheets of thin matter, made of some vegetable substance. Papers are of various kinds; with regard to colours, they may be divided into white, brown, blue, &c.; with regard to quality, into fine, second, bisterd, superfine, &c.; with regard to use, into writing, printing, pressing, cap, cartridge, copy, chancery, post, &c. With regard to dimensions, into demy, medium, crown, foolscap, pot, royal, super-royal, imperial, elephant, atlas, &c.; with regard to country, into German, Lombard, Rochelle, Genoese, Dutch, English, &c. We have also printed paper to hang rooms with; stamped paper to write obligations, deeds, and contracts upon; ruled paper for books of account, &c. to which may be added cut and gilt paper for letters, gold, and coloured, paper, for ornamental works of a small kind, and, lastly, metallic paper, for a similar purpose, of recent invention, and singular beauty, &c. Blue paper is used for wrapping up sugar loaves, linen, &c. Whitish-brown, for parcels of almost every kind. Teint, or demi-teint paper, a paper for designing on, is either blue, brown, or bistred. Bistred or bisterd paper is white paper washed over with a sponge dipped in soot-water. Its use is to save the labour of the crayon in places which are to be shadowed the same depth with the teint of this paper: for light places they are made with chalk. For bleaching paper, *see Prints and Printed Books, article* BLEACHING.

Manufacturers of paper are to take out a license annually at the Excise-office, and to make entries at the nearest office of excise, of their mills, workhouses, &c. under penalty of 50*l*.

The ream of paper is to contain 20 quires of 24 sheets each; pasteboard to be made up into parcels, each parcel to contain even dozens of sheets, and not to have less.

The excise duties attach upon all kinds of paper. *See* 1 Geo. 4. c. 58.

PAPER-CREDIT, is the paper circulating in the country, and issued upon the security of the bank of England; and as long as the specie is adequate to cover the amount of the notes issued, so long may such paper be considered as money, of which it is the representative.

The mode of accepting and negotiating bills among merchants, falls also within the denomination of *paper-credit*.

PAPER-HANGINGS, (Ger. *Papiertapeten*. Du. *Papiertapyten*. Da. *Papirtapeter*. Sw. *Papperstapeter*. Fr. *Tapisseries de papier*. It. *Tapezzerie di carta*. Sp. *Tapicerias de papel*. Port. *Tapeçarias de papel*,) are made in several different ways. Some are printed from wooden blocks, and coloured by placing paper over them, cut out in spaces in the forms of the figures, or parts of the figures, where they are to be laid on; over these spaces the artist moves a large brush dipped in any colour, and removes the paper as he proceeds, till the whole piece is finished; and then begins again with other papers cut so as to admit other colours, proceeding in the same manner till the whole piece is completed. Other kinds of paper-hangings are made without their being first printed on blocks, solely by means of papers cut into sprigs and flowers, &c. which are laid on as in the other case, and the figures represented on the paper by brushing over these patterns; which are removed as before, till all the different colours and shades are given,

and the work completed: after which, if the work is designed to be curious, it is touched up, by mending the defects, and giving it proper heightenings, &c. with the pencil. Flock paper-hangings are made in much the same manner. They take flocks, which are the cuttings of the rough nap taken off by the cloth-dresser, this they choose of the proper colours, and cut with an engine as fine as possible; the figure is then represented on paper with a strong varnish; and while it is yet wet and clammy, the flocks are scattered upon it; when that which falls upon the varnished part sticks, and represents the figure designed, and the rest that falls upon the dry paper is shaken off. If the paper is to be of several different colours, as red, green, blue, yellow, &c., the pattern for one of these is drawn with the varnish, and the flocks of that particular colour are spread over the whole piece; which being afterwards thoroughly dried, the shades of the same colour are separately added, and then the other colours with their shades.

PAPER-MAKING. This art is of the most important nature, and well deserves a minute examination as to its origin and progress; but as this research is not compatible with the character of an elementary work, we shall only observe, that it was known to the Egyptians, Greeks, and Romans, from which time, to the present period, it has been successively cultivated by every civilised nation on the face of the globe, and brought, by the English, in particular, to the highest pitch of perfection.

We now proceed to state the process of this branch of manufactures, as it is pursued in the mills of Great Britain.

The first instrument employed in the making of paper is called the duster, made in the form of a cylinder, four feet in diameter, and five feet in length. It is altogether covered with a wire-net, and put in motion by its connection with some part of the machinery. A convenient quantity of rags before the selection are inclosed in the duster, and the rapidity of its motion separates the dust from them, and forces it through the wire. It is of considerable advantage to use the duster before selection, as it makes that operation less pernicious to the selectors.

The selection is then to be made; and it is found more convenient to have the tables for cutting off the knots and stitching, and for forming them into a proper shape, in the same place with the cutting-table. The surface, both of these, and the cutting-table, is composed of a wire-net, which, in every part of the operation, allows the remaining dust, and refuse of every kind, to escape.

The rags, without any kind of putrefaction, are again carried from the cutting-table back to the duster, and from thence to an engine, where, in general, they are in the space of six hours reduced to the stuff proper for making paper. The hard and soft of the same quality are placed in different lots; but they can be reduced to stuff at the same time, provided the soft is put somewhat later into the engine.

The engine is that part of the mill which performs the whole action of reducing the rags to paste, or, as it may be termed, of trituration. The number of the engines depends on the extent of the paper-work, the force of water, or the construction of the machinery.

When the stuff is brought to perfection, it is conveyed into a general repository, which supplies the vat, from which the sheets of paper are formed. This vat is made of wood; and is generally about five feet in diameter, and two and a half in depth. It is kept in temperature by means of a grate introduced by a hole, and surrounded on the inside of the vat with a case of copper. For fuel to this grate, they use charcoal or wood, and frequently, to prevent smoke, the wall of the building comes in contact with one part of the vat, and the fire has no communication with the place where they make the paper.

Every vat is furnished on the upper part with planks inclosed inwards, and even railed in with wood, to prevent any of the stuff from running over in the operation. Across the vat is a plank which they call the trepan, pierced with holes at one of the extremities, and resting on the planks which surround the vat.

The forms or moulds are composed of wire-cloth, and a moveable frame. It is with these that they fetch up the stuff from the vat, in order to form the sheets of paper. The sides of the form are made of oak, which is previously steeped in water, and otherwise prepared to prevent warping. The wire-cloth is made larger than the sheet of paper, and the excess of it on all sides is covered with a moveable frame. This frame is necessary to retain the stuff, of which the paper is made, on the cloth; and it must be exactly adapted to the form, otherwise the edges of the paper will be ragged and badly finished. The wire-cloth of the form is varied in proportion to the fineness of the paper, and the nature of the stuff.

The felts are pieces of woollen cloth spread over every sheet of paper, upon which the sheets are laid to detach them from the form, to prevent them from adhering together, to imbibe part of the water, with which the stuff is charged, and to transmit the whole of it when placed under the action of the press. The two sides of the felt are differently raised; that, of which the hair is longest, is applied to the sheets which are laid down; and any alteration of this disposition would produce a change in the texture of the paper. The stuff, of which the felts are

made, should be sufficiently strong, in order that it may be stretched exactly on the sheets, without forming into folds; and, at the same time, sufficiently pliable to yield in every direction, without injury to the wet paper. As the felts have to resist the reiterated efforts of the press, it appears necessary that the warp be very strong, of combed wool, and well twisted. On the other hand, as they have to imbibe a certain quantity of water, and to return it, it is necessary that the woof be of carded wool, and drawn out into a slack thread. These are the utensils, together with the press, which are used in the apartment where the sheets of paper are formed.

The vat being furnished with a sufficient quantity of stuff, and of water, two instruments are employed to mix them; the one of which is a simple pole, and the other a pole armed with a piece of board, rounded, and full of holes. This operation is repeated as often as the stuff falls to the bottom. In the principal paper-mills in England, they use, for this purpose, what is called a hog; which is a machine within the vat, that, by means of a small wheel on the outside, is made to turn constantly round, and keep the stuff in perpetual motion. When the stuff and water are properly mixed, it is easy to perceive whether the previous operations have been complete. When the stuff floats close, and in regular flakes, it is a proof that it has been well triturated; and the parts of the rags which have escaped the rollers also appear.

After this operation the workman takes one of the forms, furnished with its frame, by the middle of the short sides; and fixing the frame round the wire-cloth with his thumbs, he plunges it obliquely four or five inches into the vat, beginning by the long side, which is nearest to him. After the immersion he raises it to a level; by these movements he fetches up on the form a sufficient quantity of stuff; and as soon as the form is raised, the water escapes through the wire cloth, and the superfluity of the stuff over the sides of the frame. The fibrous parts of the stuff arrange themselves regularly on the wire-cloth of the form, not only in proportion as the water escapes, but also as the workman favours this effect by gently shaking the form. Afterwards, having placed the form on a piece of board, the workman takes off the frame or deckle, and glides this form towards the coucher; who, having previously laid his felt, places it with his left hand, in an inclined situation, on a plank fixed on the edge of the vat, and full of holes. During this operation the workman applies his frame, and begins a second sheet. The coucher seizes this instant, takes with his left hand the form, now sufficiently dry, and, having laid the sheet of paper upon the felt, returns the form by gliding it along the trepan of the vat.

They proceed in this manner, laying alternately a sheet, and a felt, till they have made six quires of paper, which is called a post; and this they do with such swiftness, that, in many sorts of paper, two men make upwards of twenty posts in a day. When the last sheet of the post is covered with the last felt, the workmen about the vat unite together, and submit the whole heap to the action of the press. They begin at first to press it with a middling lever, and afterwards with a lever about fifteen feet in length. After this operation, another person separates the sheets of paper from the felts, laying them in a heap; and several of these heaps collected together are again put under the press.

The stuff which forms a sheet of paper is received, as we have already said, on a form made of wire cloth, which is more, or less, fine, in proportion to the stuff, surrounded with a wooden frame, and supported in the middle by many cross bars of wood. In consequence of this construction, it is easy to perceive, that the sheet of paper will take, and preserve, the impressions of all the pieces which compose the form, and of the empty spaces between them.

The traces of the wire cloth are evidently perceived on the side of the sheet which was attached to the form, and on the opposite side they form an assemblage of parallel, and rounded, risings. As, in the paper which is most highly finished, the regularity of these impressions is still visible, it is evident that all the operations to which it is submitted have chiefly in view to soften these impressions, without destroying them. It is of consequence, therefore, to attend to the combination of labour which operates on these impressions. The coucher, in turning the form on the felt, flattens a little the rounded eminences which are in relievo on one of the surfaces, and occasions, at the same time, the hollow places made by the wire cloth to be partly filled up. Meanwhile, the effort which is made in detaching the form, produces a very great number of small hairs on every protuberant part of the sheet.

Under the action of the press, first with the felts, and then without them, the perfecting of the grain of paper still goes on. The vestiges of the protuberances made by the wires are altogether flattened, and of consequence the hollows opposite to them disappear also; but the traces formed by the interstices of the wire, in consequence of their thickness, appear on both sides, and are rounded by the press.

The risings traced on each side of the paper, and which can be discovered by the eye on that which is most highly finished, form what is called the grain of paper. The different operations ought to soften, but not destroy it; which is effectually done by employing the hammer. This grain appears in the Dutch paper; which is a sufficient proof

that though they have brought this part of the art to the greatest perfection. they have not employed hammers, but more simple and ingenious means. The grain of paper is often disfigured by the felts when they are too much used, or when the wool does not cover the thread. In this case, when the paper is submitted to the press, it takes the additional traces of the warp and the woof, and composes a surface extremely irregular.

The paper, the grain of which is highly softened, is much fitter for the purposes of writing, than that which is smoothed by the hammer: on the other hand, a coarse and unequal grain very much opposes the movements of the pen; as that which is beat renders them very uncertain. The art of making paper, therefore, should consist in preserving, and at the same time in highly softening, the grain: the Dutch have carried this to the highest perfection.

The exchange succeeds the operation last described. It is conducted in a hall contiguous to the vat, supplied with several presses, and with a long table. The workman arranges, on this table, the paper, newly fabricated, into heaps; each heap containing eight, or ten, of those last under the press, kept separate by a woollen felt. The press is large enough to receive two of them at once, placed the one at the other's side. When the compression is judged sufficient, the heaps of paper are carried back to the table, and the whole turned, sheet by sheet, in such a manner, that the surface of every sheet is exposed to a new one, and in this situation they are again brought under the press. It is in conducting these two operations sometimes to four, or five, times, or as often as the nature of the paper requires, that the perfection of the Dutch plan consists. If the stuff be fine, or the paper slender, the exchange is less frequently repeated. In this operation it is necessary to alter the situation of the heaps, with regard to one another, every time they are put under the press; and also, as the heaps are highest towards the middle, to place small pieces of felt at the extremities, in order to bring every part of them under an equal pressure. A single man with four, or five, presses, may exchange all the paper produced by two vats, provided the previous pressing at the vats be well performed. The work of the exchange generally lasts about two days on a given quantity of paper.

When the paper has undergone these operations, it is not only softened in the surface, but better felted, and rendered more pliant in the interior parts of the stuff. In short, a great part of the water, which it had imbibed in the operation of the vat, is dissipated. By the felting of paper is understood the approximation of the fibres of the stuff, and their adhering more closely together. The paper is felted in proportion as the water escapes, and this effect is produced by the management, and reiterated action, of the press. Was it not for the gradual operation of the press, the paper would be porous, and composed of filaments adhering closely together. The superiority of the Dutch over the French paper, depends almost entirely on this operation.

If the sheets of paper are found to adhere together, it is a proof that the business of the press has been badly conducted. To avoid this inconveniency, it is necessary to bring down the press at first gently, and by degrees with greater force, and to raise it as suddenly as possible. By this means the water, which is impelled to the sides of the heaps, and which has not yet escaped, returns to the centre; the sheets are equally dry, and the operation is executed without difficulty.

According to the state of dryness, in which the paper is found when it comes from the apartment of the vat, it is either pressed before, or after, the first exchange. The operation of the press should be reiterated, and managed with great care; otherwise, in the soft state of the paper, there is a danger that its grain, and transparency, are totally destroyed. Another essential principle to the success of the exchange is, that the grain of the paper is originally well raised. For this purpose the wire cloth of the Dutch forms is composed of a rounder wire than that used in France, by which they gain the greatest degree of transparency, and are in no danger of destroying the grain. Besides this, the Dutch take care to proportion the wires, even where the forms are equal to the thickness of the paper.

Almost every kind of paper is considerably improved by the exchange, and receives a degree of perfection which renders it more agreeable in the use. But it is necessary to observe, at the same time, that all papers are not equally susceptible of this melioration; on the contrary, if the stuff be unequal, dry, or weakened by the destruction of the fine parts, it acquires nothing of that lustre and softness, and appearance of velvet, which the exchange gives to stuff properly prepared.

The sheds for drying paper are in the neighbourhood of the paper-mill, and are furnished with a vast number of cords, on which they hang the sheets, both before, and after, the sizing. The sheds are surrounded with moveable lattices, to admit a quantity of air sufficient for drying the paper. The cords of the shed are stretched as much as possible; and the paper, four or five sheets of it together, is placed on them by means of a wooden instrument resembling a pick-axe. The principal difficulty in drying the paper consists in gradually admitting the external air, and in preventing the cords from imbibing moisture. With regard to the first of these, the Dutch use very low

sheds, and construct their lattices with great exactness. By these means the Dutch paper is dried equally, and is extremely supple before the sizing. They prevent the cords from imbibing the water, by covering them with wax. In using such cords, the moisture does not continue in the line of contact between the paper, and the cord, which prevents the sheet from stretching in that particular place by its weight, and from the folds which the moisture in the subsequent operations might occasion. The Dutch also employ cords of considerable thickness, and place fewer of them under the sheets; by which means they diminish the points of contact, and give a freer, and more equal, circulation to the air.

The size for paper is made of the shreds and parings got from tanners, curriers, and parchment-makers. All the putrefied parts, and the lime, are carefully separated from them, and they are inclosed into a kind of basket, and let down by a rope and pulley into the cauldron. This invention serves two valuable purposes. It makes it easy to draw out the pieces of skin that remain when the size is extracted from them by boiling, or easy to return them into the boiler if the operation be not complete. When the substance is sufficiently extracted, it is allowed to settle for some time; and it is twice filtered, before it is put into the vessel into which they dip the paper.

Immediately before the operation, a certain quantity of alum is added to the size. The workman takes a handful of the sheets, smoothed, and rendered as supple as possible, in his left hand, dips them into the vessel, and holds them separate with his right, that they may equally imbibe the size. After holding them above the vessel for a short space of time, he seizes on the other side with his right hand, and again dips them into the vessel. When he has finished ten, or a dozen, of these handfuls, they are submitted to the action of the press. The superfluous size is carried back to the vessel by means of a small pipe. The vessel in which the paper is sized is made of copper, and furnished with a grate, to give the size when necessary a due temperature; and a piece of thin board, or felt, is placed between every handful, as they are laid on the table of the press.

The Dutch are very careful in sizing their paper, to have every sheet in the same handful of equal dryness; because it is found that the dry sheets imbibe the size more slowly, than those which obtain some degree of moisture. They begin by selecting the pages in the drying-house; and after having made them supple, and having destroyed the adherence between the sheets, they separate them into handfuls, in proportion to the dryness, each of them containing that number which they can dip at one time. Besides this precaution, they take care to apply two sheets of brown paper of an equal size to every handful. This brown paper, firm, solid, and already sized, is of use to support the sheets.

As soon as the paper is sized, it is the practice at some paper-mills to carry it immediately to the drying-house, and hang it before it cools, sheet by sheet, on the cords. The paper, unless particular attention be paid to the lattices of the drying-house, is apt to dry too fast, whereby a great part of the size goes off in evaporation; or, if too slow, it falls to the ground. The Dutch drying-houses are the best to prevent these inconveniences; but the exchange after the sizing, which is generally practised in Holland, is the best remedy. They begin this operation on the handfuls of paper, either while they are still hot, or otherwise as they find it convenient. But, after the exchange, they are careful to allow the heaps to be altogether cold, before they are submitted to the press. Without this precaution, the size would, either be wholly squeezed out by the press of the exchange, or the surface of the paper become very irregular. It is of consequence that the paper, still warm from the sizing, grow gradually firm, under the operation of the exchange, in proportion as it cools. By this method it receives that varnish which is afterwards brought to perfection under the press, and in which the excellence of the paper, for writing or drawing, chiefly consists. It is in consequence of the exchanging, and pressing, that the Dutch paper is soft and equal; and that the size penetrates into the body of it, and is extended equally over its surface.

The exchange, after the sizing, ought to be conducted with the greatest skill and attention, because the grain of the paper then receives impressions which can never be eradicated. When the sized paper is also exchanged, it is possible to hang more sheets together on the cords of the drying-house. The paper dries better in this condition, and the size is preserved without any sensible waste, because the sheets of paper mutually prevent the rapid operation of the external air. And as the size has already penetrated into the paper, and is fixed on the surface, the insensible progress of a well-conducted drying-house renders all the good effects more perfect, in proportion as it is slowly dried.

If to these considerations be added the damage done to the paper in drying it immediately after the press of the sizing-room, whether it be done in raising the hairs by separating the sheets, or in cracking the surface, it is evident that the trouble of the second exchange is infinitely overpaid by the advantage.

When the paper is sufficiently dry, it is carried to the finishing-room, where it is pressed, selected, examined, folded, made up into quires, and finally into reams. It is

here put twice under the press; first, when it is at its full size, and secondly, after it is folded.

The principal labour of this place consists in assorting the paper into different lots, according to its quality and faults; after which it is made up into quires. The person who does this must possess great skill, and be capable of great attention, because he acts as a check on those who separated the paper into different lots. He takes the sheets with his right hand, folds them, examines them, lays them over his left arm, till he has the number requisite for a quire, brings the sides parallel to one another, and places them in heaps under the table. An expert workman, if proper care has been taken in assorting the lots, will finish in this manner near 6000 quires in a day.

The paper is afterwards collected into reams of 20 quires each, and for the last time put under the press, where it is continued, for ten or twelve hours, or as long as the demand of the paper-mill permits.

Various substitutes have been projected for linen-rags in the manufacture of paper; and specimens have been produced, made from the bark, leaves, straw, wood, &c. of different plants, shrubs, and trees. The following are the principal substances from which paper has been produced, viz. cotton, the pith of thistles of every kind, the withen or sallow of hemp, hop-lines, brown or blue cabbage-stalks, the stalks of the mallow, maize, the woolly catkins of white poplar, the stalks of common broom, the straws of flax, the stalks of common sunflower, peat, grass-wrack, tendrils of the vine, the horn-beam tree, the stalks of the mugwort and clematis; and lastly, which is perhaps the best substitute, barley-straw.

PAPER-MILL. When the art of paper-making was first introduced into Europe, the rags used in the manufacture were ordinarily beaten into a pulp by means of large heavy hammers, whose heads were raised up by cogs fixed in the axis of a water-mill; but they are now more expeditiously ground to pieces, by means of an iron barrel, covered with teeth, fixed on the inside of an iron cylinder, and turned by the same wheel which supplies the mill with water. This is what may properly be called the paper-mill, although the rooms in which the vats are fixed, together with the drying-rooms, &c. are usually comprised in this appellation. See the preceding article.

PAPIER-MACHE', is a substance made of cuttings of white, or brown, paper, boiled in water, and beaten in a mortar till they are reduced into a kind of paste; and then boiled with a solution of gum arabic, or of size, to give tenacity to the paste, which is afterwards formed into different toys, &c. by pressing it into oiled moulds. When dry, it is covered with a mixture of size and lamp-black, and afterwards varnished.

If this operation be properly performed, the article will be hard, durable, and glossy, and will bear liquors, either hot, or cold. It is of papier maché that the bodies of the most valuable japanned tea-trays, and other articles of a like description, are formed.

PAPER-STAINING is an art very similar to that of calico-printing, and requires similar qualifications. Stained paper pays a duty of excise, the laws respecting which prohibit the clandestine staining of paper, under heavy penalties. This is a most valuable source of commerce, but the French rival us in the art, and by many are thought to excel us.

PAR. When two things, of different denominations, are equal to each other in value, they are then said to be with respect to each other equal, or at par. The public funds are said to be so much above, or below, par, as they exceed, or fall short of, sterling value; thus, when the three per cents. were at 98*l.* they were said to be two per cent. below par, or 100*l.* sterling in value.

Gold and silver are at par with the coin of the country, when the coin melted down will sell for the same that it passed current for in the form of money; the exchange between two countries is said to be at par, when the monies of each pass for their real value in bullion, without any fictitious depression, or value, arising from the plenty, or scarcity, of the one or the other.

PAR OF EXCHANGE. *See* EXCHANGE.

PARA, a measure that the Portuguese use in India for pulse. Its weighs twenty-two pounds Spanish, and is one twenty-fifth of the mourais.

PARADISE, *Bird of.* This bird is of some value, in a commercial point of view, on account of its plumage, with which, of late years, ladies have ornamented their head-dresses.

There are several species of the genus to which the bird of Paradise belongs.

1. The largest bird of Paradise. The description of its plumage is as follows: the head, and back part of the neck, are lemon-coloured, a little black about the eyes; the neck is of the brightest glossy emerald-green, soft like velvet, as is also the breast, which is black; the wings are chesnut-coloured; the back part of the body is covered with long, straight, narrow feathers, of a pale-brown colour, similar to the plumes of the ostrich. On both sides of the belly are two tufts of stiff and short feathers, of a golden yellow, and shining. From the rump proceed two long stiff shafts, which are feathered on their extremities. This species is found in the Aroo islands, and in New Guinea. This is the bird so highly prized in England for ladies' head-dresses.

2. The smaller bird of Paradise. The head and neck are of a dirty yellow, the back of a greyish-yellow, the breast and belly of

a dusky colour, and the wings chesnut. The colours of this bird are less bright than the former, to which in other respects it is pretty similar.

3. The king bird of Paradise. This creature is about seven inches long, and somewhat larger than a titmouse. The crown of the head is flame-coloured, the neck and breast are of a chesnut-colour, with a ring of the brightest emerald-green. Its wings are red and shining, with spots and stripes. Two naked black shafts project from the rump, having at their extremities semi-lunar twisted plumage, of the most glaring green colour above, and dusky below. The belly is white and green sprinkled, and on each side is a tuft of long plumage, feathered with a broad margin, being on one side green and on the other dusky. The back is blood-red and brown, shining on silk. This bird is also an inhabitant of New Guinea.

PARADISE, *Grains of. See* GRAINS OF PARADISE.

PARAGRAPH, in jurisprudence, is a section or division of the text; an article: in common parlance, a short, distinct, integral sentence or passage.

PARAH, an East Indian measure.

PARANTHINE. This stone (so called because its crystals have frequently a dull appearance as if they had effloresced) is found at Arendahl, in Norway. Its prismatic crystals are variously grouped in the iron ore of Langloe, and accompanied with brown mica, quartz, garnet, strahlstein, carbonate of lime, &c.

It exhibits great variety of colour and appearance. Sometimes it is grey and translucid; at others, grey or yellowish, with a pearly lustre; sometimes of a grey colour, and almost a metallic brilliancy; sometimes dull, and of a dead red, like common sealing-wax.

When it is translucid and shining, it is sufficiently hard to scratch glass; but when otherwise it is soft, and even friable. Before the blow-pipe it swells, and fuses into a shining white enamel.

PARAPHERNALIA, are the woman's apparel, jewels, and other things, which, in the life-time of her husband, she wore as the ornaments of her person, to be allowed by the discretion of the court, according to the quality of her and her husband. The husband cannot devise such ornaments and jewels of his wife, though, during his life, he has power to dispose of them. But if she continue in the use of them till his death, she shall afterwards retain them against his executors and administrators, legatees, and all other persons, except creditors, where there is a deficiency of assets. 2 *Bl.* 436.

PARASANG, a Persian measure, of four thousand paces.

PARASOLS, (Ger. *Sonnenschirme.* Du. *Parasols, Zonneschermen.* Da. *Soelhatte.* Sw. *Solskarm.* Fr. *Parasols.* It. *Parasoli, Solecchi.* Sp. *Parasoles.* Port. *Chapeos de sol,*) are portable shades, made in the form of an umbrella, but much smaller in size, and are usually carried by our ladies in order to protect their complexions from the effects of the sun. Parasols are covered with silks of various colours, but the green, brown, purple, and white, are most predominant. The handles of these fashionable articles are generally jointed at top, so that the shade may be inclined, at pleasure, either to the one side, or the other; there is likewise a joint in the middle of the handle, whereby the parasol may be readily reduced to a compact form. Parasols are manufactured, and sold, by those who deal in umbrellas.

PARCEL, is a term indifferently applied to small packages of wares, and to large lots of goods. In this latter sense, 20 hogsheads of sugar or more, if bought at one price, or in a single lot, are denominated "a parcel of sugar."

PARCELS, *Bill of*, a schedule of the items accompanying a parcel.

PARCHMENT, (Ger. *Pergament.* Du. *Perkement.* Da. and Sw. *Pergament.* Fr. *Parchenim.* It. *Cartapecora, Pergamena.* Sp. *Pergamino.* Port. *Pergaminho.* Rus. and Pol. *Pergamin.* Lat. *Pergumena, Membrana,*) the skin of sheep or goats prepared after such a manner, as to render it proper for writing upon, covering books, &c.

The manufacture of parchment is begun by the skinner, and finished by the parchment-maker. The skin having been stripped of its wool, and placed in the lime-pit, the skinner stretches it on a kind of frame, and pares off the flesh with an iron instrument; this done, it is moistened with a rag, and powdered chalk being spread over it. the skinner takes a large pumice-stone, flat at bottom, and rubs over the skin, and thus scours off the flesh; he then goes over it again with the iron instruments, moistens it as before, and rubs it again with the pumice-stone, without any chalk underneath: this smooths and softens the flesh-side very considerably. He then drains it again, by passing over it the iron instrument as before. The flesh-side being thus drained, by scraping off the moisture, he in the same manner passes the iron over the wool or hair-side; then stretches it tight on a frame, and scrapes the flesh-side again; this finishes its draining: and the more it is drained, the whiter it becomes. The skinner now throws on more chalk, sweeping it over with a piece of lamb-skin that has the wool on, and this smooths it still farther. It is now left to dry, and when dried, taken off the frame by cutting it all round. The skin, thus far prepared by the skinner, is taken out of his hands by the parchment-maker, who first, when it is dry, pares it on a summer (which

is a calf-skin stretched in a frame) with a sharper instrument than that used by the skinner, and working with the arm from the top to the bottom of the skin, takes away about one-half of its thickness. The skin thus equally pared on the flesh-side, is again rendered smooth, by being rubbed with the pumice-stone, on a bench covered with a sack stuffed with flocks, which leaves the parchment in a condition fit for writing upon. The parings thus taken off the leather, are used in making glue, size, &c.

What is called vellum, is only parchment made of the skins of abortives, or at least sucking-calves. This has a much finer grain, and is whiter, and smoother, than parchment; but is prepared in the same manner, except in not being passed through the lime-pit.

The parchment made in France is supposed to be superior to that of any other part of Europe, and we not unfrequently import the article from that country. Parchment and vellum are fit for several purposes, such as writing, covering books, &c.

PARDAO, or Pardo Xerafin, a silver money of a base alloy, which the Portuguese stamp in India, current at Goa, and on the coast of Malabar. It is worth nearly three hundred reis, or twenty fanons. There are also one-half, and one-fourth, pardoes, and some say there are likewise double ones. This money is frequently counterfeited by the Indians.

PARDAOS DE REALES, a name given to the Spanish dollars that are current in India. There is a certain value fixed upon them, from which they never lower, but often rise according to the necessity of the times.

PARDOS, a species of silver money current at Mozambique, and along the coast of Africa. It is worth 200 reis.

PAREIRA-BRAVA, (Ger. *Amerikanische Grieswurzel.* Du. *Graveelwortel.* Da. *Amerikansk gruusrod.* Sw. *Grusrot.* Fr. and It. *Pareira-brava.* Sp. *Parreiraebrava, Butua.* Port. and Lat. *Pareira brava.*) a hard, woody, crooked root, of a dark colour on the outside, and marked with various wrinkles, which run longitudinally and circularly. Its internal substance is of a dull yellowish colour, and interwoven with ligneous fibres. This root has no smell, but a little bitterish taste, blended with a sweetness, like that of licorice. Some of the roots are no bigger than a man's finger, others as big as a child's arm. This root is the produce of a species of wild vine, which is found abundantly in many parts of Brazil. Pareira-brava is only used in medicine.

PARERE, a corruption of an Italian word, *mi pare.* It denotes the advice of a merchant when consulted on any point. These pareres obtain in most trading cities, and serve as acts before notaries, when given by authority of a judge-conservator, or at a particular consultation for maintaining the right of the consulter.

PARGASITE, a mineral lately found at the village of Ersley, near Abo, in Finland. It is of a green colour, and is transparent. Its crystals are of various sizes, from an inch downwards. Its form is an octohedron, with a rhomboidal base. It surpasses fluor spar in hardness, but is scratched by quartz; and itself scratches glass. Specific gravity 3.11. It melts before the blow-pipe into a mass of a pearly white lustre. Its chemical constituents are silex, magnesia, lime, alumina, oxides of iron and manganese, fluoric acid, water, and the oxide of a metal at present unknown.

PARGETING, in building, the plastering of walls, and sometimes the plaster itself.

PARIAN MARBLE. In a strict sense, this appellation is only bestowed upon the white marble, which, for centuries past, has been dug in the island of Paros. This is the white marble which the ancients used, and which we to this day use for carving statues, &c. whence it is oftentimes styled statuary marble. Too many of the later writers have confounded all the white marbles under the name of Parian; and the workmen give to this, and all the other white marbles, the common name of alabaster; as if there were no such thing as alabaster different from marble. The true Parian marble has usually somewhat of a faint blueish tinge among the white, and often has blue veins in different parts of it. It is said to resist the action of the chisel more than most other kinds of marble, and, if not cut with care, is apt to fly off in flakes.

PARLIAMENT, *Acts of. See* STATUTES.

PAROLE, or, as it usually written now, *Parol*, a term signifying any thing done verbally, or by word of mouth, in contradistinction to what is written; thus some agreements may be by parole; but the 29 Car. 2. c. 3. requires that "all agreements and contracts, where there is no payment, tender, or delivery, for the sale of goods above the value of 10*l.* shall be in writing, and not by parole." 2 *Black. Com.* 448. Evidence also may be divided into parole, and written. Parole evidence is that by which most cases are tried in courts of common law, and especially in mercantile transactions; for, even in actions on bills, bonds, policies, &c. the written record must generally be supported, identified, or explained by parole testimony. Written evidence is that which principally prevails in courts of equity. 3 *Black. Com.* 368. 1 *Dick. Pract. Expos.* 436.

PARTIAL LOSS, implies a damage which a ship may have sustained in the course of her voyage, from any of the perils

mentioned in the policy of insurance. When applied to the cargo, it means the damage which goods may have received, without any fault of the master, by storm, capture, stranding, or shipwreck; although the whole, or the greater part thereof, may arrive in port. These partial losses fall upon the owners of the property so damaged, who must be indemnified by the underwriter. But the underwriters of London expressly declare, as appears from a memorandum at the foot of the policy, that they will not answer for partial losses, not amounting to three per cent. This clause was intended to prevent the underwriters from being continually harassed by trifling demands. But at the same time that they provide against trifling claims for partial losses, they undertake to indemnify against losses, however inconsiderable, that arise from a general average. When we speak of the underwriters being liable to pay, whether for total, or partial, losses, it must always be understood, that they are liable only in proportion to the sums which they have underwritten. Thus if a man underwrites 100*l.* upon property valued at 500*l.* and a total loss happen, he shall be answerable for 100*l.* and no more, that being the amount of his subscription; if only a partial loss, amounting to 60*l.* or 70*l.* per cent. upon the whole value, he shall pay 60*l.* or 70*l.* being his proportion of the loss. The general rules as to a partial loss, and its consequences, were first settled in the case of *Lewis* v. *Rucker*, (2 *Burr.* 1167. *et seq.*) whence much information is to be drawn; but the whole of the law on this part of the subject is more intricate and perplexed than on any other question of insurance. In a case of more recent date, (*Johnson* v. *Shedden*, 2 *East.* 581.) it was held that the rule by which to calculate a partial loss on a policy on goods, by reason of sea-damage, is, the difference between the respective gross proceeds of the same goods when sound, and when damaged, and not the *net* proceeds; it being settled that the underwriter is not to bear any loss from fluctuation of market, or port duties, or charges after the arrival of the goods at their port of destination.

When goods are partially damaged, the underwriter must pay the owner such proportion of the *prime cost* or value, in the policy, (or if no value is stated in the policy, then of the invoice price, with all charges and premiums of insurance,) as corresponds to the proportion of diminution in value occasioned by the damage. Where an entire thing, as one hogshead of sugar, happens to be spoiled, if you can fix whether it be a third, or fourth, worse, then the damage is ascertained; but this can only be done at the port of delivery, where the whole damage is known, and the voyage is completed (2 *Burr.* 1167.); whether the price of the commodity be high, or low, it equally ascertains the proportion of damage, though no regard is to be paid to the rise, or fall, of the markets, as to the sum to be paid by the insurer, which is in either case to be regulated only by the prime cost, or invoice price. Nor is regard to be paid to the difference of exchange. (*Thelluson* v. *Bewick*, 3 *Espinasse*, p. 77.)

Where the property is of various kinds an account is to be taken of the value of the whole, and the proportion of that as the amount of the goods lost. *Park*, 111.

The underwriters of London will not be liable for losses arising from the *inherent corruption* of *perishable* articles, nor for any partial loss happening to corn, fish, salt, fruit, flour, or seed. If any policy do not contain a memorandum to this effect, and that any partial loss happen to a perishable commodity, the underwriter *is* liable. *See title* INSURANCE.

PARTNER, is a merchant or tradesman who embarks with another in mutual traffic, of which he shares the profit in such proportion, as is agreed upon by articles entered into between them.

The act of one partner in behalf of the concern, is the act of both, and they are generally bound by it; but in case of a process at law, both parties must be served with copies, or arrested, before the plaintiff can proceed to judgment, unless an outlawry be obtained against the absent partners. It would be for the benefit of trade, if persons entering into co-partnership were obliged to declare, by an advertisement in the public gazettes, the names of those concerned. A debt to a company is not cancelled by the private debts of the partner; and when a partner becomes insolvent, the company is not bound for his debt beyond the extent of his share; the debts of the company are preferable on the company's effects, to the private debts of the partners. The smallest share in a business subjects the share-holder to the same responsibility, as if it were a large one; but a share in a ship, in building a house, or any specific object, does not constitute a general partnership, any farther than in that object; the degree of possible responsibility in such case is therefore limited, and not dangerous. An agent who is paid by a proportion of the profits of an adventure, does not thereby become a partner in the goods. 5 *Taunt.* 74.

Navigable canals, insurance companies, mines, and a variety of other undertakings, are divided into shares by virtue either of special or general acts of parliament, principally for the purpose of exempting the share-holders from any responsibility as partners in the enterprise; in which cases, the sum actually subscribed, or expended, is the measure of the greatest possible loss.

Partnership is generally dissolved by the

death of a partner; yet when there are more partners than two, it may, by agreement, subsist among the survivors: sometimes it is stipulated, that, in case of the death of a partner, his place shall be supplied by his son, or some other person agreed on. The contract ought to specify the time, and manner, in which the surviving partners shall account with the executors of the deceased for his share of the stock, and a reasonable time should be allowed for that purpose.

When a partnership is dissolved, there are often outstanding debts that cannot be recovered for some time, and also effects that cannot, with facility, be disposed of; the partnership, though dissolved in other respects, will still, therefore, subsist for the management of their outstanding affairs; and the money, when recovered, is divided among the partners, or their representatives.

If a partner withdraw, he continues responsible for his former partners, till it be publicly known that he have done so: it is usual and advisable, not only to advertise a dissolution of a co-partnership in the Gazette, but also in some of the public papers; and likewise to give notice to every correspondent, by letter, otherwise the firm will not be exonerated from their responsibility.

If, on an execution against one of two partners, the partnership goods be taken and sold; the sheriff is to pay over to the other a share of the produce, proportioned to his share in the partnership effects.

If there are several joint partners, and a person has dealings generally with one of them in matters concerning their joint trade, whereby a debt becomes due to the said person, it shall charge them jointly and the survivors of them: but if the person only dealt with one of the partners upon a separate account, in that case the debt shall only affect that partner and his executors. If one, or more, of the joint traders become bankrupt, his, or their, proportions are only assignable by the commissioners, to be held in common with the rest who are not bankrupts. If one of two partners become a bankrupt, the commissioners cannot meddle with the interest of the other, for it is not affected with the bankruptcy of his companion.

One of two partners drew bills in his own name, which he procured to be discounted with a banker, through the medium of the same agent who procured the discount of other bills drawn in the partnership firm with the same banker. The latter had no remedy against the partnership, though the proceeds were carried to the partnership account, the money being advanced solely on the security of the partners, whose names were on the bills, *by way of discount*, and not by way of loan to the partnership, and even though at the time the banker imagined the bills were drawn on the partnership account. *Emly v. Lye. 15 East. R. 7.*

Articles of Co-partnership for carrying on a Joint Trade.

Articles of agreement, indented, &c. between —— of ——— of the one part, and ——— of —— of the other part, Witnesseth, that the said ——— and —— have joined, and by these presents do join themselves to be co-partners together, in the art or trade of ——, and all things thereto belonging; and also in buying, selling, and vending, of all sorts of goods, wares, merchandizes, and commodities, belonging to the said trade of ———, which said co-partnership is to continue from the day of the date hereof, for and during, and unto the full end and term of ——— years from thence next ensuing, and fully to be complete and ended; and to that end and purpose, he, the said ——, hath, on the day of the date of these presents, delivered in, as a stock, the sum of ———, and the said ——— the sum of ———, to be used, laid out, and employed, in common between them, for the management of the said trade of ———, to their utmost benefit and advantage: and it is agreed, between the said parties to these presents, and the said co-partners, each for himself respectively, and for his own particular part, and for his executors and administrators, doth severally, and not jointly, covenant, promise, and agree to, and with the other partner, his executors and administrators, by these presents, in manner and form following; that is to say, that they, the said co-partners, shall nor will, at any time hereafter, use, exercise, or follow the trade of —— aforesaid, or any other trade whatsoever, during the said term, to their private benefit or advantage; but shall and will, from time to time, and at all times during the said term, if they shall so long live, do their and each of their best endeavours, in and by all means possible, to the utmost of their skill and ability, for their joint interest, profit, benefit, and advantage; and truly employ, buy, sell, and merchandise, with the stock aforesaid, and the increase thereof, in the trade of ——— aforesaid, without any sinister intentions, or fraudulent endeavours whatsoever: and also, that they, the said co-partners, shall, and will, from time to time, and at all times hereafter, during the said term, pay, bear, and discharge, equally between them, the rent of the warehouses which they, the said co-partners, shall rent or hire for the joint exercising or managing the trade aforesaid, and all other charges and expenses whatsoever attending the said joint trade and co-partnership: and that all such gain, profit, and increase, that shall come, grow, or arise, for, or by reason

of the said joint trade and co-partnership as aforesaid, shall be, from time to time, during the said term, equally and proportionably divided between them, the said co-partners, share and share alike; and also that all such loss that shall happen to the said joint trade, by bad debts, ill commodities, or otherwise, without fraud or collusion, shall be paid and borne equally and proportionably between them: and further, it is agreed by and between the said co-partners, parties to these presents, that there shall be had and kept, from time to time, and at all times during the said term and co-partnership, perfect, just, and true books of account, wherein each of the said co-partners shall duly enter and set down, as well all such sum and sums of money by them received, paid, expended, and laid out, in and about the management of the said trade, as also, all goods, wares, merchandise, and commodities, by them, or either of them, bought and sold, by reason or means, or upon account of the said co-partnership, and all other matters and things whatsoever, relating to the said joint trade, and the management thereof, in any wise belonging or appertaining; which said books shall be used in common between the said co-partners, so that either of them may have free access thereto, without any interruption of the other; and also, that they, the said co-partners, once in three months, or oftener, if need shall require, upon the reasonable request of either of them, shall make, yield, and render, each to the other, or to the executors of each other, a true, just, and perfect account, of all profits and increase, by them, or either of them, made, and of all losses by them, or either of them, sustained; and also, of all payments, receipts, disbursements, and all other things whatsoever, by them made, received, disbursed, acted, done, or suffered, in their said co-partnership and joint trade as aforesaid; and after the same account, so made, shall, and will, clear, adjust, pay, and deliver, each unto the other, at the time of making such account, his equal share of the profits so made as aforesaid; and at the end of the term of ——— years, or other sooner determination of these presents (be it by the death of one of the said co-partners or otherwise), they, the said co-partners, each to the other, or in case of the death of either of them, the surviving party, to the executors or administrators of the party deceased, shall and will make a true, just, and final account of all things, as aforesaid, and divide the profits aforesaid, and in all things well and truly adjust the same; and upon the making of such final account, all and every the stock and stocks, as well the gains and increase thereof, which shall appear to be remaining, whether consisting of money, goods, wares, merchandise, commodities, or debts, shall be equally divided between the said co-partners, their executors, or administrators, share and share alike. In witness, &c. &c.

Memorandum between two Persons who agree to enter into Co-partnership.

Memorandum of an agreement made the —— day of ——, in the year of our Lord, ——, between —— of —— of the one part, and ——— of ——— of the other part, as follows, viz. the said ——, in consideration of the sum of —— of lawful money of Great Britain, to him in hand paid by the said ——, the receipt and payment whereof the said —— doth hereby acknowledge, doth hereby assign unto him the said ——, one half of all the goods merchandise, chattels, stock, and utensils in trade, belonging to the said ——, and situate in the warehouse and accounting house of the said ——, as is more fully mentioned in the inventory of the same, hereunto annexed (book debts, and printed books excepted); and the said —— further agrees, that the said ——, for the considerations aforesaid, shall be entitled to one-half of the profits arising from the trade or business of ——, to be carried on by the said ——, share and share alike; and the said —— agrees to pay one equal share of the expenses and loss with the said ——, that shall arise in carrying on the said trade or business of ——, making the partnership to commence on the day of the date hereof; and so to continue, until the term of ——— years is fully complete and ended; and it is further agreed, that the said —— shall not pay, or be liable to pay, any debt or debts contracted by the said —— before the day of the date hereof; neither shall the said —— be entitled to receive any debt or debts that shall be due to the said ——, before the date hereof; and further, the said parties do mutually agree, that in case either of the said parties shall die before the expiration of the said term of —— years, the executors, administrators, or assigns, of the party deceased, shall grant one calendar year to the surviving party, to settle and adjust all matters relating to the said partnership. In witness, &c.

PARTNERSHIP, is when two or more persons unite in trade, and agree to participate in the profits and losses, according to their respective shares in the capital. To constitute a partnership, a *communion* of profit and loss between the parties is essential; and this is the true criterion by which to judge when the question is, whether persons are to be considered as partners, or not. *Coope* v. *Eyre*, 1 *H. B.* 43. 48.

But in some respects an individual partner, or a particular partnership, consisting of two or more such persons as are partners in some large concern, may be considered as third persons in transactions in which the general partnership may happen to be engaged with a correspondent. 1 *B. & P* 546.

PARTNERSHIP, in an arithmetical sense, is a general rule by which merchants, &c. trading in company with a joint stock, are enabled to ascertain each person's particular share of the gain, or loss, in proportion to his share in the stock. This rule divides itself into two parts, viz. 1. Partnership without regard to time; and, 2. Partnership with time.

Partnership without Time.

RULE. As the whole stock is to the whole gain, or loss; so is each man's share in the stock, to his share of the gain, or loss.

EXAMPLE. Two merchants embark in business; the one puts in as capital 5550*l.* and the other 3420*l.* and they gain in the first year 1260*l.* what is each man's share?

£5550
3420
———
8970 Joint stock.

8970*l.* : 1260*l.* : : 5550*l.* : 779*l.* 12*s.* nearly; of course the profits of the other are 1260*l.* —779*l.* 12*s.* = 480*l.* 8*s.*

Partnership with Time.

RULE. As the sum of the product of each man's money and time, is to the whole gain or loss, so is each man's product to the share of the gain and loss.

EXAMPLE. Two persons lay out 1500*l.* in trade, in the proportion of 3 to 2: *i. e.* A. put in 900*l.* and B. 600*l.* A. leaves his money in the concern for 9 months, and B. does not want his for 12 months: what profits belong to each, supposing they gain 250*l.*?

£900 × 9 = 8100
600 × 12 = 7200
———
15300

15300 : 250 : : 8100
250
———
15300)2025000(133

Answer.	A's share of profit,	133
	B's, - - -	117
		£250

PART-OWNERS, are those that are concerned in ship-matters, and who have joint shares therein. And when there are part-owners of a ship, the majority may fit her out, without the consent of the rest; and if they do, such majority run all hazards, and are to partake of the profits. *Show.* 13. 30.

Action lies as well against the part-owners of a ship for the loss or spoiling of goods delivered to the master, as against the master; for, as the master of the ship is chargeable in respect of his wages, so are the part-owners in respect of the freight; but the action against the part-owners must be brought against all of them, or the defendants may take advantage of it by pleading in abatement, &c. *See* OWNERS OF SHIPS.

PARTY-WALLS are partitions of brick or stone, made between contiguous buildings, for preventing the spreading of fires. These are prescribed by 14 Geo. 3. c. 78., with divers other regulations respecting houses in the metropolis, too multifarious to be even abstracted or epitomized here.

Tenant of a house covenanted in his lease "to pay a reasonable proportion of supporting all party-walls, &c., and to pay all taxes, &c., it being the intention that the landlord should receive a *clear yearly rent of* 60*l.* in net money without deduction. During the lease the proprietor of the adjoining house built a party-wall between that house and the demised house. Held that the tenant, and not the landlord, was bound to pay a moiety of the expenses. *Barrett v. Duke of Bedford,* 8 *T. R.* 602.

If two persons have a party-wall, one-half the thickness of which stands on the land of each, they are not therefore tenants in common of the wall, or of the land on which it stands, and although the wall was erected at their joint expense. *Matts v. Hawkins,* 5 *Taunt.* 20.

PASS. *See* PASSPORT.

PASS HEMP, (GER. *Passhanf.* DU. *Passhennip.* DA. *Pass-hamp.* SW. *Passhampa.* FR. *Chanvre pass, Reparon.* IT. *Canape di terze sorte.* SP. *Canamo de tercera sorte.* PORT. *Linho canhamo da terceira sorte.* RUS. *Polowka,*) is hemp thrice carded, and prepared for the fabrication of cloth. *See* HEMP.

PASSENGERS. Almost numberless are the statutes which protect, and regulate the numbers and treatment of, passengers on board British ships to all parts of the world. *See title* SHIPPING, *and* TRADE. Those which most directly bear upon the subject are 43 Geo. 3. c. 56.—53 Geo. 3. c. 56. —56 Geo. 3. c. 83. and 114.—57 Geo. 3. c. 10. —58 Geo. 3. c. 59.— and 58 Geo. 3. c. 89.

PASSPORT or PASS, a licence or writing obtained from a prince or governor, granting permission, and a safe conduct, to pass through his territories without molestation: it is also a permission granted by any state to navigate in some particular sea, and contains the name of the vessel, and that of the master, together with her tonnage and the number of her crew, certifying that she belongs to the subjects of a particular state, and requiring all persons at peace with that state, to suffer her to proceed on her voyage without interruption. *See* MEDITERRANEAN PASS.

This term is also used for a licence granted by a prince, for the importation, or exportation, of merchandise, moveables, &c. without paying the duties. Merchants procure such passports for certain kinds of commodities. Passport is also

ed for the importing, or exporting, of merchandise deemed contraband, and declared such by tariffs, &c. as gold, silver, precious stones, ammunition, horses, corn, wool, &c. upon payment of the duties.

PASTE, a cement composed of wheat-flour and water, boiled till it be of a reasonable consistence; used for joining papers together, for putting up paper-hangings, and for various other purposes.

PASTE, a composition in imitation of diamonds, which is made in the following manner: Take of fine white sand, six pounds; of red lead, four pounds; of pearl-ashes purified, three pounds; of nitre, two pounds; of arsenic, five ounces; and of manganese, one scruple. Powder and fuse them. By means of the calces of metals, various colours may be communicated, so as to imitate rubies, sapphires, emeralds, and every other species of precious stones.

PASTEBOARD, (Ger. *Pappe, Pappdeckel.* Du. *Bordpapier.* Da. *Pappapir.* Sw. *Bottenpapper.* Fr. *Carton.* It. *Cartone.* Sp. *Carton.* Port. *Papelão.* Rus. *Listü bumashnia.* Pol. *Tektura,*) a kind of thick paper, formed of several sheets pasted together, and pressed. There is also a coarser kind of pasteboard, made of old paper, &c. reduced to a pulp in a trough, in the same manner as paper, to which a little paste is added, to give the mass some consistence: after which it is formed in a mould, and reduced to its proper thickness by pressing.

PASTEL, or PASTIL, (*Pastels,* Ger. *Pastellfarben.* Du. *Pastelverwen.* Da. *Pastelfarver.* Sw. *Pastellfärgor.* Fr. *Crayons en pastel.* It. *Pastelli, Paste da dipingere.* Sp. *Pasteles, Pasta de colores.* Port. *Pasteis,*) a paste made of several colours, ground up in gum water, either together or separately, in order to make crayons. *See* CRAYONS.

PASTIL is likewise a sort of dry composition, of a fragrant smell, when burnt, to scent the air. They are composed of odorous resins, mixed with aromatic woods, or drugs pulverized, and incorporated with mucilage of gum tragacanth. It also denotes troches or lozenges.

PATACOON, a Spanish coin worth four shillings and eight-pence English.

PATENT. The conditions, on which a patent is granted for any new invention, are, that such invention be *original;* and *never before executed in this country:* that it be beneficial to the public, and that the patentee give in, within three months from the date of obtaining the patent, such a specification or description of the original invention, that other persons conversant with the subject may put it in practice at the expiration of the term for which the patent is granted.

When a patent is solicited, the petition is submitted to his majesty's attorney, or solicitor-general, the assent of one of whom is necessary; but this is so seldom refused, that obtaining it may generally be regarded as a matter of course: the law respecting patents being so constituted, that if one should be obtained improperly, no public damage will ensue, neither can any individual be wrongfully injured thereby.

Patents are for fourteen years, and the expense of obtaining them is from 100*l.* to 110*l.*; the patentee is allowed the exclusive privilege of preparing and vending the object for which such patent has been obtained; but this privilege, although exclusive, is nevertheless conditional; for if any person can adduce evidence that the same was in use before, the condition is not complied with, and the patent is void.

As the patent may either be for the invention of a new object, or for a new method of preparing or manufacturing one already known, the specification should be made accordingly; and if any person discover another method of producing the same subject, or find any substitute without employing the means described in the specification, he is free to exercise such invention, notwithstanding any former grant; and if he obtain a patent for the same, it will be equally good, and the first patent can extend to nothing beyond what is included and expressed in the specification.

Great care should be taken, in drawing up the specification, to make it comprehend all the various methods which human ingenuity can devise for executing what is intended to be secured, as from want of a due attention to this, many disappointments, ruinous in their consequences, have ensued.

The term of a patent may be extended by an act of parliament, on the ground, that the nature of the invention is such, as not to reimburse, and properly reward, the inventor during the usual period of fourteen years.

If a patentee find that any one has infringed upon his privilege, he may, by making an affidavit to that purpose, obtain an injunction to stop the invader, or to give security to pay damages, in case the encroachment on his patent be found to be unfair: in this case, the matter is referred to a jury, and able chemists, mechanics, or other persons conversant in the subjects, are called upon to give their opinion; witnesses are examined also as to the originality of the invention, and the jury decides according to what appears to them to be the merits of the case. There have been of late years many very important trials of this nature, in some of which the patents have been set aside, and in others the injunction confirmed; in which latter case, damages are awarded, according to the circumstances.

An invention having been practised in another country, does not prevent a patent from remaining in force, although the importation of an invention to this kingdom does not, according to the strict letter, institute the patentee, such not being his original invention, but the spirit of the law is

complied with, and according to this, the courts of justice have decided; for as the privilege is given for fourteen years to reward a person for introducing a beneficial object, and the public receives the same benefit, whether it is an importation, or an invention, the patent is good: for it has been decided not to be a reward of merit, but a privilege granted, in order to enable the person, who renders a service to the public, to reap the benefit attached to a business which he has been the means of introducing into the country.

PATTEN, a shoe of wood, with an iron ring underneath; worn by women to keep them from the dirt.

Patten-makers shall not make pattens of asp, 4 Hen. 5. c. 3. May use such asp as is not fit for shafts. 4 Edw. 4. c. 9.

PATTERNS are specimens or samples of various commodities, which are either transmitted by manufacturers to their correspondents, or carried from town to town by travellers, in search of orders. Patterns, if not exceeding one ounce weight, shall be charged by the post only as single letters; provided they be sent under cover, open at the sides, and without any letter or writing, except the name of the person sending the same, the place of his abode, and the price of the article or articles.

PAU, a long measure, used at Loango de Boaire, and in some other places on the coast of Angola in Africa. There are three sorts of paus at Loango. That of the king and his favourite prime ministers, that of his princes and captains, and that of individuals. The first is twenty-eight inches, the second twenty-four, and the third sixteen inches and a half, in length.

PAUT, the Indian flax.

PAWLE, in a ship, a small piece of iron bolted to one end of the beams of the deck, close to the capstan; but yet so easily, as that it can turn about. Its use is to stop the capstan from turning back, by being made to catch hold of the whelps; they, therefore, say, "heave a pawle;" that is, heave a little more, for the pawle to get hold of the whelps; and this they call "*pawling the capstan.*"

PAWN, a pledge lodged for the security of the payment of a sum of money borrowed. As the party who pawns the goods has a general property therein, they cannot be forfeited by the person that has them in pawn, for any offence of his; neither can they be taken in execution for his debt; on the other hand, where goods are repawned for money, if after judgment is obtained against the pawner for debt, the goods in the pawner's hands are not liable to execution, until such time as the money lent is paid to the pawner. He that borrows money on a pawn, is to have again the pledge, when he repays the same, or he may bring an action for detaining it; and his very tender of the money revests the special property in him. Likewise, it has been held, that where a broker refuses, on tendering the money, to redeliver the goods, he thereupon shall be indicted. But a summary remedy is now given by statute, by complaint to a justice of the peace. (See the next article.) In case goods were pawned for lent money, and no day fixed for their redemption, they were redeemable at any time, during the pawner's life: but where redeemable on a certain day, it must be strictly observed, or upon failure of payment the goods might be sold, as well before the statute, as since.

PAWNBROKER, is a person who advances money upon pledges, for which he is allowed interest after the rate of 25 per cent. The rates of interest established, and the substance of the law for the regulation of pawnbrokers, are now as follow: by 39 & 40 Geo. 3. c. 99.

£	s.	d.		£	s.	d.	
0	2	6	-	0	0	0½	per month,
0	5	0	-	0	0	1	
0	7	6	-	0	0	1½	
0	10	0	-	0	0	2	
0	12	6	-	0	0	2½	
0	15	0	-	0	0	3	
0	17	6	-	0	0	3½	
1	0	0	-	0	0	4	
2	0	0	and not exceeding				
2	2	0	-	0	0	8	

And for every sum exceeding 40*s.* and not exceeding 10*l.* at the rate of three-pence in the pound, by the calendar month, including the current month; and so in proportion for any fractional sum.

Pawnbrokers are to give farthings in exchange.

Persons applying to redeem goods pawned within seven days after the first calendar month, after the same shall have been pledged, may redeem the same without paying any thing for the first seven days; and, upon applying before the expiration of fourteen days of the second calendar month, shall be at liberty to redeem such goods, upon paying the profit payable for one calendar month, and the half of another; and in all cases where the parties so entitled, and applying as aforesaid, after the expiration of the first fourteen days, and before the expiration of the second month, the pawnbroker is allowed to take the interest of the whole second month; and the same regulations and restrictions shall take place in every subsequent month.

When goods are pawned for more than 5*s.* the pawnbroker, before advancing the money, shall immediately enter in his books a description of the pawn, the money lent thereon, the day of the month and year, the name of the person pawning, and the name of the street, and number of the house, if numbered, where such person resides, and

use the letter L, if the person be a lodger, and the letters H. K, if a housekeeper; and also the name and abode of the owner of the party offering such pledge; and if the money lent shall not exceed 5*s*. such entry shall be made within four hours after the goods shall have been pawned; and the pawnbroker shall, at the time of taking the pawn, give to the person so pawning a duplicate, corresponding with the entry in the book, which the party pawning shall take in all cases; and the pawnbroker shall not receive any pledge, unless the party so pawning shall receive such duplicate.

Rates payable for Duplicates.

	£.	s.	d.
If under 5*s*. - -	0	0	0
5*s*. and under 10*s*.	0	0	0½
10*s*. and under 20*s*.	0	0	1
20*s*. and under 5*l*.	0	0	2
And upwards -	0	0	4

The duplicate to be produced to the pawnbroker before he shall be compelled to redeliver the respective goods and chattels, except as hereinafter excepted.

The amount of profits on duplicates shall be added on pledges redeemed, and such duplicate shall be kept by the pawnbroker for one year.

Persons pawning other people's goods without their consent, may be apprehended by the warrant of one justice, and convicted in a penalty not exceeding 5*l*. nor less than 20*s*. and the full value of the goods pawned; and if the forfeiture be not immediately paid, the justice shall commit the party to the house of correction, to be kept to hard labour for three calendar months; and if within three days before the expiration of the commitment the forfeiture shall not be paid, the justice may order the person to be publicly whipped, and the forfeitures shall be applied towards making satisfaction to the party injured, and defraying the costs: but if the party injured shall decline to accept such satisfaction and costs, or if there be any overplus, such forfeitures or overplus shall be paid to the poor of the parish.

Persons forging or counterfeiting duplicates may be seized and delivered to a constable, who shall convey them before a justice, and, upon conviction, such persons shall be committed to the house of correction for any time not exceeding three calendar months.

Persons offering pledges, not giving a satisfactory account of themselves, or the means by which they became possessed of such goods, or wilfully giving any false information, or if there shall be reason to suspect that such goods are stolen, or illegally obtained, or if any person not entitled to redeem goods in pawn shall endeavour to redeem the same, they may be seized and delivered to a constable, to be carried before a justice; and if there should appear ground for a second examination, they shall be committed to the common gaol or house of correction, to be dealt with according to law; or where such proceedings are not authorized by the nature of the offence, the party shall be committed for any time not exceeding three calendar months.

Persons buying or taking in pledge unfinished goods, linen, or apparel, intrusted to others to wash or mend, shall forfeit double the sum lent, and restore the goods.

Peace-officers are empowered to search for unfinished goods which shall be come by unlawfully.

When goods are unlawfully pawned, the pawnbroker is to restore them; and their houses may be searched during the hours of business, by a warrant from a magistrate, for the discovery of such property.

Persons producing notes or memorandums are to be deemed the owners of the property.

Where duplicates are lost, the pawnbroker, upon affidavit made by the owner of such loss, before a magistrate, shall deliver another duplicate.

Goods pawned are deemed forfeited at the end of a year; but, on notice from persons having goods in pledge, three months further are to be allowed beyond the year for redemption.

An account of sales is to be entered by pawnbrokers in a book, and the overplus is to be paid to the owner of the goods pawned.

No pawnbroker shall purchase goods while in his custody, and no pledge shall be taken from persons under twelve years of age, or who shall be intoxicated.

Pawnbrokers are to place in view the table of profits; and their name and business is to be placed over the door, on penalty of 10*l*.

Pawnbrokers injuring goods, or selling them before the time limited, upon application to a magistrate, shall be compelled to make satisfaction for the same; and if the satisfaction awarded shall be equal to, or exceed, the principal and profit, the pawnbroker shall deliver the goods pledged to the owner, without being paid any thing for principal or profit.

Pawnbrokers shall produce their books before a magistrate; or, refusing so to do, shall forfeit a sum not exceeding 10*l*. nor less than 5*l*.

Pawnbrokers offending against this act, shall forfeit for every offence not less than 40*s*. nor more than 10*l*.

PAY, in the sea language. The seamen say, "Pay more cable," when they mean to let out more cable.

PAYEE, the person to whom a bill is made payable; and also the person entitled to receive payment of any sum of money.

PAYER, he who binds himself to the

payment of bills, bond, or any sum of money, either verbally or by writing.

PAYING, among seamen. When the seams of a ship are laid over with a coat of hot pitch, it is called paying her; and when this is done with canvas, parcelling; also when, after she is graved, and the soil burned off, a new coat of tallow and soap, or one of train-oil, rosin, and brimstone boiled together, is put on her, that is also called paying of a ship.

PAYMENT, is the consideration or purchase-money for goods, and may be made by the buyer giving to the seller the price agreed upon, either by bill or note, or by money. Where a day certain is appointed for payment, the party bound shall be allowed till the last moment of the day to pay it in, if it is an inland bill. 4 *T. R.* 173.

Payment of money before the day, is, in law, payment at the day; for it cannot, in presumption of law, be any prejudice to him to whom the payment is made, to have his money before the time; and it appears by the party's receipt of it, that it is for his own advantage to receive it then. 5 *Co.* 117.

Payment of money shall be directed in its appropriation by the party paying it, and not by the receiver.

A note drawn on A to pay money for value received, is a good discharge of a debt, though the note be not paid, unless the creditor return the note in a convenient time.

If A give B a bill of exchange upon C in payment of a former debt, this will be no evidence in an action unless paid; for no bill shall ever go in discharge of a precedent debt, unless it were part of the contract that it should do so.

When a merchant draws his bill upon a correspondent, who accepts it, this is payment, for it makes him debtor to another person, who may bring his action.

If a bill or note be paid under any misapprehension of facts, or the law arising from such facts, which the party making such payment was under no legal obligation to discharge, such money may be recovered back, in an action for money had and received to the use of the plaintiff.

PAYMENT, *prompt*, means immediate payment, for which, in this country at least, in transactions of magnitude, a discount is generally allowed of one per cent.

PEAK, or Peek, in the sea language, is a word used in various senses. Thus the anchor is said to be a-peak, when the ship, being about to weigh, comes over her stern in such a manner that the cable hangs perpendicularly between the hawse and the anchor. To heave a-peak, is to bring the peak so that the anchor may hang a-peak. A ship is said to ride a-peak, when lying with her main and fore-yards hoisted up, one end of her yards is brought down to the shrouds, and the other raised up on end; which is chiefly done when she lies in rivers, lest other ships falling foul of the yards should break them. Riding a broad peak, denotes much the same, excepting that the yards are only raised to half the height. Peak is also used for a room in the hold, extending from the bits forward to the stem; in this room men of war keep their powder, and merchantmen their victuals.

PEARL-ASHES, (Ger. *Perlasche.* Du. *Paereläsch.* Sw. *Perlaska.* Da. *Perleske.* Fr. *Perleasse, Cendres de perle.* It. *Cenere di perla.* Sp. *Cenizas de perlas.* Port. *Canza de perolis,*) a kind of fixed alkaline salt. It is prepared by mixing the ashes of burnt wood with water, evaporating the clear ley, and calcining them for a considerable time in an oven moderately hot. The goodness of pearl-ashes is distinguished by their strong body, and an uniform white appearance: and their value decreases in proportion, as they assume a blue cast. This article being subject to an adulteration, by the addition of common salt, the fraud can be discovered, by taking a small quantity of the suspected matter, and letting it lie to soften in the air, and then putting it in a shovel over the fire; if it contains any common salt, a crackling, and kind of slight explosion, will take place, as soon as the salt grows hot.

Pearl-ashes are chiefly prepared in Russia, Poland, Hungary, and North America; they are much used in the manufacture of glass, as also for bleaching, &c.

A patent, dated 2d April, 1791, was obtained for producing from wood ashes a much greater quantity than usual of pearl and pot-ashes. The process recommended was that of sifting a small proportion of lime among the wood-ashes, before they are put in the calcining furnace, which will prevent them from vitrifying; but if they are at times stirred with an iron rake, or other proper instrument, during the process of calcination, that will answer the purpose of the lime; and when the ashes are calcined into a fine powder, the usual method may be pursued, but it is better to boil them in large vessels, especially in frosty weather.

PEARL BARLEY, (Ger. *Gerstengraupen, Perlgraupen.* Du. *Gepereldegarst, Peldegarst.* Da. *Bangebyg, Perlegryn.* Sw. *Perlgryn, Helgryn.* Fr. *Orge perlé, Orge monde.* It. *Orzo perlato o pilato, Orzo brillato o tedesco.* Sp. *Cebada perlada, Cebada mondada.* Port. *Cevada perlada, Cevada mondada.* Rus. *Krupa, Krupa perlowaga.* Pol. *Krupy, Krupki, Pertowe krupki.* Lat. *Hordeum excoricatum,*) likewise called *Peeled* and *French Barley,* is nothing more than the common barley freed of the husk by a mill, and reduced to the size of small shot, all but the very heart of the grain being ground away. It is used in the composition of diet drinks, being considered of a cooling, and lubricating, nature.

PEARLS, (Ger. *Perlen.* Du. *Paarlen.*

Da. *Perler.* Sw. *Pärlor.* Fr. *Perles.* It. *Perle.* Sp. *Perlas.* Port. *Perolas.* Rus. *Shemtschug, Perlii.* Pol. *Perly.* Lat. *Margaritæ,*) hard, white, shining bodies, usually roundish, found in various kinds of testaceous fishes.

Pearls, though esteemed of the number of gems by our jewellers, and highly valued, not only at this time, but in all ages, are conjectured to proceed only from a distemper in the creature that produces them, analogous to the bezoars, and other stony concretions in several animals of other kinds.

The fish, in which the largest and finest pearls are usually produced, is the East Indian pearl-oyster, as it is commonly called. Besides this shell there are many others that are found to produce pearls; as the common oyster, the muscle, and several others, the pearls of which are often very good; but those of the true Indian berberi or pearl-oyster, are in general superior to all. The small or *seed pearls,* also called ounce-pearls, from their being sold by the ounce, and not by tale, are the most numerous and common; but as they increase in size, they are proportionably less frequent, and become of higher price. We have Scotch pearls frequently as large as a little tare, some as big as a large pea, and some few of the size of a horse-bean; but these are usually of a bad shape, and of little value in proportion to their weight. The finest, and what is called the true shape of the pearl, is a perfect round; but if pearls of a considerable size are of the shape of a pear, as is not unfrequently the case, they are not less valued, as they serve for ear-rings and other ornaments. Their colour ought to be a pure white; and that not dead and lifeless, but clear and brilliant: they must be perfectly free from any foulness, spot, or stain; and their surfaces must be naturally smooth and glossy, for they bring their natural polish with them, which art is not able to improve.

All pearls are formed of the matter of the shell, and consist of a number of coats spread with perfect regularity one over another, in the manner of the several coats of an onion, or like the several strata of the stones found in the bladders, or stomachs, of animals, only much thinner.

In the East Indies, there are two seasons for pearl-fishing; the first is in March and April, and the last in August and September; and the more rain there falls in the year, the more plentiful are these fisheries. At the beginning of the season there are sometimes 250 barks on the banks: the larger barks have two divers, and the smaller one. As soon as barks arrive at the place where the fish lie, and have cast anchor, each diver binds a stone, six inches thick, and a foot long, under his body, which serves him as ballast, prevents his being driven away by the motion of the water, and enables him to walk more steadily under the waves. They also tie another very heavy stone to one foot, by which they are very speedily sent to the bottom of the sea: and as the oysters are usually firmly fastened to the rocks, they arm their hands with leather mittens, to prevent their being wounded in pulling them violently off; but this task some perform with an iron rake. In the last place, each diver carries down with him a large net, in the manner of a sack, tied to his neck by a long cord, the other end of which is fastened to the side of the bark. This net is to hold the oysters gathered from the rock; and the cord is to pull up the diver when his bag is full, or when he wants air. In this equipage he sometimes precipitates himself sixty feet under water; and as he has no time to lose, he no sooner arrives at the bottom, than he begins to run from side to side, tearing up all the oysters, he meets with, and cramming them into his net.

At whatever depth the divers are, the light is so great, that they easily see whatever passes in the sea; and to their great consternation, sometimes perceive monstrous fishes, from which all their address in muddying the water, &c. will not save them, but they unhappily become their prey: and of all the dangers of the fishery, this is one of the greatest, and most usual. The best divers will keep under water near half an hour, and the rest do not stay less than a quarter. During this time they hold their breath, without the use of oils or any other liquors, only acquiring the habit by long practice. When they find themselves straitened, they pull the rope to which the bag is fastened, and hold fast by it with both hands; when those in the bark, taking the signal, heave them up into the air, and unload them of their fish, which vary from five hundred oysters, to fifty. Some of the divers need a moment's respite to recover breath; others jump in again instantly, continuing this violent exercise, without intermission, for several hours.

On the shore they unload their barks, and lay their oysters in an infinite number of little pits dug in the sand four, or five, feet square, raising heaps of sand over them to the height of a man; and in this condition they are left till the rain, wind, and sun, have obliged them to open, which soon kills them; upon this the flesh rots and dries; and the pearls, thus disengaged, fall into the pit on their taking out the shells. After clearing the pits of the grosser filth, they sift the sand several times, in order to find the pearl; but, whatever care they take, they always lose a great many. After cleaning and drying the pearls, they are passed through a kind of sieve, according to their sizes. The smallest are then sold as seed pearls, and the rest put up to auction, and sold to the highest bidder.

Pearls are generally divided into oriental, and occidental, more from their qualities, than their place of produce, the oriental being, as we before observed, reckoned the best. The principal oriental pearl-fisheries are in the Persian Gulf, and on the coasts of Persia and Arabia; near the islands of Ceylon, Java, Manaar, Sumatra, and Borneo; on some of the coasts of Japan; between Banana and Cochin; off Cape Comorin, and in other parts along the Malabar coast, particularly at Tutticorin, where there is an excellent pearl-bank in possession of the Dutch. The most remarkable pearl fisheries of America are in the Gulf of Mexico, along the coast of New Spain; of St. Margarite, or the Pearl Island; in the Rio de la Hacha, at the islands of St. Martha, Quibo, Gorgonia, &c. In Europe, pearls are found occasionally on the coasts of Scotland, Livonia, Courland, in the rivers of Bohemia, and Bavaria, in certain lakes near Augsberg, and in some other places.

There are pearls of various colours, of an exquisite silver-like brightness, semi-transparent, opaque, opal-coloured, yellow, greenish, blueish, greyish, reddish, brownish, blackish, and rainbow-coloured. One of the largest pearls hitherto known is described by Tavernier, in the possession of the king of Persia. It was bought by him at the fishery of Catifa in Arabia, for the sum of 32,000 tomans, or above 110,000*l.* It is in the shape of a pear, very regular, and without fault. The diameter measured on the engraving in Tavernier's Travels, is 0.63 English inch, at the largest part, and the length 1.3 inch. Another pearl, belonging to the Great Mogul, and perfectly round, mentioned by the same author as the largest in the world of that figure, measured 0.62 English inch in diameter. It has been said there is one in the English crown, worth 10,000*l.* sterling. A pearl, called from its figure the sleeping lion, that weighed five hundred and seventy-eight carats, was offered for sale at Petersburgh in 1779 by a Dutchman. On one side which was flattish it was beautifully striped. It was bought in India for 4500*l.*

The weight of pearls is estimated in Europe by carats, in Persia by abases, and in Golconda and Visapour by ratis, each abas and rati being one eighth part less than a carat. The weight of small pearls is expeditiously ascertained, by a brass instrument with holes of different sizes; so that the weight of a pearl is known from the hole it fits. Small irregular pearls are valued from the number that make up an ounce. Neumann gives the following rates: if a hundred make an ounce, they are valued at one hundred rix-dollars; if the number be less, the price is greater; if the number be greater, the price is less. Two hundred to the ounce cost but seventy rix-dollars; three hundred, fifty; nine hundred, ten; two thousand, three; four thousand, two and a half. Of the very small sort, called seed pearls, an ounce usually contains eight or ten thousand, and costs, if the pearls be of the oriental kind, two rix dollars; if occidental, one rix dollar and twelve gros.

Attempts have been made to take out stains from pearls, and to render the foul opaque-coloured pearls equal in beauty to the oriental. Abundance of processes, not to be depended on, are found in books of receipts and travels. Pearls may be cleaned from external foulness by washing with a little Venice soap and warm water, or ground rice and salt, with starch and powder blue, with plaister of Paris, with white coral, with sulphat of zinc and tartar, with cuttle bone, pumice-stone, and other similar substances. But it is not practicable to take out a stain which reaches deep into the substance of the pearl. Nor can a number of small pearls be united, as some pretend, into a mass similar to an entire natural one.

Successful attempts have nevertheless been made to form artificial compositions, greatly resembling natural pearls. Reaumur has given a paper on this subject, in the Memoirs of the French Academy for 1716. The ingredient for giving the colour is a fine, silver-like substance, found upon the underside of the scales of several fish. The scales, taken off in the usual manner, are washed and rubbed in several clean waters, and the liquors allowed to settle. The water being then poured off, the pearly matter remains at the bottom, of the consistence of oil, called by the French *essence d'orient.* A little of this is dropped into a hollow bead of blueish glass, and shaken about so as to line the internal surface; after which, the cavity is filled with wax, to give solidity and weight. By this and other contrivances the pearl is now imitated with great success.

It is said, that the appearance of pearls changes in time.

Aleppo is the staple place of East Indian pearls; and thence they are transported to Leghorn, and circulated through Europe.

PEARL, *Mother of.* *See* MOTHER OF PEARL.

PEARL-SEED, or SEED PEARL, (GER. *Perlsaamen, Saamenperlen.* DU. *Paarlzaad, Paerelgruis.* DA. *Perlsæd.* SW. *Pärlfrö, Pärlgrus.* FR. *Semence de perle.* IT. *Seme di perle.* SP. *Aljofar, Rostrillo.* PORT. *Aljofar, Aljofre,*) the smallest kind of pearls. *See* PEARLS.

PEASE, (GER. *Erbsen.* DU. *Erwten.* DA. *Ærter.* SW. *Arter.* FR. *Pois.* IT. *Piselli, Bisi, Erbione.* SP. *Pesoles, Guisantes.* PORT. *Hervilhas, Ervilhas.* RUS. *Goroch.* POL. *Groch.* LAT. *Pisa,*) a kind of pulse, almost universally known; they are of several sorts, as white, yellow, green, and grey. They are also divided into boiling, and hog, pease. The former kind is

proper for the nourishment of man, and particularly serviceable as sea-provision. Vast quantities of yellow split pease are exported from this country to Ireland, where they are employed as an article of food, being made into soup; and it is well known, that when wheat is at a high price, great quantities of white pease are ground down with that grain, and sold for wheat flour, especially in the metropolis. It does very well for bread, but will not make pastry good.

PEBBLE, *Scotch*, a beautiful species of pebble, whose cast is generally blueish, occasionally marked with broad transverse lines, of a purplish, reddish, or brownish hue, and not unfrequently with all these colours. It is extremely hard, and is employed by lapidaries in the formation of seals. It is principally brought from Montrose and Arbroath, on the east coast of Scotland, though specimens of it are sometimes to be met with in different parts of England.

PECK, a dry measure for grain, pulse, and the like. The standard or Winchester peck contains two gallons, each gallon weighing eight pounds troy; four pecks make a bushel, four bushels a coomb or carnock. The peck measures 537.6 solid inches. There are also local pecks, containing some more, some less; for instance, the Lancaster peck contains six gallons, &c.

PECKA, or Pessa, or, as it is written by some, Peyses, is a small copper money, current in many places of India, especially in the maritime provinces, and more particularly in the kingdom of Guzurate. Twenty-six peckas make one mamoudi, and fifty-four a rupee, so that the pecka is worth 2*d*. In those parts of India where certain small shells are current, fifty or sixty of them are given for the pecka; and where the Caramania almonds pass for small money, forty or forty-four of them.

PEDALS, those stops in an organ which govern the large pipes of the instrument, and are managed with the *foot;* whence the designation pedals, from the Latin *pedales*.

PEDERERO, or Pateraro, a small cannon managed by a swivel. This species of ordnance was formerly much in use among the Spaniards.

PEDLAR, an itinerant dealer in small wares. *See* HAWKER.

PEDOMETER, from the *Latin*, or Podometer, as it is sometimes called, from the *Greek*, is a mechanical instrument, in form of a watch, consisting of various wheels and teeth, which, by means of a chain or string, fastened to a man's foot, or to the wheel of a chariot, advance a notch each step, or each revolution of the wheel, by which it numbers the paces or revolutions, and so the distance from one place to another.

PEEL, a broad thin board, with a long handle, used by bakers to put their bread in and out of the oven.

PEKOE, a species of Bohea tea, known by the small white flowers that are mixed with it. *See* TEA.

PELICAN, in chemistry, a kind of double glass vessel, used in distilling liquors by circulation; it consists of a cucurbit, and an alembic head, with two tubes bending into the cucurbit again.

PELTMONGER, a dealer in hides and skins. *See* FURRIER, and FELL-MONGER.

PEN, (Ger. *Schreibfedern*. Du. *Pennen*. Da. *Penne*. Sw. *Pennor*. Fr. *Plumes à écrire*. It. *Penne da scrivere*. Sp. *Plumas ò canones para escribir*. Port. *Pennas ou canos para escrever*. Rus. *Pera Stwoli*. Pol. *Piora, Pipy, Pipki,*) an instrument for writing, derived from the Latin word *penna*, signifying a feather; and generally, indeed, they are made of the *quills* of swans, geese, ravens, and other birds. But there are also, in imitation of these, pens made of gold, silver, and steel. Of these gold are the best, for the silver are of too soft and malleable a texture to wear well, and the steel not only cut the paper, by their excessive hardness, but are subject to rust. We have a great importation of quills from Hamburgh. The Dutch quills are passed through hot ashes, to take off the fat and gross particles, and render them transparent. The best of these, generally called *crow quills*, are, in fact, the wing-feathers of ravens, and come principally from Russia. Pens have much declined in quality of late years, supposed to arise from the long interruption to the trade of Hamburgh, having exhausted the stock of old quills, and compelled the use of those which have not been dried and hardened by age.

PENALTY, a forfeiture inflicted for disobedience to the regulations of certain acts of parliament, or for the commission of particular crimes. A penalty also is usually annexed to secure payment of money, the performance of certain covenants in a deed, articles of co-partnership, &c. &c. &c.

According to the first-mentioned of these constructions, it is generally a punishment inflicted for *the commission of some public offence*; and to be imposed after the verdict of a jury, or the conviction of a magistrate, under the specific provisions of the statute annexing the penalty. In the latter, it is generally the pecuniary forfeiture for the *omission of some private obligation*, and is to be recovered by some ordinary process of law or equity, which it is not within our limits, or our purpose, to distinguish, or describe.

PENGUIN, a fruit very common in the West Indies, of a sharp, acid flavour.

PENCILS, *Camels'-hair*, (Ger. *Pinsel*. Du. *Pinseelen*. Da. *Pensler*. Sw. *Penslar*. Fr. *Pinceaux*. It. *Pennelli*. Sp. *Pinceles*. Port. *Pinceis*. Rus. *Kisrii, Kistki*. Pol. *Pezle,*) those small brushes composed of a

little wooden handle, to which is affixed a piece of quill, furnished at one end with a tuft of camels' hair, or the fur of some other animal. Although all the pencils used in painting in water-colours are called camels'-hair pencils, it rarely happens that the valuable hair of the camel is employed in their formation, that of the mole, &c. being generally used as a substitute. To choose drawing pencils, moisten them a little, and if they come to a point without splitting, they are good. The brushes used by the Chinese, made of a white hair fitted up in reeds, are very excellent for drawing, being much superior, for landscapes, and many other purposes, to our camels'-hair pencils, as they are more elastic. They are not common at London, but they may sometimes be met with.

PENCILS, *Black-lead*, (Ger. *Bleyfedern.* Fr. *Crayons noirs en bois.* It. *Piombini in tocco, Matite piombine o nere.* Sp. *Plumas de lapiz, Plomadas.* Pol. *Olowki,*) are made of a mineral substance called plumbago, or black-lead, which is carburet of iron. They are of various qualities, the best are without any grit, not too soft, and that cut easily without breaking. An inferior kind is made by forming a composition of the dust of black-lead with gum or glue, which is fitted into sticks in the same manner as the best: these are always gritty, but are sufficient for the work in which they are employed, being used principally by joiners, &c. to mark their work with. *See* BLACK-LEAD PENCILS.

PENCILS, *Red-lead*, (Ger. *Rothelstifte, Rothe bleyfedern.* Du. *Roodkrytpennen.* Da. *Rödkridpenne.* Sw. *Rödkritspennor.* Fr. *Crayons rouges.* It. *Matite rosse.* Sp. *Lapis colorado.* Port. *Lapis vermelho.* Rus. *Krasnie karandaschii,*) are made of minium, or red lead, in the same manner as the inferior kind of black-lead pencils are. They are used in drawing, to sketch outlines, and in crayon-painting as a red colour. *See* MINIUM.

PENDANT. *See* EAR-RING.

PENDANTS of a ship, those streamers or long colours, which are split or divided into two parts, ending in points, and hung at the heads of masts, or at the yard-arm ends.

PENDULUM, in mechanics, any heavy body, so suspended as that it may swing backwards and forwards, about some fixed point, by the force of gravity.

These alternate ascents and descents of the pendulum, are called its oscillations, or vibrations; each complete oscillation being the descent from the highest point on one side, down to the lowest point of the arch, and so on, up to the highest point on the other side. The point round which the pendulum moves, or vibrates, is called its centre of motion, or point of suspension; and a right line drawn through the centre of motion, parallel to the horizon, and perpendicular to the plane in which the pendulum moves, is called the axis of oscillation. There is also a certain point within every pendulum, into which, if all the matter that cosmpose the pendulum were collected, or condensed as into a point, the times in which the vibrations would be performed, would not be altered by such condensation; and this point is called the centre of oscillation. The length of the pendulum is usually estimated by the distance of this point below the centre of motion; being always near the bottom of the pendulum; but in a cylinder, or any other uniform prism or rod, it is at the distance of one-third from the bottom, or two-thirds from and below the centre of motion.

The length of a pendulum, so measured to its centre of oscillation, that it will perform each vibration in a second of time, thence called the second's pendulum, has, in the latitude of London, been generally taken at $39\frac{2}{10}$ or $39\frac{1}{5}$ inches; but by some very ingenious and accurate experiments, the late celebrated Mr. George Graham found the true length to be $39\frac{128}{1000}$ inches, or $39\frac{1}{8}$ inches very nearly.

The length of the pendulum vibrating seconds at Paris, was found by Varin, Des Hays, De Glos, and Godin to be $440\frac{5}{6}$ lines; by Picard $440\frac{1}{2}$ lines; and by Mairan $440\frac{17}{30}$ lines.

PENDULUM, *Simple*, in mechanics, an expression commonly used among artists to distinguish such pendulums as have no provision for correcting the effects of heat and cold, from those that have such provision. Also simple pendulum, and detached pendulum, are terms sometimes used to denote such pendulums as are not connected with any clock, or clockwork.

PENDULUM, *Compound*, in mechanics, is a pendulum whose rod is composed of two or more wires or bars of metal. These, by undergoing different degrees of expansion, and contraction, when exposed to the same heat, or cold, have the difference of expansion, or contraction, made to act in such a manner as to preserve constantly the same distance between the point of expansion, and centre of oscillation, though exposed to very different, and various, degrees of heat, or cold. There are a great variety of constructions for this purpose.

It may be just observed by the way, that the vulgar method of remedying the inconvenience arising from the extension, and contraction, of the rods of common pendulums, is by supplying the bob, or small ball, with a screw at the lower end; by which means the pendulum is at any time made longer, or shorter, as the ball is screwed downwards, or upwards, and thus the time of its vibration is regulated.

The gridiron pendulum was the invention of Mr. John Harrison, a very ingenious

artist, and celebrated for his invention of the watch for finding the difference of longitude at sea, about the year 1725, and of several other timekeepers and watches since that time; for all which he received the parliamentary reward of between 20,000 and 30,000 pounds. It consists of five rods of steel, and four of brass, placed in alternate order, the middle rod being of steel, by which the pendulum-ball is suspended; these rods of brass, and steel, thus placed, are so connected with each other at their ends, that while the expansion of the steel rods has a tendency to lengthen the pendulum, the expansion of the brass rods, acting upwards, tends to shorten it. And thus, when the length of the brass, and steel, rods is duly proportioned, their expansions, and contractions, will exactly balance and correct each other, and so preserve the pendulum invariably of the same length. The simplicity of this ingenious contrivance is in its favour; but the difficulty of adjustment seems an objection.

Mr. Harrison, in his first machine for measuring time at sea, applied this combination of wires of brass and steel, to prevent any alterations by heat or cold; and in the machines or clocks he has made for this purpose, a like method of guarding against the irregularities arising from this cause, is used.

The mercurial pendulum was the invention of Mr. Graham, in consequence of several experiments relating to the materials of which pendulums might be formed, in 1715. Its rod is made of brass, and branched towards its lower end, so as to embrace a cylindric glass vessel 13 or 14 inches long, and about two inches diameter; which being filled about twelve inches deep with mercury, forms the weight or ball of the pendulum. If, upon trial, the expansion of the rod is found too great for that of the mercury, more mercury must be poured into the vessel; if the expansion of the mercury exceeds that of the rod, so as to occasion the clock to go fast with heat, some mercury must be taken out of the vessel, so as to shorten the column. And thus may the expansion and contraction of the quicksilver in the glass be made exactly to balance the expansion, and contraction, of the pendulum-rod, so as to preserve the distance of the centre of oscillation from the point of suspension invariably the same.

Mr. Graham made a clock of this sort, and compared it with one of the best of the common sort, for three years together; when he found the errors of his own but about one-eighth part of those of the latter.

Mr. John Ellicott also, in the year 1738, constructed a pendulum on the same principle, but differing from Mr. Graham's in many particulars. The rod of Mr. Ellicott's pendulum was composed of two bars only; the one of brass, and the other of steel. It had two levers, each sustaining its half of the ball or weight; with a spring under the lower part of the ball to relieve the levers from a considerable part of its weight, and so to render their motion more smooth and easy. The one lever in Mr. Graham's construction was above the ball; whereas both the levers in Mr. Ellicott's were within the ball, and each lever had an adjusting screw, to lengthen or shorten the lever, so as to render the adjustment the more perfect.

Notwithstanding the great ingenuity displayed by these very eminent artists on this construction, it must farther be observed, in the history of improvements of this nature, that Mr. Cumming, another eminent artist, has given, in his Essays on the Principles of Clock and Watch Work, an ample description, with plates, of a construction of a pendulum with levers, intended to unite the properties of Mr. Graham's and Mr. Ellicott's, without being liable to any of the defects of either. The rod of this pendulum is composed of one flat bar of brass, and two of steel; he uses three levers within the ball of the pendulum; and, among many other ingenious contrivances for the more accurate adjusting of this pendulum to mean time, it is provided with a small ball and screw, below the principal ball or weight, one entire revolution of which on its screw will only alter the rate of the clock's going one second per day; and its circumference is divided into 30, one of which divisions will therefore alter its rate of going one second in a month.

In 1790, a projected improvement on Graham's mercurial pendulum was offered by Mr. Edward Troughton.

In 1794, Dr. Fordyce produced an improvement, under the description of "Compensation of the simple pendulum."

In 1804, Troughton invented a *tubular* pendulum composed of different metals.

In 1806, Mr. Henry Ward's compensation pendulum obtained a reward from the Society of Arts.

In 1809, Mr. Adam Reid's compensation pendulum obtained a similar encouragement from the same society.

In 1811, Mr. Thomas Doughty's compensation pendulum was produced.

In 1812, Mr. David Ritchie presented a new compensation pendulum to the Society of Arts, from which body he also received a reward for his ingenuity.

And, more recently, Mr. Hardy has brought forward a new compensation pendulum, which promises to unite all the merits of those before invented, without their defects, inconveniences, or irregularities. Besides these, which, it will be observed, do so much credit to the talents of our countrymen, various other inventions for similar purposes have been produced by foreigners, which our limits (already exceeded) forbid us further to notice.

PENDULUM-CLOCK is a clock having its motion regulated by the vibration of a pendulum.

It is controverted between Galileo, and Huygens, which of the two first applied the pendulum to a clock.

After Huygens had discovered that the vibration made in arcs of a cycloid, however unequal they might be in extent, were all equal in time; he soon perceived that a pendulum applied to a clock, so as to make it describe arcs of a cycloid, would rectify the otherwise unavoidable irregularities of the motion of the clock; since, though the several causes of those irregularities should occasion the pendulum to make greater or smaller vibrations, yet, by virtue of the cycloid, it would still make them perfectly equal in point of time: and the motion of the clock governed by it, would therefore be preserved perfectly equable. But the difficulty was, how to make the pendulum describe arcs of a cycloid; for naturally the pendulum, being tied to a fixed point, can only describe circular arcs about it.

Here Mr. Huygens contrived to fix the iron rod or wire which bears the ball or weight at the top, to a silken thread, placed between two cycloidal cheeks, or two little arcs of a cycloid, made of metal. Hence the motion of vibration, applying successively from one of those arcs to the other, the thread, which is extremely flexible, easily assumes the figure of them, and by that means causes the ball or weight at the bottom to describe a just cycloidal arc.

This is doubtless one of the most ingenious and useful inventions many ages have produced: by means of which, it has been asserted, there have been clocks that would not vary a single second in several days; and the same invention also gave rise to the whole doctrine of involute, and evolute, curves, with the radius and degree of curvature, &c.

It is true, the pendulum is still liable to its irregularities, how minute soever they may be. The silken thread by which it was suspended, shortens in moist weather, and lengthens in dry; by which means the length of the whole pendulum, and consequently the times of the vibrations, are somewhat varied.

To obviate this inconvenience, M. de la Hire, instead of a silken thread, used a little fine spring; which was not indeed subject to shorten and lengthen from those causes; yet he found it grew stiffer in cold weather, and then made its vibrations faster than in warm: to which also we may add its expansion, and contraction, by heat, and cold. He therefore had recourse to a stiff wire or rod, firm from one end to the other. Indeed, by this substitute he renounced the advantages of the cycloid; but he found, as he says, by experience, that the vibrations in circular arcs are performed in times as equal, provided they are not of too great extent, as those in cycloids. But the experiments of Sir Jonas Moore, and others, have demonstrated the contrary.

The ordinary causes of the irregularities of pendulums, Dr. Derham ascribes to the alterations in the gravity and temperature of the air, which increase, and diminish, the weight of the ball, and by those means make the vibrations greater, and less: an accession of weight in the ball being found by experiment to accelerate the motion of the pendulum; for a weight of six pounds added to the ball, Dr. Derham found, made his clock gain thirteen seconds every day.

A general remedy against the inconveniences of pendulums, is to make them long, the ball heavy, and to vibrate but in small arcs. These are the usual means employed in England; the cycloidal cheeks being generally neglected.

Pendulum-clocks resting against the same rail have been found to influence each other's motion. *See the Philos. Trans. Numb.* 453, *sects. 5, and 6, where Mr. Ellicott has given a curious and exact account of this phenomenon.*

PENDULUM, *Royal*, a name given to a clock, whose pendulum swings seconds, and goes eight days without winding up; showing the hour, minute, and second.

PENKNIVES, (Ger. *Federmesser*. Du. *Pennemessen*. Da. *Penneknive*. Sw. *Penknifvar*. Fr. *Canifs, Canivets*. It. *Temperini*. Sp. *Corta plumas*. Port. *Canivetes*. Rus. *Perotchinnoi noshkai*. Pol. *Szczyzorki*,) small knives, too well known to need any particular description, used in making and mending pens. Those penknives which are made from the blades of old razors are accounted the best. The most excellent and the most highly-ornamented penknives are manufactured at London and Sheffield.

PENNANTS. *See* PENDANTS.

PENNINGEN, a copper money of the Netherlands, value $\frac{9}{160}$*d.* sterling. Also a Dutch money of account, equivalent to $5\frac{21}{320}$*l.* sterling.

PENNY, formerly a silver, but now a copper, coin.

The penny was the first silver coin struck in England by our Saxon ancestors, being the 240th part of their pound, and its true weight was about $22\frac{1}{2}$ grains troy.

PENNYWEIGHT, a troy weight, being the twentieth part of an ounce, containing 24 grains; each grain supposed to weigh a grain of wheat gathered out of the middle of the ear, well dried. The name took its rise from its being actually the weight of one of our ancient silver pennies.

PEPPER, (Ger. *Pfeffer*. Du. *Peper*. Da. *Peber*. Sw. *Peppar*. Fr. *Poivre*. It. *Pepe, Pevere*. Sp. *Pimienta*. Port. *Pimenta*. Rus. *Perez*. Pol. *Pieprz*. Lat. *Piper*,) an aromatic berry, of a hot, dry quality, chiefly used in seasoning articles of

food. There are three kinds of pepper at present used in the shops, viz. the black, the white, and the long pepper. The black pepper is the fruit of the *piper scriboa*. This is a shrub whose root is small, fibrous, and flexible; it rises into a stem, which requires a tree, or prop, to support it. Its wood has the same sort of knots as the vine; and when it is dry, it exactly resembles the vine-branch. The leaves, which have a strong smell, and a pungent taste, are of an oval shape; but they diminish towards the extremity, and terminate in a point. From the flower-buds, which are white, and are sometimes placed in the middle, and sometimes at the extremity of the branches, are produced small berries, resembling those of the currant. Each of these contains between twenty and thirty corns of pepper; they are commonly gathered in October, and exposed to the sun seven or eight days. The fruit, which was green at first, and afterwards red, when stripped of its covering, assumes the appearance it has when we see it. The largest, heaviest, and least shrivelled is the best. The pepper-plant flourishes in the islands of Java, Sumatra, and Ceylon, and more particularly on the Malabar coast. It is not sown, but planted; and great nicety is required in the choice of the shoots. It produces no fruit till the end of three years; but bears so plentifully the three succeeding years, that some plants yield between six and seven pounds of pepper. The bark then begins to shrink: and the shrub declines so fast, that in twelve years time it ceases bearing.

The common *white pepper* is mostly factitious, being prepared from the black in the following manner: they steep this in sea-water, exposed to the heat of the sun several days, till the rind or outer bark loosens; they then take it out, and when it is half dry, rub it till the rind falls off; then they dry the white fruit, and the remains of the rind blow off like chaff. A great deal of the heat of the pepper is taken off by this process, so that the white kind is more fit for many purposes, than the black. There is, however, a sort of native white pepper produced on a species of the same plant, which is much better than the factitious. The *long pepper* is a dried fruit, of an inch or an inch and a half long, and about the thickness of a large goose-quill: it is of a brownish-grey colour, cylindrical in figure, and said to be produced on a plant of the same genus, as that which yields the black pepper.

The *piper amalgo*, or black pepper, and the *piper inequale*, or long pepper of Jamaica, are indigenous. The whole plant of the former has the exact taste of the East India black pepper; the fruit of the latter is similar to the East India long pepper.

The people of the East Indies esteem pepper a stomachic, and drink a strong infusion of it in water, by way of creating an appetite. They have also a method of making a fiery spirit of fermented fresh pepper, with water, which they use for the same purposes. To preserve both the long, and black, pepper, the fruit may be slightly scalded when green, then dried, and wrapped in paper. Pepper that is sold ground, is very apt to be sophisticated; the black with burnt crusts of bread, &c. and the white with pounded rice.

The black pepper of the East Indies contains an essential oil, which has a strong and durable smell, and a taste the mildest of all essential oils. This oil is partly elevated in distillation by alcohol, which thereby acquires the flavour, but none of the pungency of the pepper. The spirituous extract is excessively fiery. The watery extract is also very hot and biting. Neither this menstruum, nor the spirit, can, singly, extract all the hot matter of the pepper.

On distilling the tincture, the alcohol comes over colourless; but toward the end, the liquor in the retort becomes muddy, and deposits a greenish matter, which may be observed likewise trickling down the sides of the receiver like oil. This is the substance to which pepper is indebted for its taste and smell, and in its properties it is analogous to the volatile oils.

Pepper likewise contains a peculiar extractive matter, which seems to reside in the outer coat; and a species of starch. The outer coat has the flavour, but little of the heat, of pepper.

Pepper is always imported in bags, and London is the grand staple of the commodity.

PEPPER, *Guinea*, the red pod of the *capsicum annuum*. A species of it, called in the West India islands bird-pepper, is the basis of the powder used by the name of *Cayenne pepper*. *See* CAYAN.

PEPPER, *Jamaica*. *See* PIMENTO.

PERAMBULATOR, in surveying, an instrument for measuring distances, called also pedometer and surveying wheel. *See* PEDOMETER.

PERCENTAGE is a word generally used to signify an allowance of a certain sum on every hundred pounds, for the labour of receiving money. It is commission money, reduced to a specific sum.

PERCH, in land-measuring, a rod or pole of 16½ feet in length, of which 40 in length, and 4 in breadth, make an acre of ground. But by the customs of several counties there are differences in this measure. In Staffordshire it is 24 feet; and in the forest of Sherwood 25 feet, the foot being there 18 inches long; and in Herefordshire a perch of ditching is 21 feet, the perch of walling 16½ feet, and a pole of denshiered ground is 12 feet, &c.

PERFUME is a fragrant odour, operating directly upon the olfactory nerve, or sense of smelling. Perfumes are divided

into natural, and artificial. The preparation and preservation of the former, and the composition of the latter, with the admixture and adhibition of both, form the business and profession of the perfumer. The natural perfumes in use, are chiefly musk, ambergris, civet, cedar-wood, cloves, cinnamon, and some other spices. The artificial are generally produced by the distillation of certain odoriferous plants, as rose, lavender, orange-flowers, jasmine, thyme, &c. &c.; which are again varied by the infusion of portions of the natural perfumes. The French are supposed to excel us particularly in the composition and delicacy of their perfumes. They form no inconsiderable source of traffic.

PERILS OF THE SEA. It may, in general, be said that every thing happening to a ship, in the course of her voyage, by the immediate act of God, without the intervention of human agency, is a peril of the sea. Thus every accident happening by the violence of the winds and waves, by thunder or lightning, by driving against rocks, by the stranding of the ship, or by any other violence which human prudence could not foresee, nor human strength resist, may be considered as a loss within the meaning of a policy of insurance, and the assurer must answer for all damages sustained in consequence of such accident. But if a ship be driven by stress of weather on an enemy's coast, and is there captured, it is a loss by capture, and not by perils of the sea. *Green* v. *Elmsley, Peake*, 212.

In order to charge the underwriter for a loss by perils of the sea, the ship must be equipped with every thing necessary for the voyage; she must be sea-worthy, have a sufficient crew, and a captain and pilot of competent skill. And, therefore, when a ship homeward-bound from Stettin to London, received on board a pilot from Orfordness, but dropped him at half-way reach, in the river Thames, before she had reached her moorings higher up in the river, and an accident afterwards happening, by which the ship was lost, the underwriter on the ship and cargo was holden discharged from his liability, on account of there not being any pilot on board at that time, although it did not appear, that the loss was directly imputable to the want of skill in those that navigated her. *Law* v. *Hollingsworth*, 7 *Term Rep.* 160.

In the case of *Rohl* v. *Parr*, the ship had been destroyed by a species of worms which infest the rivers of Africa; and an intelligent merchant swore, that he had known many instances of this species of loss, but that the underwriters had invariably refused to pay. Lord Kenyon and the jury, upon this evidence, decided, that this was *not* a loss by *perils of the sea*. Sittings of Hilary, 1796.

And even in an action on a policy, in which there was a warranty against captures and seizures, (the ship never having been heard of after sailing) it was insisted for the defendant, that as captures and seizures were excepted, it lay upon the plaintiff to prove, that the loss happened in the particular manner stated. Lord Chief Justice Lee said, it would be unreasonable to expect certain evidence of such a loss, where every body on board is presumed to be drowned, and all that can be required is, the best proof the nature of the case admits of, which the plaintiff has given. The jury found a verdict for the plaintiff. *Green* v. *Brown*, 2 *Stra.* 1199.

A ship was insured for three months, and three days *before* the expiration of the time, she received her death-wound, but was kept afloat by pumping till three days *after*; the underwriter was held discharged. *Mentony* v. *Dunlop*, 1 *T. R.* 260.

If a ship, hove down on a beach within the tide-way to repair, be thereby bilged and damaged, it is not a loss occasioned by the perils of the sea. *Thompson* v. *Whitmore*, 3 *Taunt.* 227.

But a loss occasioned by another ship running down the ship insured, through gross negligence, is a loss by peril of the sea. *Smith* v. *Scott*, 4 *Taunt.* 126.

A practice prevails amongst assurers, that the ship shall be deemed lost, if not heard of in six months after her departure, (or after the time of the last intelligence from her,) for any port in Europe, and in twelve months, if for a greater distance. If, under this usage, the assurer should pay the money, supposing the ship lost, when it really is not, he may recover it back by action.

PERJURY, is a wilful false oath by a person, who being lawfully required to depose the truth in any judicial proceeding, swears absolutely in any manner material to the point in issue.

To constitute the offence of perjury, the false oath must be wilful, or with some degree of deliberation; but it is not material whether the fact be true, or false, where the person swearing knows nothing about it.

No oath taken before persons acting merely in a private capacity, or before those who take upon themselves to administer oaths of a public nature without legal authority, or before those who are legally authorised to administer some kind of oaths, can amount to perjury.

It is further necessary that the oath be taken in some judicial proceeding, as well as material to the point in issue.

The punishment of perjury is, by statute, six months imprisonment, perpetual infamy, and a fine of 20*l.*, or, not paying the same, to have both ears nailed to the pillory; but the prosecution is generally carried on at the common law by indictment at the assizes, or in the court of king's bench; as by this mode, exclusive of the penalties attached by the statute, the offender may be

committed to the house of correction, or transported for seven years. 9 Geo. 2. c. 18.

PERMIT, a license from the excise, for persons to remove exciseable articles, denoting that the duties have been paid. *See* EXCISE.

PERNAMBUCCO - WOOD. *See* BRASIL-WOOD.

PERPETUITY, in annuities, the number of years' purchase to be given for an annuity which is to continue for ever. It is found by dividing 100*l.* by the rate of interest, and, consequently is, at the most usual rates, as follows:

at 3 per cent.	33,3333
3½	28,5714
4	25,0000
4½	22,2222
5	20,0000
6	16,6666
7	14,2857

These are the number of years' purchase to be given for a perpetual annuity, on the supposition that it is receivable yearly: but as annuities are much more commonly received half-yearly, and the interest of money is likewise usually paid half-yearly, the perpetuity, under these circumstances, will be greater or less than the above, as the periods at which the annuity is payable, are more, or less, frequent than those, at which the rate of interest is payable. Example at 4 per cent. interest.

Interest payable.	Annuity Yearly.	Payable Half-yearly.
Yearly	25,000,000	25,247,548
Half-yearly	24,752,475	25,000,000
Quarterly	24,628,109	24,875,621

PERRY, a beverage made from pears, in the same manner as cyder is from apples. *See* CYDER.

PERSIAN, the name of a thin, inferior kind of silken stuff, which is principally employed in lining the garments of females.

PERSIAN - WHEEL, an engine or wheel, turned by a rivulet, or other stream of water, and fitted with open boxes at its cogs, to raise water for the overflowing of lands, or other purposes. It may be made of any size, according to the height the water is to be raised to, and the strength of the stream by which it is turned. This wheel is placed so that its bottom only is immersed in the stream, wherein the open boxes at its cogs are all filled one after another with water, which is raised with them to the upper part of the wheel's circuit, and then naturally empties itself into a trough which carries it to the land.

PERSONAL, being joined with the substantives, things, goods, or chattels, as things personal, goods personal, chattels personal, signifies any moveable thing belonging to a man, be it quick or dead.

PERSONATE, is the representing a person by a fictitious or assumed character, so as to pass for the person represented. Personating bail, in a recognizance before a magistrate, is a misdemeanor indictable at common law, and punishable by fine and imprisonment; in a court of justice it is made by stat. 21 Jac. 1. c. 26. a capital felony. By various other statutes, personating seamen entitled to wages, prize-money, &c. is also a capital felony.

PERU BALSAM. (Ger. *Peruanischer Balsam.* Fr. *Beaume de Perou.* It. and Sp. *Balsamo del Peru.* Port. *Balsamo Peruviano.* Lat. *Balsamus Peruvianus* seu *Indicus.*) *See* BALSAM.

PERUVIAN-BARK. *See* CHINA and JESUITS' BARK.

PETALITE, a mineral which is mentioned by Dandrada, and is but little known. It is of a reddish colour, of a laminated fracture; fragile, but sufficiently hard to scratch glass. It is found at Uton, Salha, and Fingrufan, near Niakoparberg in Sweden.

PETARD, a piece of ordnance made of metal in the shape of a truncated cone, used for breaking down gates, bridges, barriers, &c.

PETITION. No petition to the king, or to either house of parliament, for any alteration in church or state, shall be signed by above twenty persons, unless the matter thereof is approved by three justices of the peace, or the major part of the grand jury of the county; and in London, by the lord mayor, aldermen, and common council: nor shall any petition be presented by more than ten persons at a time. Any petition to the houses of parliament, not weighing more than six ounces, shall be received by any member of the same, postage free, if in a case left open at the ends. 54 Geo. 3. c. 169.

PETITION IN CHANCERY, a request in writing, directed to the Lord Chancellor, or Master of the Rolls, showing some matter or cause, whereupon the petitioner proves somewhat to be granted to him. They are also frequently presented to the Barons of the Exchequer, for the remission of penalties under the laws of excise. Not unfrequently to the commissioners of excise and customs, for purposes somewhat similar.

PETRIFACTION, denotes the conversion of wood, bones, and other substances, principally animal or vegetable, into stone.

The petrifactions which are found about Matlock, and in other parts of Derbyshire, are converted by the inhabitants into vases, busts, boxes, and various ornaments for chimney-pieces, &c. some of them being so admirably polished, that they bear a near resemblance to jasper. Abundance of these articles is sold in London, and most of the populous cities and towns of Great Britain and Ireland, and have recently become an article of export to other countries, where they are held in high esteem.

PETROL, or PETROLEUM, (GER. *Steinöl, Bergöl.* DU. *Steenöli.* DA. *Steenolje.* SW. *Stenolja.* FR. *Petrole.* IT. *Petroleo, Olio di Sasso.* SP. and PORT. *Petroleo.* RUS. *Kamennoe masslo.* POL. *Skalny oley.* LAT. *Petroleum,*) likewise denominated *oil of Petre,* and *Rock-oil,* is a mineral oil, or species of bitumen, supposed to issue out of the clefts of rocks, and found floating on the waters of certain springs. It differs from ordinary bitumens, only from its being liquid, like asphaltum, jet, &c. Petrol is either reddish, brown, greenish, or blackish, and is often found issuing from the earth of the latter hue. Hitherto there has been but little of this article found, except in hot countries, such as Persia, the southern provinces of France, and the duchy of Modena, in Italy. It is insoluble in alcohol, and, according to some chemists, consists of naphtha, thickened by exposure to the atmosphere. It contains a portion of succinic acid. There is a sort of petrol brought from Barbadoes, under the name of *pisselæum Indicum,* or Barbadoes tar; this is of a reddish-black colour, of a disagreeable smell, and of the consistence of common tar.

Petrol is principally used externally in paralytic cases, and in pains of the limbs. The French give it internally in hysterical complaints, and to their children against worms.

PEWTER, (GER. *Zinn, Zinngeisser-zinn.* DU. and DA. *Tin.* SW. *Tenn.* FR. *Etain.* IT. *Stagno, Peltro.* SP. *Estano. Peltre.* PORT. *Estanho.* RUS. *Olowo.* POL. *Cyna,*) a factitious metal used in making plates, dishes, and other domestic utensils. It is a compound metal, the basis of which is tin. The best sort consists of tin alloyed with about a twentieth or less of copper, or other metallic bodies, as the experience of the workmen has shown to be the most conducive to the improvement of its hardness and colour, such as lead, zinc, bismuth, and antimony.

There are three sorts of pewter, distinguished by the names of plate, trifle, and ley-pewter. The first was formerly much used for plates and dishes; of the second are made the pints, quarts, and other measures of beer; and of the ley-pewter wine measures, and large vessels.

The best sort of pewter consists of 17 parts of antimony to 100 parts of tin; but the French add a little copper to this kind of pewter. A very fine silver-looking metal is composed of 100 pounds of tin, eight of antimony, one of bismuth, and four of copper. On the contrary, the ley-pewter, by comparing its specific gravity with those of the mixtures of tin and lead, must contain more than a fifth part of its weight of lead. This quantity of lead is far too much, considering some of the uses this sort of pewter is applied to; for acid wines will readily corrode the lead of the flagons, in which they are measured, into acetat of lead; which, being taken internally, is productive of various chronic diseases.

Foreigners generally assert, that English tin is always a mixed metal when exported abroad; and the French Encyclopedists in particular inform us, that the English tin, when cast into moulds of six inches in thickness, and cooled, if it be divided into three layers, the uppermost has three pounds of copper in the 100 of tin; the second layer has five pounds of lead in the same quantity of tin; and the lowest layer has nine pounds of lead in the 100 of tin. But there is no foundation for such an assertion, but that pewter has been mistaken for tin abroad; and, in fact, all pewter pieces are called by the name of *tin ware* all over Europe, except in England.

No less than four statutes were passed in the single reign of Henry VIII., relative to the true making of pewter; but they are all either obsolete or repealed, except 4 Hen. 8, c. 7. by which statute the master and wardens of the craft of pewterers, or the head officer of every corporate town, may search for defective pewter; and if such be found, the person *putting it to sale* shall forfeit the same, half to the king, and half to the searcher.

PEZZA, a money of exchange in use among the Italians, value about 4*s.* 2*d.* sterling. This is sometimes called the Italian *dollar* of exchange.

PFENNING, or FENNING, a copper coin of Germany, worth $\frac{7}{18}$*d.*

PHAROS, in some parts of the world, is a word used to express a light-house.

PHENNIG, a German coin equivalent to $\frac{3}{4}$*d.* sterling.

PHIAL, a small bottle, used by apothecaries for holding liquid medicines; and by wine-dealers for exhibiting samples of wine, spirits, &c.

PHLEAM, an instrument for letting blood, generally used by veterinary surgeons and farriers. It is usually placed on the vein, and driven in with a blow.

PHOSPHORUS, a simple substance, much resembling wax in consistence; when pure, it is nearly of the transparency of gum-copal, varying from amber-red to the faintest straw colour, highly combustible, and when oxygenated, producing a strong and peculiar acid.

It was discovered by a German chemist, of the name of Brandt, about 160 years since. The preparation was long kept a secret in the hands of a few persons, but the nature of it, and the mode of preparing it, was at length detected by chemists.

The earliest mode of obtaining it was from human urine; but this disgusting process was abandoned, soon after it was found that the bones of animal bodies contained it in considerable proportion, in the state of

phosphoric, combined with lime. The process for making phosphorus, which is at present generally adopted, consists of two operations; — the separation of the phosphoric acid from the bone-ash, and the distillation of the acid and charcoal, to obtain the phosphorus. The former is effected in the following manner: take any quantity (suppose four lbs.) of powdered bone-ash, or calcined earth of bones; put it into an earthen pan, capable of holding four gallons, mix it at first with about four quarts of water, and then add gradually, with incessant stirring, two lbs. of strong sulphuric acid. A very great heat is excited by the mixture, and some effervescence; then add about a gallon of water, and allow it to remain for a day, with occasional stirring. The mixture thickens by standing; so that if this quantity of water is not sufficient, more must be added, to bring it to the consistence of thick soup. Then pour the whole mixture on a linen bag, by which the clear liquor will run through, and leave the white pulpy mass on the filter, which must be strongly pressed, and then washed with a pint or two of boiling water, to extract all the acid. Unite all the liquors together, and after they have stood a little to become quite clear, they are fit for evaporation. This liquor now contains almost all the phosphoric acid of the bone-ash, chemically united with a portion of undecomposed phosphate of lime, and also holding some sulphate of lime in solution. The white mass in the filter is sulphate of lime, which may be thrown away: the liquor may be either boiled down immediately, or, as Dr. Higgins recommended, first saturated with ammonia, and then evaporated. The former is the usual method; and where the object is only to procure phosphorus, and not pure phosphoric acid, it is probably preferable. The boiling down of this large quantity of acid liquor is tedious. It may be done either in large wedge-wood ware, evaporating pans of charcoal, or in a copper pan, as this acid does not readily act on copper. Keep up a brisk heat, and continue the boiling almost to dryness, during which the clear liquor, as it becomes concentrated, will be muddy, from the separation of selenite, and a greasy looking mass will be deposited on the sides of the vessel. When the liquor is boiled down nearly to dryness, carefully add to it the scrapings from the sides of the vessel, and let it stand some hours, that the selenite may be precipitated; then re-dissolve the whole in as little cold water as will take up all the acid, filter it off from the selenium, and evaporate it till it becomes a puffy pasty mass, which is intensely sour, and consists of phosphoric acid, holding some phosphate of lime; then mix it thoroughly with a fourth part of its weight of powdered charcoal, and dry the whole in any vessel, with a heat just below redness; it is then fit for the subsequent process of distillation. A very strong red, or red-white heat, is required for this purpose, so that the retort must be of earthenware, and fitted to a powerful reverberatory furnace, or surrounded with burning charcoal, in considerable quantity, and heaped up for some height above its neck. As at this temperature the common crucible ware becomes very porous, much of the vapour of the phosphorus would ooze through, so that the retort should previously be coated with a vitrescent lute, of which there is none better than slacked lime, brought to a moderately thin consistence, by a saturated solution of borax, in water, and brushed over the outside of the retort, and slowly dried. This, when heated, forms a thin glazing, which stops up most of the pores of the vessel. In the distillation the contact of the external air must be carefully excluded, otherwise the phosphorus, as soon as formed, would take fire, and be consumed speedily. This may be prevented by elongating the neck of the retort with another earthen or metal tube, cemented to it by *glue luting* (made with glass of borax, brick-dust, and clay), and dipping the end of the second tube about an inch in a pan of water. Thus all the gazeous products pass through the water, and the phosphorus partly concretes in the tube, and partly falls to the bottom of the water.

The retort being nearly filled with the mixture of charcoal and acid, put it into the furnace, and raise the heat very gradually to a moderate redness. At first, a mixture of gases, chiefly carbonic acid and hydrocarbonate, pass over; and when these have nearly ceased, increase the heat to a full-glowing white-red, and keep it up to this degree during the remainder of the distillation. The first indication of the production of phosphorus is, that the gas, as it passes out of the water, becomes white and luminous in the dusk, which is followed by a gas still more inflammable, each bubble of which takes fire in the air, and burns with a brilliant flame and slight snapping noise, as soon as it rises above the surface of the water. After this the phosphorus rises in substance.

The phosphorus produced in this process is very brown and foul, and is mixed with a good deal of a brown-red powder, which diffuses itself in water, like clay, and consists chiefly of phosphorus, so far oxygenated, as to be no longer combustible. It may be purified by several methods; the simplest is the following: tie it up in a piece of thin white leather, then plunge it into boiling water, and squeeze the bag, by which the melted phosphorus will ooze through in drops, that coalesce at the bottom of the water into a clear pure waxy phosphorus, almost transparent and colourless.

PIASTRE or Piaster, a Spanish money of account, equivalent to 3*s.* 7*d.*

The silver piastre of Spain is current at the same rate. The Turkish piastre, a money of account, is equal to 4*s.*; the Arabian piastre of account, to 4*s.* 6*d.*; the Egyptian piastre of account, to 4*s.*; and in the Indies and America, the silver piastres or dollars are generally current at 4*s.* or 4*s.* 6*d.*

PIASTRIVE, a silver coin of Spain, value 10¾*d.*

PIASTRO, an Italian gold goin, value 4*s.* 2*d.* sterling.

PIC, Pice, or Picol, the Chinese quintal of one hundred pounds, their weight, or one hundred and twenty-five pounds marc. *See* CATI.

This weight is also in use at Siam, Malacca, and the islands of Sunda; though at the first of these it consists of double the number of Siamese catis, to what it does of the Chinese; as the former cati is only half of the latter.

PICA, among printers, a particular size of their types or letters. *See* PRINTING.

PICCAGE, money paid in fairs, to the lord of the manor, for breaking of the ground, to set up booths or stalls.

PICK-AXE, an axe composed of a wooden handle, and an iron head, which has two slightly curved points or prongs, situated on each side of the handle, and forming one piece. The pick-axe is employed in loosening the soil, in picking out pavement, &c. Pick-axes are principally manufactured at Sheffield.

PICKLE, a liquor commonly made of salt, water, or vinegar, &c. and sometimes with the addition of spices, wherein meats, fruits, &c. are preserved and seasoned. It also denotes the fruit, root, &c. pickled therein. The West Indies furnish us with abundance of pickled vegetables.

PICOL. *See* PIC.

PICTURES. (Ger. *Gemälde, Schildereyen.* Du. *Schilderyen.* Da. *Malerie, Skilderie.* Sw. *Mälningar.* Fr. *Tableaux.* It. *Pitture, Quadri.* Sp. *Pinturas, Cuadros.* Port. *Pinturas.* Rus. *Kartinü.* Pol. *Nalowania.*) The taste for foreign paintings and pictures having lately surprisingly decreased, our inland trade, in the productions of the English school of painting, has experienced a vast augmentation; and it is even said that great quantities of these articles are sent to, and eagerly bought up, on the continent of Europe. *See* PAINTING.

PICTURE - FRAMES are square, round, oval, or oblong square, according to the subject to be framed, and the taste of the proprietor. They are usually either gilded or black, or an union of both. They are made of all sorts of wood, but sycamore is now esteemed the best. It is easily carved, and extremely light. Picture-frames used to be a considerable article of export, especially to Russia, but they are prohibited by the last tariff.

PIECE, in commerce, sometimes denotes a whole, and sometimes only a part of the whole; in a pecuniary sense, it is sometimes the same thing with species, and sometimes it denotes such money as has no other particular name.

PIECE OF EIGHT, Rial of Eight, or Piastre, a silver money, first struck in Spain, afterwards in other countries, and now current almost every where. It is equal to eight silver rials. Its value is nearly the same with the late French crown, or four shillings and sixpence sterling. There are two kinds of this coin; the one struck at Potosi, the other at Mexico; the latter are a little heavier than the former, but not quite so fine. The piece of eight is divided into halves, quarters, half quarters, and sixteenths. The exchange between England and Spain is in pieces of eight.

PIECE, is also a sort of money of account, used among the negroes on the coast of Angola, in Africa.

PIECE *Broker.* Persons in this trade buy shreds and remnants of cloth from tailors, which they sell again to such as want them for mending, &c.

PIECE *Goods,* a name given in India to the infinite variety of fabrics of cotton there manufactured, under the names of calicoes, chintzes, muslins, ginghams, taffetas, &c. &c.

PIECE *Work,* is that sort of work which is done by the piece, or, as it is commonly called "the great." This sort of piece work, in agriculture, is chiefly governed by 20 Geo. 2. c. 19., in the construction of which statute see *Lowther v. Earl of Radnor,* 8 *E. R.* 113., and 2 *Dick. Pract. Expos.* 838. In trade and manufactures, by 6 Geo. 3. c. 25. See *R. v. Hosceson,* 14 *E. R.* 605., and 2 *Dick. Pract. Expos.* 843.

PIER, the columns on which the arch of a bridge is raised.

PIER, is also used to signify a thick, strong, and well-guarded wall or wharf, usually composed of durable stone, and stretching far into the sea for the conveniency of vessels lading and unlading their cargoes, whatever may be the state of the tide.

PIERAGE, money paid by masters of ships for the use of a pier.

PIERCER, a sort of awl, or gimblet, used for giving vent to vessels containing liquids.

PIG. *See* SWINE.

PIG *of lead,* the eighth part of a fodder, amounting to about two hundred and fifty pounds weight.

PIKE, an offensive weapon consisting of a shaft of wood, twelve or fourteen feet long, headed with a flat-pointed steel, called the spear.

PILCHARDS, (Ger. *Sardellan.* Du. *Sardynen.* Da. *Sardeller.* Fr. *Sardines.* It. *Sardine.* Sp. *Sardinas.* Port. *Sardinhas.* Rus. *Sardetil.* Pol. *Sardely.* Lat.

Sardinæ,) are fish which have a general likeness to the herring, but differ in some particulars very essentially. The body of the pilchard is less compressed than that of the herring, being thicker and rounder: the nose is short in proportion, and turns up; the under jaw is also shorter. The dorsal fin of the pilchard is placed exactly in the centre of gravity; so that when taken up by it, the body preserves an equilibrium; whereas that of the herring dips at the head. Pilchards, in general, are less than the herring, but are fatter or fuller of oil. Their winter retreat, and their motives for migrating, are supposed to be the same with those of the herring. The approach of the pilchard is known by much the same signs as those that indicate the arrival of that fish.

But a small part of the pilchards taken here, are consumed in the country, notwithstanding they are very delicious eating. The greater part are salted, and placed together in large heaps, where they lie for several days under a pressure of large stone weights, by which means the fat and oil are drained from them in large quantities, into proper vessels. They then pack them tight in hogsheads for exportation to Italy, Spain, and France. A considerable quantity of these fish is also used for making pilchard-oil. *See further* FISHERY, *article Pilchard.*

PILE, in coinage, a kind of puncheon, which, in the old way of coining with the hammer, contained the arms, cross, or legend to be struck for the reverse of the piece. Accordingly, we still call the arms-side of a piece of money the *pile*, and the head the *cross;* because in ancient monies a cross usually occupied the place of the head in ours.

PILE, in building, is used for a large stake rammed into the ground in the bottom of rivers, or in marshy land, for a foundation to build upon.

PILE-ENGINE. *See* ENGINE.

PILE, among mercers, is used to signify the nap or surface of velvet; and when this, by accident or otherwise, is removed or shorn off, the velvet is said to be *piled.*

PILOT, a person employed to conduct ships over bars and sands, or through intricate channels, into a road or harbour. Pilots are not constant or standing officers aboard our vessels, but are called in occasionally, on coasts or shores unknown to the master; and having piloted the vessel, they return to the shore where they reside.

In many parts, where the approach or entrance to harbours, &c. is hazardous and difficult, the taking a pilot is not a voluntary act, but obligatory on the master; otherwise, in case of a loss, he must make it good; and the following laws are now in force concerning them in England. After a pilot is taken on board, the master has no longer any command of the ship till she is safe in harbour; but then the master resumes the government of the same, and is to see her bed and lying; the pilot being no longer liable, though for his own convenience he may still be on board. The same rule holds good, if a pilot goes on board only to conduct a ship through some dangerous place, as for instance, Yarmouth roads: after passing them, the master must resume the command, and the pilot is no longer responsible. Yet it may happen that the pilot shall continue on board for the remainder of the voyage: for example, he may want to go to Newcastle; but he is only to be considered as a common passenger, after he has conducted the ship through the hazardous passage, for which purpose he came on board; neither can he charge any wages, salary, or fee, though he should keep the helm during the whole voyage, except for the duty done in passing the roads.

Masters must take pilots when in danger. — If a master of a ship finds himself in tempestuous weather, in any reputed dangerous place, usually denominated *pilot's water,* and a pilot offers to come on board, which offer he refuses to accept, the master in such cases is liable to his owners, freighters, or insurers, for the damage or loss of ship and cargo, if either happen in his attempting a passage without a pilot.

Masters of colliers. — The master of an English collier is held by the Flemings and the Dutch to be a pilot sufficient to conduct his ship from Newcastle to their ports; accordingly, in the case of a ship freighted at Shields by a Flemish merchant at Ostend with coals for that port, he refused to allow the charge of a pilot; the affair was referred to arbitration; when it appeared that the ship was driven by stress of weather into Yarmouth-roads, which are *pilot's water;* and, a pilot offering his service, he accepted him. Had he done otherwise, he would have been answerable to the owners for the ship if it had been lost, and to the freighter for his coals; it was therefore decided that the freighter was bound to allow the pilotage. Pilotage is allowed in most charter-parties, but not for those made for colliers in England.

A great number of statutes have been passed, at different periods, for the regulation of pilotage and pilots; some general, and some local. To rescue the subject from the conflicting provisions of some of these, and for other purposes recited in the preamble, the 48 Geo. 3. c. 104. was enacted, which begins by repealing all former "*clauses, provisions, powers, penalties, forfeitures, matters, and things,* relating to pilots appointed by the corporation of the Trinity House, and *within the said jurisdiction of the Trinity House, and the liberty of the Cinque Ports.*" It proceeds to enact that thenceforward the corporation of the Trinity House shall alone license, under their seal,

fit and proper persons to conduct *all* vessels navigating and passing up and down the rivers Thames and Medway, and the several channels leading thereto, *between Orfordness and London Bridge*; as, *from London Bridge to the Downs, and from the Downs westward to the Isle of Wight, and in the English Channel from the Isle of Wight up to London Bridge*; and no *other* persons shall pilot vessels within the limits prescribed by this license, or beyond the extent of this qualification, under a penalty not exceeding 30*l.* nor less 10*l.* for a first offence, and for a subsequent offence, not more than 50*l.*, nor less than 30*l.* s. 42.

Except certain pilots appointed by proper authorities in the Cinque Ports (regulated by two subsequent local statutes, 52 Geo. 3. c. 39., and 53 Geo. 3. c. 140.), so far as such (Cinque Port) pilots are hereby authorised to pilot vessels between the Isle of Wight and London Bridge; and also *except* colliers and other vessels trading to Norway, the Cattegat, and Baltic, and likewise round the North Cape into the White Sea; and *except* all constant traders inwards from the ports between Boulogne inclusive and the Baltic, such vessels having British registers, and passing through the North Channel by Orfordness; and likewise *except* all coasting vessels, and Irish traders using the navigation of the Thames as coasters. s. 2.

The statute proceeds to specify the number and qualification for pilots, and the rates of pilotage, to be hung up at the respective custom-houses.

No owner nor master of a vessel shall be answerable for any loss; nor owners of vessels, or consignee of goods, be prevented from recovering insurance, by reason of no pilot being on board, unless it shall be proved that the want of a pilot shall have arisen from the negligence or obstinacy of the master, a pilot having been ready, and offering to take charge of such vessel. s. 25.

The act not to extend to ships belonging to his majesty; nor to vessels not exceeding 60 tons; nor shall it deprive persons of any remedy by civil action against *pilots or other persons.* s. 26, 27, 28.

The corporation of the Trinity House may make bye-laws for the government of the pilots, and for *the general purposes of the statute*, and annex penalties to the breach of them; but such bye-laws must have the sanction of the chief justice of the court of king's bench, *or* common pleas, verified under hand and seal; copies of which bye-laws shall be previously transmitted to the privy council, and others immediately hung up in the several custom-houses of the principal ports in Great Britain. s. 34, 35, 36.

The pilotage of ships *not foreign* may be recovered from the owners, master, or consignees, or agents, who may have made themselves liable, as other penalties, according to the respective amounts, are recoverable under the act. s. 53.

And pilotage of *foreign* ships may be recovered before a justice of the peace, on the oath of the pilot, in like manner as any penalty under 10*l.* may be recovered by virtue of this act; and consignees of foreign ships may retain in their hands, out of monies received, sufficient to pay pilotage. s. 54.

Reporting a false account of the draught of water of any vessel to the pilot, and altering any marks on vessels to denote such draught, are subjected to penalties by s. 56.; and directions are given by s. 57. how controversies respecting the actual draught of water are to be settled.

It is declared that nothing in this act shall give authority to the corporation of the Trinity House, within any ports or districts having separate jurisdictions in matters of pilotage, by statute or charter, by s. 29.

There are many minute regulations respecting the offences of pilots and others, the modes and forms of conviction, punishment, &c. the rates of pilotage, and other matters of individual interest, or local nature, in the statute, which it has not been thought necessary to insert; and there are ample schedules also annexed to it, which are precluded insertion by their magnitude.

On the construction of a clause in a former statute, and which clause has been copied into this, inflicting a penalty on pilots taking charge of vessels down the river Thames, it was decided that they only extend to vessels sailing on foreign voyages, and not to those which having performed their voyages, are merely steered from one wharf to another on the river, for the purpose of unloading. *R. v. Lambe, 5 T. R. 76.*

Short Abstract of an Act for the better Regulation and Encouragement of Pilots for the conducting of Ships and Vessels into or out of the Port of Liverpool. 37 Geo. 3. c. 78.

The nine first sections of this act repeal a former act of 6 Geo. 3., and constitute a new corporation for the regulation and licensing of pilots in the port of Liverpool.

Committee to license pilots. — The committee appointed in pursuance of this act, or any five or more of them, are to examine any person who shall offer himself to be admitted as a pilot, &c.; and if such person shall be deemed duly qualified, he is to exercise the occupation of pilot within the port of Liverpool, for one year from the date thereof.

But persons acting without a license forfeit 20*l.* for every offence. s. 10, 11, 12.

In case any such licensed pilot shall misbehave, or shall in any wise offend against this act, then such committee are to recal the license granted to such pilot, and to declare the same to be thenceforth utterly void. s. 13. And be fined 10*l.* by s. 27

The rates of pilotage are generally specified by s. 14 and 15.; but every master or commander of any ship or vessel in the *coasting trade*, including such as trade to or from Ireland, the islands or Faro or Fero, Guernsey, Jersey, Alderney, Sark, or Man, which shall be piloted into or out of the said port, shall pay one-half only of the rates or prices for pilotage; and no ship or vessel whatsoever shall be deemed to be a coasting-vessel, for the purposes of this act, which shall not sail from Liverpool on a coasting-voyage, or which shall not have been really *bonâ fide* employed in the coasting-trade for six months, previous to the time of claiming exemption from the higher rates. s. 16, 17.

But no master or commander of any ship or vessel whatsoever, including such as trade to or from Ireland, the islands of Faro or Fero, Guernsey, Jersey, Alderney, Sark, and Man, whether coastwise or otherwise, piloted into or out of Liverpool by any of the pilots aforesaid, shall pay less than for eight feet draught of water; but, if they shall draw more than eight feet draught of water, the overplus shall be paid for according to the rates specified. s. 18.

By the four succeeding sections a different rate of pilotage for alien vessels, and for vessels under particular circumstances, is provided.

Masters of vessels refusing to take pilots. — In case any master or commander of any ship or vessel inward-bound shall refuse to take on board a licensed pilot who shall offer his service, (except such as shall be in ballast in the coasting-trade, or be under the burthen of one hundred tons), such master or commander shall pay to the pilot who first or who shall only offer his service as aforesaid, the full pilotage according to the different rates and prices before directed, as if the said pilot had piloted such ship or vessel into Liverpool. s. 24.

Pilots leading the way in any vessel. — In case any vessel shall be in want of a pilot, and none can be procured, and there shall be any pilot on board any other vessel going into or coming out of the port of Liverpool, such pilot may lead the way for and conduct the ship or vessel so in want of a pilot; and the master or commander of every such vessel so piloted by leading the way, &c. shall be subject to the same rates of pilotage as if the pilot had actually been on board of such ship or vessel. s. 25.

Assisting distressed ships. — In case any ship or vessel shall be met in distress by any licensed pilot, and shall stand in need of any extraordinary assistance of the crew or boat, then the compensation to be made shall be settled, according to the circumstance of the case, by the committee at their next meeting.

When masters may pilot their own vessels. — The master or commander of any ship or vessel in ballast, in the coasting-trade, or any ship or vessel being under the burthen of one hundred tons, by the certificate of registry in the coasting-trade, may pilot his said ship or vessel into or out of Liverpool, and any person or persons may assist ships in distress. s. 32.

Masters giving false accounts of draught. — The master or commander of every ship or vessel, to be piloted into or out of Liverpool, shall give a true account, to the pilot employed, of her draught of water; and, in case the pilot shall suspect the truth of such declaration, he is authorised to admeasure her; and if, on such admeasurement, it shall appear that such master or commander gave a false account, wilfully and fraudulently, he shall not only forfeit a sum equal to double the amount of pilotage, but also all the expenses of the admeasurement, and be subject to a fine at the discretion of the committee, not exceeding ten pounds nor less than two pounds, together with all expenses. s. 33.

Masters outward-bound refusing to take pilots. — In case the master or commander of any ship or vessel outward-bound, (except in ballast in the coasting-trade, or under the burthen of one hundred tons,) who shall proceed to sea, and refuse to employ a licensed pilot, such master or commander, agent or consignee, of such ship or vessel, shall pay to the pilot, who first or who only shall offer his services as aforesaid, and be so refused, the full pilotage. And every person taking, or appearing to take upon himself the charge, agency, or consignment of any ship or ships, vessel or vessels, so charged or chargeable with the said respective rates for pilotage and extra-attendances outward-bound, shall be accountable for such rates of pilotage, as shall be so due for such pilotage outward, according to the rates or prices aforesaid; and the same shall and may be levied by distress and sale, after the expiration of three days from the day on which such pilotage shall have been demanded. s. 37, 38, 39.

Penalty on masters forcibly taking away pilots. — As it has sometimes happened that pilots have been forcibly carried to sea beyond the limits for pilotage herein prescribed, if any master of a ship or vessel forcibly carry away any such pilot, he shall forfeit and pay a sum not exceeding 20*l.* nor less than 5*l.*, at the discretion of the committee; and the owner, agent, or consignee, as aforesaid, shall be liable to make reasonable compensation to such pilot or pilots, according to the discretion of the committee. s. 40.

The subsequent sections of this act relate to the accounts of the corporation, their power to make bye-laws, &c. and not to the general interests of the ship-owners and masters.

The last statutes for the regulation of pi-

lotage were 52 Geo. 3. c. 39., and 53 Geo. 3. c. 140., which, though of great importance to the kingdom, as comprehending the access to the port of the metropolis, yet as being entirely local in their provisions, so far as the clauses are not a mere transcript of the 48th Geo. 3. before abstracted, it has not been found convenient to insert them.

PIMENTO, Allspice, or Jamaica Pepper, the fruit of the *myrtus pimenta*, L.; the *amomum verum* of some. The pimento trees grow spontaneously, and in great abundance, in many parts of Jamaica, but more particularly on hilly situations near the sea, on the northern side of that island.

This tree is so entirely the child of nature, that not one attempt in fifty to propagate the young plants, or to raise them from the seeds, in parts of the country where it is not found growing spontaneously, has succeeded. The usual method of forming a new pimento plantation, which in Jamaica is called a walk, consists in appropriating a piece of wood land, in the neighbourhood of a plantation already existing, or in a country where the scattered trees are found in a native state, the woods of which being fallen, the trees are suffered to remain on the ground till they become rotten, and perish. In about a year after the first season, abundance of young pimento plants will be found growing vigorously in all parts of the land, which are doubtless produced from ripe berries scattered there by the birds. At the end of two years it will be proper to cleanse the land thoroughly, leaving such only of the pimento-trees as have a good appearance. These will then soon form groves, which perhaps do not require much attention after the first four, or five, years.

It does not appear, that in all the vegetable creation there is a tree of greater beauty than a young pimento. The trunk, which is of a grey colour, smooth, and shining, and entirely free from bark, rises to the height of fifteen, or twenty, feet. It then branches out on all sides, richly clothed with leaves of a deep green, which, in the months of July, and August, are beautifully relieved by an exuberance of white flowers. These leaves are equally fragrant with the fruit; and, in distillation, yield an odoriferous oil, which Edwards informs us, is very commonly used in the medicinal dispensaries in Europe for oil of cloves.

The berries become fit for gathering soon after the trees are in blossom; for the fruit is not suffered to ripen on the tree, because the pulp in that state is difficult to cure. It is, however, impossible to prevent some of the ripe berries from mixing with the rest; but if the proportion of them be great, the price of the commodity is considerably injured.

It is gathered by the hand; and one labourer, on the tree, employed in gathering the small branches, will give employment to three below (who are generally women and children) in picking the berries. An industrious picker likewise will fill a bag of 70 lbs. in the day. It is then spread on a terrace, and exposed to the sun for about seven days; in the course of which it loses its green colour, and becomes of a reddish brown, and, when perfectly dry, is fit for market.

In a favourable season, a single pimento tree has been known to yield 150 lbs. of the raw fruit, or one cwt. of the dried spice; for there is generally a loss of one third in curing. A plenteous crop, however, occurs, perhaps, but once in five years; and the price in the British market fluctuates accordingly.

Some planters kiln-dry the pimento berries with great success, and it seems indeed a most eligible method, where, from abundance of the crop, dispatch and security against rain are very essential. Pimento is usually imported in bags and casks. — As there is so great an affinity between this spice, and the true clove, it has been proposed, as worthy of trial, if the fruit, when first formed, or the flowers picked off the tree and dried, might not answer the same purpose as the Asiatic clove; The more odoriferous, and small, the berries are, the better they are reckoned: The leaves, and bark, of the pimento-tree are full of aromatic, inflammable particles, for which reason, the growers are extremely cautious not to suffer any fire to be made near the walks, for if once it should catch the trees, they would burn with great fury. The berries have a similarity in smell, and taste, to cloves, juniper-berries, cinnamon, and pepper, or rather a peculiar mixture somewhat a-kin to all of them; whence their name of allspice. There is a species of pimento growing in Spanish America, whose berry is larger, weaker in its aroma, and consequently inferior in its quality, to the West Indian.

This article we import almost exclusively from Jamaica, whence we procure about two millions of pounds annually. Of this quantity, no inconsiderable part is sold to the Dutch, who, we are told, impose not only upon us but upon the rest of Europe, by reducing the pimento to powder and selling it as pulverised cloves; it is said that they likewise dispose of large quantities of pimento oil under the name of clove-oil.

The Americans mix pimento with their chocolate, and denominate the mixture *malaguetta*, or *maniguetta*; it is reported to be extremely palatable. If pimento be left, for some time, to soak in good brandy, it will yield by distillation, an odoriferous spirit, which, by the addition of a proportionate quantity of sugar, may be converted into a most agreeable and highly stomachic cordial.

For the foreign denominations of Pimento, *see* JAMAICA-PEPPER.

PIN, (Ger. *Stecknadeln, Knöpfnadeln.* Du. *Spelden.* Da. *Knappenaale.* Sw. *Knappnalar.* Fr. *Epingles.* It. *Spilli, Spiletti.* Sp. *Alfileres.* Port. *Alfinetes.* Rus. *Bulawki.* Pol. *Szpilki,*) a small instrument of wire, principally used by females in adjusting their dress. They are mentioned in a statute of Rich. 3. prohibiting their importation, 1483. — Next, in the year 1543, by statute 34 & 35 Hen. 8. cap. 6, it was enacted, " that no person shall put to sale any pinnes but only such as shall be double-headed, and have the heads soldered fast to the shank of the pins, well smoothed, the shank well shapen, the points well and round filed, cauted, and sharpened."

Though pins are apparently simple, their manufacture is, however, not a little complex. When the wire, (generally brass,) of which the pins are formed, is first received at the manufactory, it is generally too thick and too soft for the purpose of being cut into pins. The first operation, therefore, is that of winding it off from one wheel to another with great velocity, and causing it to pass between the two, through a circle in a piece of iron of smaller diameter: the wire being thus reduced to its proper dimensions, and also hardened by this process, is straightened by drawing it between iron pins, fixed in a board in a zigzag manner, but so as to leave a straight line between them: afterwards it is cut into lengths of three or four yards, and then into smaller ones, every length being sufficient to make six pins; each end of these is ground to a point, which is commonly performed by boys, who sit each with two small grinding-mills before him, turned by a wheel. Taking up a handful, he applies the ends to the coarsest of the two mills, being careful at the same time to keep each piece moving round between his fingers, so that the points may not become flat: he then gives them a smoother, and sharper, point, by applying them to the other mill, and by that means a lad of twelve, or fourteen, years of age is enabled to point about 16,000 pins in an hour. When the wire is thus pointed, the length of a pin is taken off from each end, and this is repeated till it is cut into six pieces. The next operation is that of forming the heads, or, as they term it, head-spinning; which is done by means of a spinning-wheel, one piece of wire being thus with astonishing rapidity wound round another, and the interior one, being drawn out, leaves a hollow tube between the circumvolutions: it is then cut with shears, every two circumvolutions or turns of the wire forming one head: these are softened by throwing them into iron pans, and placing them in a furnace till they are red-hot. As soon as they are cold, they are distributed to children, who sit with anvils and hammers before them, which they work with their feet, by means of a lathe; and taking up one of the lengths, they thrust the blunt end into a quantity of the heads which lie before them; and catching one at the extremity, they apply them immediately to the anvil and hammer; and by a motion or two of the foot, the point and the head are fixed together in much less time than it can be described, and with a dexterity only to be acquired by practice; the spectator being in continual apprehension for the safety of their fingers' ends. The pin is now finished as to its form, but still it is merely brass; it is therefore boiled in a copper, containing a solution of tin, with water, and the leys of wine. Here it remains for some time; and when taken out assumes a white, though dull appearance: in order therefore to give a polish, it is put into a tub containing a quantity of hot bran, which is set in motion by turning a shaft that runs through its centre; and thus by means of friction it becomes perfectly bright. The pin being complete, nothing remains but to separate it from the bran; which is performed by a mode exactly similar to the winnowing of corn, the bran flying off, and leaving the pin behind, fit for immediate sale.

The pins most esteemed in commerce are those of England; those of Bourdeaux are next; and then those made in some other parts of France. The London pointing and whitening are in the highest repute, because our pin-makers in pointing use two steel-mills, the first of which forms the point, and the latter takes off all irregularities, and renders it smooth, and, as it were, polished; and in whitening they use block-tin finely granulated, whereas in other places they mix their tin with lead and quicksilver, which not only whitens worse than the former, but is a dangerous implement, since the least puncture made with it is not so readily cured, and if not attended to may prove injurious. Pins are distinguished by numbers; the smaller are called from No. 3, 4, 5, to 14, whence they go by *two's*, viz, No. 16, 18, 20, which latter is the largest size. — Besides the white pins, there are black ones, prepared with a sort of Japan varnish, for the use of mourning; their numbers run from 4 to 10. Pin is also an instrument recognized in the sciences of artillery, clock-making, ship-building, &c.

PINCERS, an instrument by which nails are drawn, or any thing is gripped, which requires to be held hard. They are of various forms, according to the uses for which they are intended, and are chiefly employed by blacksmiths and carpenters.

PINCHBECK, (Ger. *Tomback.* Du. *Tombak.* Da. *Tambak, Tombak.* Sw. *Tomback.* Fr. *Tambac, Similor.* It. *Tombacco.* Sp. *Tambac, Tumbaga.* Port. *Tombaque,*) a name given to one, of the

many imitations of gold. By melting yellow copper in various proportions with red copper, some ductile alloys result, the colours of which approach more, or less, to that of gold.

This composition is frequently employed as a substitute for gold in the formation of watch-cases, and various other articles of a like description. Pinchbeck is sometimes called *Tombac*, and sometimes *Similor*, and *Petit-or*.

PINE-TREE. (Ger. *Fökre, Kefer*. Du. *Pynboom*. Da. *Fyr, Fyrretræe, Furr*. Sw. *Furu, Tall*. Fr. *Pin*. It. and Sp. *Pino*. Port. *Pinheiro, Pinho*. Rus. and Pol. *Sosna*. Lat. *Pinus*.) The *Pinea Pineaster*, or wild pine, grows naturally on the mountains of Italy and the south of France. It grows to the size of a large tree; the branches extend to a considerable distance; and while the trees are young, they are full of leaves; but as they advance to age the branches become naked. The *Pinus pinea*, or stone-pine, is a tall evergreen tree, a native of Italy and Spain. It delights in sandy loam, though, like most others, it will grow well in almost any land. It is planted merely for ornament in this country, its timbers being brittle, and of no value. — The *Strobus*, or Weymouth, or North American white pine, grows sometimes to the height of 100 feet, and upwards, and is highly valued on account of its beauty. The wood of this sort is esteemed for making masts for ships. In Queen Anne's time, there was a law made for the preservation of this species of tree in America. Within the last 50 years it has been propagated in Britain in considerable plenty. The *pinus tæda*, or swamp-pine, is a tall evergreen tree, a native of the swamps of Virginia and Canada. From the *pinus sylvestris* comes the common turpentine. From the *pinus abies* the Burgundy pitch.

The FIR-TREE is a species of pine, but we refrain from noticing it any further under the present article, having already treated of it at large under other heads.

The CEDAR and the LARCH-TREE are likewise of the genus of pine, and are to be found under their proper heads.

PINE-APPLE. There are nine species of the plant which produces this fruit, but it is beside our purpose to enumerate them.

The pine-apple is propagated by planting the crowns, which grow on the fruit, or the suckers, which are produced either from the sides of the plants, or under the fruit. The suckers, or crowns, must be laid to dry in a warm place for four or five days, or more; for if they are immediately planted, they will rot. The certain rule of judging when they are fit to plant, is to observe if the bottom is healed over and become hard. In summer they must be frequently watered, but not with large quantities at a time; and the moisture should not be detained in the pots by the holes being stopped, for that will soon destroy the plants. If the season is warm, they should be watered twice a week. Plants beginning to show the fruit should never be shifted; for if they are removed after the fruit appears, it stops the growth, and thereby causes the fruit to be smaller, and retards its ripening, so that it will be October or November before the fruit is ripe; therefore the plants should be kept in a vigorous growing state, from the first appearance of the fruit, as upon this depend the goodness, and size, of it. After cutting off the fruit from the plant intended to be propagated, the leaves should be trimmed, and the pots plunged again into a moderate hot-bed, observing to refresh them frequently with water, which will make them put out suckers in plenty. By these means the pine-apple plant may be brought to great perfection in this country. It grows spontaneously in South America, Africa, and the East, and West, Indies, whence the fruit is brought to us preserved entire in rich syrup. There is a wine made from the pine-apple, which is esteemed almost equal to malmsey. This fruit also supplies the physicians with some remedies. This excellent fruit makes part of the refreshment wherewith the Indians and Africans, near the line, entertain European mariners, and barter it for toys, and other baubles, of which they are extremely fond. The pine-apple is much esteemed as an ornament for the table, when it is preserved perfectly green; abundance of the fruit is sent home in this state, packed up in jars, to Europe from the West India islands. The crown is usually preserved with the apple, as its removal would diminish the elegant appearance of the fruit.

PINE-KERNELS, (Ger. *Pinien*. Du. *Pingelen*. Da. and Sw. *Pinioler*. Fr. *Pignons doux*. It. *Pinocchi, Pignoli*. Sp. *Pinones*. Port. *Pinhões*. Pol. *Pinelle, Pinole*. Lat. *Pineoli*,) the kernels of the species of pine called the *pinus pinea*, which *see* under the article PINE-TREE.

PINK, among painters, a sort of yellowish or pale red colour. *See* DYEING and PAINTING.

PINK, a vessel used at sea, masted and rigged like other ships, only that this is built with a round stern; the bends and ribs compassing so as that her sides bulge out very much. This disposition renders the pinks difficult to be boarded, and also enables them to carry greater burdens than other vessels: whence they are often used for hospital, and store, ships in the fleet.

PINK-ROOT, or Indian Pink-root, is the produce of the *spigelia marilandica*, or perennial worm-grass, and is used as a medicine for remitting low worm-fevers.

PINNACE, a small vessel used at sea, with a square stern, having sails and oars, and carrying masts, chiefly used as a scout

for intelligence, and for landing of men, &c. One of the boats belonging to a man of war, serving to carry the officers to and from the shore, is also called the pinnace.

PINT, a measure used chiefly for estimating liquids, and some dry things. The word is high Dutch, and signifies a little measure of wine. The English pint is of two sorts; the one for wine-measure, the other for beer and ale measure: the wine pint contains a full pound avoirdupois of common running water; two pints make a quart; two quarts a pottle; two pottles a gallon, &c. The pint, liquid measure, contains 35.25 cubic inches. A pint, corn-measure, is nearly 33.6 inches in content.

The Paris pint is one-sixth of the ancient *congius*, and contains two pounds of common water; it is divided into chopines or septiers; the septiers into demi-septiers; the demi-septiers into two boissons, each of which contains six cubic inches. The pint of St. Denis is almost double that of Paris.

PIPE, a wine-measure, usually containing from 110 to 140 gallons. Two pipes, or 252 gallons, make a tun. The pipe of Port contains 138 gallons, of Sherry 130, of Lisbon and Bucellas 140, of Madeira 110, and of Vidonia 120.—The pipe of Port, it is to be observed, is seldom accurately 138 gallons, and it is not unusual to charge what the vessel actually contains.

PIPE, in building, &c. a canal, or conduit, for the conveyance of water, and other fluids. Pipes for water, water-engines, &c. are usually of lead, iron, earth, or wood: the latter are commonly made of oak or elm. Those of iron are cast in forges; several of these are commonly fastened together by means of four screws at each end, with leather, or old hat, between them, to stop the water. Those of earth are made by the potters; these are fitted into one another, one end being always made wider than the other. To join them the closer, and prevent their breaking, they are covered with tow and pitch: the wooden pipes are trees bored with large iron augers, of different sizes, beginning with a less, and then proceeding with a larger successively; the first being pointed, the rest formed like spoons, increasing in diameter, from one, to six inches, or more: they are fitted into the extremities of each other, and are sold by the foot.

A patent was obtained in 1806, for making wooden pipes upon a new construction, by one Eckhardt, but it has not been attended with much effect. Cast-iron pipes appear now to be most in request for *great* concerns, such as for the communication of water, and gas, through the streets of London. Both stone, and lead pipes, have indeed been the subjects of several patents, within the last ten years, but the iron pipes appear to have completely superseded them, except for small water-pipes to buildings; and for such, Bramah's invention (patent of 1796) appears to be the best and cheapest construction.

Pottery pipes are chiefly used for draining land, and are made at most of the manufactories for coarse pottery. They cannot be too highly recommended even on their simplest construction.

In 1808, a Mr. Bell took out a patent for these earthen pipes, upon a more complicated construction, adapting them for the use of the largest aqueducts.

PIPE-CLAY. (Ger. *Pfeifenthon*. Du. *Pypäarde*. Da. *Pihejord*. Sw. *Piplera*. Fr. *Terre à pipes*. It. *Terra da pippe*. Sp. *Tierra de pipa*. Port. *Terra de cachimbos*.) The difference between the porcelain clay, and those of more moderate purity, called pipe-clays, of which we have plenty in Devonshire, is commonly, that the former remains white when burned in an open fire; but the latter, containing a portion of mineral oil, becomes of a blueish-grey in a moderate heat, by the coal produced by this combustion. A stronger heat, however, will perfectly consume this coal, and restore the whiteness. On the whole, however, it appears rather as if this distinction between the clays used in pottery were grounded on the nature of the product they afford, than on any very evident property ascertainable before they are wrought and baked. Besides its use in the manufacture of tobacco-pipes, pipe-clay is employed as a detergent, by scowerers of cloth, &c.

Pipe-clay is allowed to be exported to all his majesty's plantations in vessels that may lawfully trade thither, by 47 Geo. 3. c. 49.; but the 57 Geo. 3. c. 88. prohibited it from being carried coastways, except under the regulations imposed by 32 Geo. 3. c. 50.

PIPES, or Tobacco-pipes, (Ger. *Pfeifen*, *Tabacks pfeifen*. Du. *Pypen*, *Tabackspypen*. Da. *Tobackspiber*. Sw. *Tobackspipor*. Fr. *Pipes à tabac*. It. *Pippe*. Sp. *Pipas*. Port. *Cachimbos*. Rus. *Trubki tabatschuna*. Pol. *Zulki*,) well-known machines used in smoaking tobacco; they consist of a long slender tube or shank, which is hollowed, being made of pipe-clay baked; at one end is the bowl or furnace for the tobacco, the fumes whereof are drawn out by the mouth at the other end, and so discharged. — Pipes are made long, short, plain, worked, varnished, unvarnished, of various colours, &c. The Turks use pipes, three or four feet long, made of rushes, or bored wood, at the end of which is a nut of baked earth for taking off, or putting on. Tobacco-pipes made from clay, are formed in moulds, the hollow in the tube being made by running up a wire; the pipes are then dried and baked in a furnace moderately heated.

PIPE STAVES, (Ger. *Pipenstabe*. Du. *Pypduigen*. Da. *Pibestaver*. Sw. *Pipkinmar*, *Pipstafvar*. Fr. *Douves à pipes*. It. *Doghe di botti*. Sp. *Duelas para pipas*. Port. *Aduelas*

para pipas. Rus. *Pipowüja doschtschezki,*) the staves, or long narrow pieces of timber, of which wine barrels, hogsheads, casks, &c. are formed. Pipe staves are made from various kinds of wood, more especially fir, and oak. They are imported in abundance from Dantzic, Hamburgh, Memel, Stettin, and other parts of the North of Europe, and from Quebec, and some other places in North America.

PIRATE, a sea-robber, who enriches himself by marine robberies, committed either by force, fraud, or surprise, on merchants or other traders at sea. Those who rob in rivers, and who are, perhaps, not less numerous, though not so open in their depredations, as the sea-pirates, are usually distinguished from the latter by the designation of river-pirates.

By stat. 28 H. 8. c. 15. all treasons, felonies, robberies, murders, and confederacies, committed upon the sea, or in any haven, creek, or place where the admiral has jurisdiction, shall be tried in such shires, or places, as the king shall appoint by his commission, in like forms, as if such offence had been committed upon land, and according to the course of the common law, and the offenders shall suffer death without benefit of clergy. And by stat. 6 Geo. 1. made perpetual, it is enacted, that if any of his majesty's natural-born subjects, or denizens of this kingdom, shall commit any piracy or robbery, or any act of hostility, against other his majesty's subjects, upon the sea, under colour of any commission from any prince or state, or pretence of authority from any person whatsoever, such offender shall be deemed to be a pirate, felon, and robber; and being duly convicted thereof according to this act, or the aforesaid act of 23 H. 8., shall have and suffer such pains of death, loss of lands, goods, and chattels, as pirates, felons, and robbers upon the seas, ought to have and suffer. By 18 Geo. 2. c. 30. persons committing hostilities, or aiding enemies at sea, may be tried as pirates.

The 39 Geo. 3. c. 37., enacts that all offences whatever, committed on the high seas, shall be liable to the same punishment, as if committed on shore; and persons tried for murder, or manslaughter, and found guilty of the latter only, shall have the benefit of clergy.

An Englishman, committing piracy on the subjects of any prince or state in amity with the crown of England, is within the statute of 28 Hen. 8.

The same observation applies to the subjects of any other nation or kingdom, being in amity with England, who shall commit piracy on the ships of the latter. *Rot. Adm.* 28 *Eliz. m.* 24.

If a merchant lose his goods by piracy, and they are afterwards recovered, he has a right to reclaim them. And if a pirate sells the goods he steals, the right owner's property therein is not thereby changed. 3 *Bul.* 28. 29. *March,* 110. *Godb.* 193. *Barber's Case.*

But if a pirate, having taken goods from the subjects of a prince, (even though in league with us,) bring the goods, and sell them in open market, the same shall bind, and the owners are for ever excluded. *Bingley's Case.* 1 *Rolls Abridg.* 530. *Lit. c.* 4. *Grot. l.* 3. *c.* 9. *s.* 16.

PISSELÆUM, oil of pitch, the watery part which swims on pitch, and is separated therefrom while the pitch is boiling, by spreading over it clean wool, which, as soon as it is thoroughly moistened with the ascending vapour, is wrung into a vessel, and this is repeated as long as the pitch continues to boil. It is effectual for the same purposes as tar.

PISSELÆUM INDICUM, commonly called Barbadoes tar, is a mineral fluid of the nature of the thickest or more tenacious bitumens. It is a dusky-coloured matter, less viscid than asphaltum, and about the consistence of treacle. It is of a nauseously bitterish taste, and very disagreeable smell. It is soluble in oil, and is very frequent in America, where it is found trickling down the sides of mountains in large quantities, and sometimes floating on the surface of the waters; but it seems to be almost lost at this time in the country (India) whence it was originally named. It is not unknown in some of the northern counties of England, where it goes by the name of rock-oil, and is used in farriery externally for bruises and sprains. It has been greatly recommended internally in coughs and other disorders of the breast. For the foreign names of this article, *see* BARBADOES TAR.

PISTACHIA, Pistacia, or Pistachio Nuts, (Ger. *Pistaschen.* Du. *Pistasjes.* Da. *Pistacier, Pistaser.* Sw. *Pistacier.* Fr. *Pistaches.* It. *Pistacchi, Fastucchi.* Sp. *Alfocigos.* Port. *Pistacias, Fisticos.* Pol. *Pistacye.* Lat. *Pistaciæ,*) are the fruit of the *pistachia terebinthus,* a kind of turpentine tree. It grows naturally in Arabia, Persia, and Syria; also in Sicily, whence the nuts are annually brought to us. There are likewise some species of this tree cultivated in the East Indies, and in several parts of Portugal, Spain, Italy, and France. The fruit loses much of its beauty by drying, but improves perhaps in flavour. The tree, when laden with clusters of the ripe, smooth nuts, of a beautiful pale bluish colour, makes a fine appearance. It seldom exceeds thirty feet in height, and is often not more than twenty; the trunk, which is proportionally short, is about three, or three feet and a half, in circumference. Some of these trees have male, and others female flowers, and some both male and female on the same tree. The female flowers come out in clusters on the sides of the branches: they have no petals, but a large oval germen, supporting

three reflexed styles, and are succeeded by oval nuts. These nuts are moderately large, containing a kernel of a pale greenish colour, covered with an outer husk of different hues, from almost white to red. They have a pleasant, sweet, and unctuous taste, resembling that of almonds, and abound with a sweet, well-tasted oil, which they yield in great abundance, on being pressed after bruising them. They are wholesome and nutritive, and in medicine are classed among the analeptics and restoratives. Pistachia nuts are very proper to be eaten moderately by people emaciated with long illnesses, and are recommended as peculiarly good to prevent obstructions of the liver. They are also found of service in nephritic cases. The Persian pistachias, and those of the eastern countries, are far superior to those of any part of Europe. Vast quantities of pistachia nuts of excellent quality are annually carried to Aleppo, where they are in such demand among the inhabitants of the adjacent country, that seldom more than two hundred quintals are exported to Europe, in the course of a year. The crop of pistachia nuts is, year after year, alternately meagre, and abundant, in the island of Sicily. The quantity exported in a plentiful season is about six hundred and fifty salmes; and at other times, seldom more than one-fourth of that amount. The ordinary price of the Sicilian pistachias is four ounces, fifteen tarins, or nearly 8*s.* per salme. The greater part of the pistachia nuts, grown in Sicily, are exported to Genoa, Leghorn, Venice, Marseilles, and to the English ports. The shell of the pistachio is sometimes preserved green, and in this state forms an article in confectionary. The kernels are likewise frequently pickled, ere they arrive at maturity, in the same manner as gherkins. There is a sort of spurious pistachia nut, which grows in some of the West India islands, but which is by no means comparable to the true nut, nor indeed can it be used as a substitute for the latter.

PISTAREEN, an old name for a Spanish coin, worth something less than a shilling, still current under that name in the West Indies, but called, in Spain itself, pecatas.

PISTOL, a small hand-gun, of a structure too well known to require particular description. Pistols are of various sizes, some being so small that they may be deposited in the waistcoat-pocket; these are called pocket-pistols; others, such as duelling and horse-pistols, are sometimes nearly half as long as a carbine. Pistol barrels are oftentimes rifled, and have frequently the addition of a sight. The best pistols are manufactured at London; those of an inferior kind at Sheffield, and Birmingham. The stocks of the pistols intended for the Turkey trade, are usually inlaid with silver, gold, mother of pearl, &c.; and are on the whole far more costly than those sent to any other part of the world. Pistols, if well mounted, fetch excellent prices at Constantinople and Smyrna.

PISTOLE, the name of a coin and imaginary money, in use in several parts of Europe, more especially in Spain, Italy, and Switzerland. The pistole of Spain of 1801 is worth about 16*s.* The Spanish pistole of gold passes in the French and British West Indies at 16*s.* 9*d.*

PISTON, a part of the machinery in all pumps, commonly called the sucker. *See titles* ENGINE, and PUMPS.

PITCH. (Ger. *Pech.* Du. *Pek.* Da. *Beg.* Sw. *Beek.* Fr. *Poix, Brai.* It. *Pece.* Sp. *Pez.* Port. *Brea.* Rus. *Smola gustaja.* Pol. *Smola.* Lat. *Pix.*) Tar boiled down to dryness is the common black pitch: this part of the process is commonly performed in a still, in order to save an essential oil, which arises in the boiling, and which is called, from the name of the tree which tar is principally prepared from, *oleum pini,* and *oleum tædæ.* This oil is greatly valued by painters, varnishers, &c., on account of its drying quality: it soon thickens of itself almost to the consistence of a balsam. Along with the oil there comes over a watery liquor, which the workmen injudiciously throw away, though it is a good acid, (now known to be the pyroligneous,) capable of being applied to sundry useful purposes.

Pitch is not a pure and perfect resin; it has not only suffered a notable change from the heat employed in its preparation, but likewise participates of the other principles of the wood of a gummy and saline nature, and of a burnt earth. Hence its disposition to separate and precipitate, when melted with oils, fats, and resins, into plasters and ointments; and hence it is gradually corroded by air and moisture, when employed as a cement or defence for wood or other substances, in ships, carriages, cisterns, casks, shingle coverings for houses, &c. Shipbuilders endeavour to improve their tar and pitch, so as to render them more durable, by various additions. *See* PINE-TREE.

The soot which arises in the burning of pitch is the substance commonly sold under the name of lamp-black: in France the pitch is burnt for this purpose in a kind of furnace made of tiles, so disposed as to prevent the escape of the smoke.

What is called lamp-black (originally the soot collected from lamps) is obtained in different parts of Germany, Sweden, &c., not from pure resin or pitch, but from the dregs and pieces of bark of the tree separated in their preparation. For making common resin, the impure juice collected from incisions in pines and fir-trees is boiled down with a little water, and strained, while hot, through a sack: on cooling, the resin congeals upon the surface of the water, and is then packed up in barrels; it is distinguished,

according to its colour, into white, yellow, and brown. The dross left on straining is burnt for lamp-black, in a low oven, from which the smoke is conveyed by a long passage into a square chamber, having an aperture in the top, upon which a large sack is fastened: the soot concretes partly in the sack, which is occasionally removed, and partly in the chamber and passage, from which it is swept out.

Though abundance of pitch is made in Great Britain, we import vast quantities of the article from Russia, Sweden, and North America.

PITCH, *Burgundy*. *See* TAR.

PITCH, *Mineral*. *See* PISSELÆUM INDICUM, and BARBADOES TAR.

PITCH, *Jews'*. *See* ASPHALTOS.

PITCH-STONE. *See* ASPHALTUM.

PITCH-BLENDE is a mineral found in masses, or else stratified with other earths or minerals in the Swedish and Saxon mines.

PIT-COAL. *See* COAL.

PITI, a copper coin, current in the island of Japan at the value of one-fifth of a penny sterling.

PLAGUE, a pestilential disease, against the introduction of which into this kingdom the laws of quarantine have been enacted. *See* QUARANTINE.

PLAID, a striped or variegated stuff, sometimes made of silk, sometimes of wool, and sometimes of a mixture of these substances. Plaids are usually divided into broad and narrow striped plaids, and are manufactured principally in Scotland, where they are a very favourite dress, especially among the lower orders of the people.

PLAINTIFF (in law), the complainant, or he who brings an action against another.

PLANES, (Ger. *Hobel*. Du. *Schaaven*. Da. *Hövel*. Sw. *Höflar*. Fr. *Rabots*. It. *Pialle*. Sp. *Cepillos*, *Planas*. Port. *Cepilhos*, *Plainas*. Rus. *Strug*. Pol. *Hebly*,) in joinery, are edged tools, or instruments for paring and shaving wood smooth.

The plane consists of a piece of wood, very smooth at bottom, as a stock or shaft; in the middle of which is an aperture, through which a steel-edge, or chisel, placed obliquely, passes, which being very sharp, takes off the inequalities of the wood it is slid along. Planes have various names, according to their various forms, sizes, and uses; as, 1. The fore-plane, which is a very long one, and is usually that which is first used; the edge of its iron or chisel is not ground straight, but rises with a convex arch in the middle; its use is to take off the greater irregularities of the stuff, and to prepare it for the smoothing-plane. 2. The smoothing-plane is short and small, its chisel being finer; its use is to take off the greater irregularities left by the fore-plane, and to prepare the wood for the jointer. 3. The jointer is the longest of all; its edge is very fine, and does not stand out above a hair's breadth; it is chiefly used for shooting the edge of a board perfectly straight, for jointing tables, &c. 4. The strike-block, which is like the jointer but shorter; its use is to shoot short joints. 5. The rabbit-plane, which is used in cutting the upper edge of a board, straight or square, down into the stuff, so that the edge of another, cut after the same manner, may join in with it, on the square; it is also used in striking fascias on mouldings; the iron or chisel of this plane is as broad as its stock, that the angle may cut straight, and it delivers its shavings at the sides, and not at the top, like the others. 6. The plough, which is a narrow rabbit-plane, with the addition of two staves, on which are shoulders; its use is to form a narrow square groove on the edge of a board. 7. Moulding-planes, which are of various kinds, accommodated to the various forms and profiles of the moulding; as the round-plane, the hollow-plane, the ogee, the snipe's bill, &c., which are all of several sizes, from half an inch to an inch and a half.

PLANKS, (Ger. and Du. *Planken*. Da. *Planker*. Sw. *Plankor*. Fr. *Planches*. *Bordages*. It. *Tavole*. Sp. *Tablas*. Port. *Pranchas*, *Taboas*. Rus. *Tolstüe olosku*,) thick strong boards, cut from various kinds of wood, especially oak, pine, and fir. Planks are usually of the thickness of, from one inch, to four. They are imported in large quantities from the northern parts of Europe, particularly from the ports of Dantzick, Archangel, Petersburgh, Narva, Revel, Riga, and Memel, as well as from several parts of North America. Those of Christiana, in Norway, are the best in the world. *See title* EUROPE, *article* Norway.

PLANK, *thick*. (Ger. *Bohlen*. Du. *Balkplanken*. Da. *Bohler*. Sw. *Bjelkplankor*. Fr. *Madiers*. It. *Tavolini*, *Tavole grosse*. Sp. *Tablones*. Port. *Pranchões*.) The planks which are used as mediums of communication between vessels and the shore, and for other purposes requiring durability and strength, are thus called.

PLANTATIONS are territories in some foreign part, peopled by, and dependent upon, the mother country; and they are either provincial establishments, whose constitutions depend upon the instructions given by the crown to their governors; proprietary governments, granted by the crown to individuals; or chartered governments, in the nature of civil corporations. For the recent regulations relating to the British Plantations, *see* NAVIGATION.

In actions of debt, or account, between persons resident in Great Britain, and others in any of the British plantations, the plaintiff, defendant, or any witness, may prove any matter by affidavit, in writing, upon oath before any mayor, or other chief magistrate, near to which such party shall reside, and certified and transmitted under

the common seal of the city, or the seal of the office of such mayor; and every oath so certified and transmitted shall be as good and valid, as if the party had appeared and sworn such affidavit in open court: such affidavit must contain the name, and place of abode, of the party making the same.

Houses, lands, negroes, and all real estates within the plantations, belonging to any persons indebted, shall be liable to satisfy all debts due to his majesty, or any of his subjects, and shall be considered as assets for the satisfaction of the same, in like manner as real estates are by the laws of England, and subject to the same remedies. *See titles* SHIPPING, and MAYOR.

PLANTER, a denomination given to the owner of a plantation; in a commercial sense it is peculiarly applicable to one who cultivates sugar, &c. in the West Indies.

PLAPECK, a silver coin of Germany, worth $2\frac{1}{10}d.$ sterling.

PLAPERCT, a silver coin of Switzerland, worth $1\frac{3}{5}d.$ sterling.

PLASM, a mould or matrix, in which any thing is cast or formed.

PLASTER, or Plaister, a substance made of water and some absorbent matter, such as chalk, or lime, well pulverised, with which walls are overlaid, or figures cast.

PLASTER OF PARIS. The sulphate of lime, after being calcined, is termed burned gypsum, or plaster of Paris.

The following approved mode of casting plaster of Paris on copper-plates, may very properly be introduced in this place.

First rub the colour, either red, brown, or black, into the graving, and wipe the plate clean; then mix as much plaster as you think you shall have occasion for, with fresh water, to the consistence of a thin paste, and having put a border round the plate, of four pieces of reglet, pour the plaster upon it, and move it so as that it may run even all over the plate: let it stand for an hour, or longer, according to the dimensions of the plate, and when you find it dry, and turned hard, take off the reglets, and then the plaster, and you will have a fine impression of the copper graving. You must observe not to mix more at a time than you have occasion, else it will grow hard before you can use it.

PLASTER, (Ger. *Pflaster*. Du. *Plaaster*. Da. and Sw. *Plaster*. Fr. *Emplâtre*. It. *Impiastro*. Sp. *Emplasto*. Port. *Emplastro, Parche*. Rus. *Plustur*. Pol. *Plastr*. Lat. *Emplastrum*,) in pharmacy, a glutinous or adhesive salve, spread upon leather or cloth, and in that state to be applied as a covering of sores, &c.

PLATA, or Plate, in Spanish commerce, a word denoting silver species, as *vellon* denotes copper species; by these two terms they also distinguish between several of their monies of account.

PLATE, gold or silver wrought into household furniture.

Every dealer in plate is obliged to take out an annual license by the laws of excise, 32 Geo. 2. c. 24. To prevent frauds in the making of plate, by several statutes, assayers are appointed in certain places for the assaying and marking it. The 6 Geo. 1. c. 11. contains the regulations respecting the standard of fineness; and 24 Geo. 3. c. 53. those respecting the mode of proceeding to have it assayed according to such standard. The 44 Geo. 3. c. 98. and 52 Geo. 3. c. 59. allow certain drawbacks on the exportation of manufactured plate, as well for private use, as for merchandise.

PLATINA, the heaviest of all metals, its specific gravity being to that of water, as twenty-three to one; that of gold being only nineteen. Its colour is that of the purest silver. The very small globules of it are extremely malleable; but when many of these are collected together, they can scarcely be so perfectly fixed as to preserve the same degree of malleability. They are not in the least affected by the magnet, nor can they be dissolved in any simple menstruum, excepting dephlogisticated marine acid. Platina, however, as it is commonly met with, is mixed with many foreign substances, as gold, mercury, and blackish, ferruginous, sandy particles. In this state it has the form of small grains, its plates of a bluish-black, whose colour is intermediate betwixt those of silver and iron. The great specific gravity of platina has rendered it a very desirable matter for such as wish to adulterate the precious metals. This, however, can only be done in South America, where platina is met with in plenty. In Europe, its scarcity renders it a more valuable object than gold itself. Fears of this fraud have undoubtedly given occasion to the prohibition of exporting it from America. It is not difficult to discover the adulteration by this metal, through the medium of green vitriol, which throws down the gold, and leaves the platina united with the menstruum: and by various other methods, but chiefly by its specific gravity. Platina has been remarkable, ever since its first discovery, for being the most infusible substance in the world. It has been kept in the most violent heat of a glass furnace, for several days, without undergoing any alteration. This refractory metal was first melted with a large burning mirror. It has since been found not only capable of fusion, but of vitrification, by electricity.

Platina is one of the metals for the discovery of which we are indebted to our contemporaries. Ulloa appears to have first mentioned it in 1735; and our countryman Wood brought a quantity from Jamaica in 1741. It was supposed to be found only in Spanish America, among the gold mines there. However, it has lately been dis-

covered in Spain, in the mines of Guadalcanal, which have been re-opened: and there are said to be two ancient candlesticks in a cathedral in Germany, apparently made of it before America was discovered.

The part of the world where platina is found in the greatest abundance, at the present day, is South America. Santa Fé, near Carthagena, is the only place in South America where it is to be met with, and hence the Spaniards have been in the habit of procuring it since the year 1750, or thereabouts.

Platina is with difficulty oxidized; hence it is of great use in chemical instruments, for crucibles, to tip the blow-pipe. &c. and for conducting the galvanic fluid. It is also employed for the touch-holes of guns. The following is Dr. Wollaston's method of drawing very fine wire of this metal: Platina is stretched in the centre of a mould, and the mould filled with silver; the silver is then drawn out into a fine wire, and of course the platinum with it; the wire is then put into nitric acid, which dissolves the silver, but does not act upon the platina: the central wire of platina is thus left in a state of extreme fineness.

Platina may be made to form a fine coat over other metals, by dissolving it in aqua-regia, and adding ether to the solution, which combines with a portion of the platina, and swims above the surface of the acid solution; this is to be applied to the substance to be coated, then washed in water, to free it entirely from acid, and carefully dried.

It has also been proposed to be used in enamel painting, instead of silver, which is apt to tarnish; and various coloured alloys may be produced, by combining it with different proportions of gold, which may be applied to many purposes.

PLATING, is the art of covering baser metals with a thin plate of silver, either for use, or for ornament. It is said to have been invented by a spur-maker, not for show, but for real utility. Till then the more elegant spurs in common use were made of solid silver; and from the flexibility of that metal, they were liable to be bent into inconvenient forms by the slightest accident. To remedy this defect, a workman at Birmingham contrived to make the branches of a pair of spurs hollow, and to fill that hollow with a slender rod of steel or iron. Finding this a great improvement, and being desirous to add cheapness to utility, he continued to make the hollow larger, and of course the iron thicker and thicker, till at last he discovered the means of coating an iron spur with silver in such a manner, as to make it equally elegant with those which were made wholly of that metal. The invention was quickly applied to other purposes; and to numberless utensils, which were formerly made of brass or iron, are now given the strength of these metals, and the elegance of silver, for a small additional expense.

The silver plate was formerly made to adhere to the baser metal by means of solder; which is of two kinds, the soft, and the hard, or the tin, and silver, solders. The former of these consists of tin alone, the latter generally of three parts of silver, and one of brass. When a buckle, for instance, is to be plated by means of the soft solder, the ring, before it is bent, is first tinned, and then the silver-plate is gently hammered upon it, the hammer employed being always covered with a piece of cloth. The silver now forms, as it were, a mould to the ring, and whatever of it is not intended to be used, is cut off. This mould is fastened to the ring of the buckle by two or three cramps of iron wire; after which the buckle, with the plated side undermost, is laid upon a plate of iron sufficiently hot to melt the tin, but not the silver. The buckle is then covered with powdered resin, or anointed with turpentine; and lest there should be a deficiency of tin, a small portion of rolled tin is likewise melted on it. The buckle is now taken off with tongs, and commonly laid on a bed of sand; where the plate and the ring, while the solder is yet in a state of fusion, are more closely compressed by a smart stroke with a block of wood. The buckle is afterwards bent and finished.

The usual mode of plating is, to fasten plates of silver upon thicker plates of copper, and then to roll them together into thin plates. The copper is twelve times thicker than the silver, and one ounce of silver is rolled to a surface of three feet or more. The plates being thus made, they are then stamped by a single stroke into the size and form of buckles, buttons, spoons, &c.

It was a considerable period after the first invention of plating, before any other mode of manufacture, beside that we have been describing, was introduced; all the different articles, whether open, or solid, being made of plates stamped, or unstamped, pierced like open work, or plain and uniform on their surfaces. Time and improvement have, however, introduced a new variety of plated work, quite different in its texture, and which is applied to articles of ornament made with *open work*. This is plated wire; the making of which is an entirely distinct branch of the business.

The pieces of metal, to be plated for the purpose of making wire, are forged out of bar copper unalloyed. The true cylindrical shape is given to the copper by wire-drawing. The silver is then laid upon it much thinner in proportion to the copper than in the sheet-metal. The silver is first formed into a tube, one edge projecting a little over the other. A copper cylinder, a little less in diameter than the tube, and so much longer as to admit one end of it being fastened into a hole, is then heated red-hot, and fastened by one end in the hole; the tube is then slipped upon it, with the seam upwards. A

flat steel burnisher, with rounded polished edges, and a handle at each end, is now rubbed briskly backward, and forward, upon the over-lapped edges of silver, at the same time using considerable pressure. By these means, the two surfaces are completely welded together, and the place of union scarcely discoverable. The cylinder of copper, intended to be plated, is now made perfectly clean, the inside of the silver tube being the same. It is then put upon the cylinder, which is about two inches longer than the tube; a small groove is made round the cylinder, coinciding with the ends of the silver tube; into this groove the ends of the tube are closely worked, so as to render the space between the tube and the cylinder perfectly air-tight. When the cylinder and tube are together heated slightly red-hot, the same burnisher that was used to unite the tube, is now rubbed briskly over it in a longitudinal direction. This unites the silver firmly to the copper, and renders it fit for drawing into wire of various forms and sizes.

The common machinery for drawing brass and copper wire is then used. The great variety of figure and form given to it depends upon the plate through which it is drawn. Some is flat, some half round, some fluted. It is used for making bread-baskets, toast-racks, snuffers, and other light articles of elegant workmanship. This wire, after drawing, like sheets after rolling, is annealed, and cleaned with hot, diluted, sulphuric acid.

The last improvement, in plated manufacture, is the introduction of silver edges, beads, and mouldings.

PLATING is likewise applied to the mode of covering felt hats with a coat or surface of beaver, which gives the article nearly the appearance of a fine castor hat, but not its durability. *See* HATS.

PLATTING, the slips of cane, straw, or chip for making hats, woven, or platted into pieces.

PLEDGE. *See* PAWN.

PLIERS, an instrument like a pair of pincers, by which any thing is laid hold on to bend it.

PLOUGH, in agriculture, a well-known machine for the breaking up of ground, that consists of a train, and two large irons, namely, the coulter and the share; the one pointed, the other edged.

The iron parts of ploughs are manufactured principally at Sheffield, Birmingham, Wolverhampton, Dudley, &c.; the wooden frames are made in almost every considerable town and village throughout Great Britain.

PLUMS, or DRIED PLUMS, (GER. *Getrocknete pflaumen oder zwetschen.* DU. *Drooge pruimen.* DA. *Törre blommer.* SW. *Torra plommon, Sviskon.* FR. *Pruneaux, Prunes sèches.* IT. *Prugne ò susine seeche.* SP. *Ciruelas pasas.* PORT. *Passa de ameixas* RUS. *Tschernosliw.* POL. *Sliwki suche,*) more usually are the fruit of the plum-tree, dried in the sunshine, or in an oven. The best kind of plums known in commerce are the large black ones brought from Bourdeaux. There are other parts of France which produce excellent plums, whence the Dutch procure large quantities, and extract from them a liquor, which they make use of at sea, esteeming it a fine antiscorbutic. These are of a smaller kind, and are what we know by the distinction of *prunes.*

Germany is also noted for the excellence and abundance of its prunes. In Bamberg, the capital of the bishopric of the same name, prunes, by no means inferior to those of France, are frequently to be met with; these are the produce of the surrounding country, and are sent in large quantities to Holland.

The county of Hanau is also fertile in plums, which are dried and sent to Frankfort on the Maine, whence they are exported to England, Holland, &c.

At Amsterdam are found both sorts of dried plums. These are sold by the quintal of 100lb. with an allowance of 18 per cent. for tare; of 2 per cent. for fair or good weight, and of 1 per cent. for prompt payment.

Prunes are mostly employed for culinary purposes; and the larger sort of French plums as a sweet-meat.

PLUMBAGO, or black lead, is a well-known substance, of a black colour, and shining appearance when cut. Its texture is rather scaly, but its fracture exhibits a granular and dull appearance. None of the specimens have any considerable hardness. *See title* BLACK-LEAD; *also,* ANTI-ATTRITION.

PLUMBERY, the art of casting, and working, lead, and using it in buildings.

As this metal melts very readily, it is easy to cast it into figures of any kind, by running it into moulds of brass, clay, plaister, &c. But the chief article in plumbery is sheets and pipes of lead; and as these make the basis of the plumber's work, we shall here give the process of making them.

In casting sheet-lead, a table or mould is made use of, which consists of large pieces of wood well jointed, and bound with bars of iron at the ends; on the sides of which runs a frame, consisting of a ledge, or border of wood, two or three inches thick, and two or three inches high from the mould, called the sharps; the ordinary width of the mould, within these sharps, is from three, to four, feet, and its length is sixteen, seventeen, or eighteen feet. This should be something longer than the sheets are intended to be, in order that the end, where the metal runs off from the mould, may be cut off; because it is commonly thin, or uneven, or ragged at the end. It must stand very even or level in breadth, and something falling from the

end in which the metal is poured in, viz. about an inch, or an inch and a half, in the length of sixteen, or seventeen, inches. At the upper end of the mould stands the pan, which is a concave triangular prism, composed of two planks nailed together at right angles, and two triangular pieces fitted in between them at the ends. The length of this pan is the whole breadth of the mould, in which the sheets are cast; it stands with its bottom, which is a sharp edge, on a form at the end of the mould, leaning with one side against it; and on the opposite side is a handle to lift it up by, to pour out the melted lead; and on that side of the pan next the mould, are two iron hooks to take hold of the mould, and prevent the pan from slipping, while the melted lead is pouring out of it into the mould. This pan is lined on the inside with moistened sand, to prevent it from being fired by the hot metal. The mould is also spread over, about two-thirds of an inch thick, with sand sifted and moistened, which is rendered perfectly level by moving over it a piece of wood called a strike, by trampling upon it with the feet, and smoothing it over with a smoothing-plane; which is a thick plate of polished brass, about nine inches square, turned up on all the four edges, and with a handle fitted on to the upper, or concave, side. The sand being thus smoothed, it is fit for casting sheets of lead; but if they would cast a cistern, they measure out the size of the four sides, and having taken the dimensions of the front or fore-part, make mouldings, by pressing long slips of wood, which contain the same mouldings into the level sand, and form the figures of birds, beasts, &c. by pressing in the same manner leaden figures upon it, and then taking them off, and at the same time smoothing the surface where any of the sand is raised up by making these impressions upon it. The rest of the operation is the same in casting either cisterns or plain sheets of lead. But before we proceed to mention the manner in which that is performed, it will be necessary to give a more particular description of the strike.

The strike then is a piece of board about five inches broad, and something longer than the breadth of the mould on the inside; and at each end is cut a notch, about two inches deep, so that when it is used, it rides upon the sharps with those notches. Before they begin to cast, the strike is made ready by tacking two pieces of an old hat on the notches, or by slipping a case of leather over each end, in order to raise the under side about one-eighth of an inch, or something above the sand, according as they would have the sheet to be in thickness; then they tallow the under edge of the strike, and lay it across the mould. The lead being melted, it is laded into the pan, in which, when there is a sufficient quantity for the present purpose, the scum of the metal is swept off with a piece of board to the edge of the pan, letting it settle on the sand, which is by these means prevented from falling into the mould, at the pouring out of the metal. When the lead is cool enough, which is known by its beginning to stand with a shell or wall on the sand round the pan, two men take the pan by the handle, or one of them lifts it up by a bar and chain, fixed to a beam in the ceiling, and pour it into the mould, while another man stands ready with the strike, and, as soon as they have done pouring in the metal, puts on the mould, sweeps the lead forward, and draws the overplus into a trough prepared to receive it. The sheets being thus cast, nothing remains but to planish the edges, in order to render them more smooth and straight; but if it be a cistern, it is bent into four sides, so that the two ends may join the back, where they are soldered together, after which the bottom is soldered up.

The method of casting pipes without soldering. — To make these pipes they have a kind of little mill, with arms or levers to turn it with. The moulds are of brass, and consist of two pieces, which open, and shut, by means of hooks and hinges, their inward caliber or diameter being according to the size of the pipe to be made, and their length is usually two feet and a half. In the middle is placed a core, or round piece, of brass or iron, somewhat longer than the mould, and of the thickness of the inward diameter of the pipe. This core is passed through two copper-rundles, one at each end of the mould, which they serve to close; and to these is joined a little copper tube about two inches long, and of the thickness the leaden pipe is intended to be of. By means of these tubes the core is retained in the middle of the cavity of the mould. The core being in the mould, with the rundles at its two ends, and the lead melted in the furnace, they take it up in a ladle, and pour it into the mould, by a little aperture at one end, made in the form of a funnel. When the mould is full, they pass a hook into the end of the core, and turning the mill, draw it out; and then opening the mould, take out the pipe. If they desire to have the pipe lengthened, they put one end of it in the lower end of the mould, and pass the end of the core into it; then shut the mould again, and apply its rundle and tube as before, the pipe just cast serving for rundle, &c. at the other end. Things being thus replaced, they pour in fresh metal, and repeat the operation till they have got a pipe of the length required.

For making pipes of sheet-lead, the plumbers have wooden cylinders of the length and thickness required, and on these they form their pipes by wrapping the sheet around them, and soldering up the edges all along them.

The other articles made by the plumber,

besides those already mentioned, are chiefly coffins, cisterns, pumps, the apparatus for water-closets, &c.

PLUME-ALUM, (Ger. *Federalaun.* Du. *Pluimaluin.* Da. *Fierealun.* Sw. *Fjäderalun.* Fr. *Alun de plume.* It. *Allume de piuma.* Sp. *Alumbre de pluma.* Port. *Pedra hume de penna.* Lat. *Alumen plumosum,*) is a name given to two very different substances. The one appears to be true alum, produced by the desiccation of a luminous water, which transudes through grottoes and caverns, and leaves this salt behind in feathery crystals. This is seldom met with.

The other substance, to which this name is given, is the fibrous asbestos, which contains no alum; but from half to three-fourths of its weight of silex, from one-eighth to one-third of carbonat of magnesia, and the rest lime, with a minute proportion of clay, and sometimes iron.

PLUMMET, plumb-rule, or plumb-line, an instrument used by carpenters, masons, &c. in order to judge whether walls, &c. are upright planes, horizontal, or the like. It is thus called from a piece of lead, *plumbum,* fastened to the end of a cord, which usually constitutes this instrument. Sometimes the string descends along a wooden ruler, &c. raised perpendicularly on another, in which case it becomes a level.

PLUMMING, among miners, is the method of using a mine-dial, in order to know the exact place of the work where to sink down an air-shaft, or to bring an adit to the work, or to know which way the load inclines when any flexure happens in it.

A skilful person, with an assistant, and with pen, ink, and paper, a long line and a sun-dial, after his guess of the place above ground, descends into the adit or work, and there fastens one end of the line to some fixed thing in it; then the incited needle is let to rest, and the exact point where it rests is marked with a pen; he then goes on farther in the line still fastened, and at the next flexure on the adit he makes a mark on the line by a knot or otherwise; and then letting down the dial again, he there likewise notes down that point, at which the needle stands, in this second position. In this manner he proceeds, from turning to turning, marking down the points, and marking the line, till he comes to the intended place; this done, he ascends and begins to work on the surface of the earth what he did in the adit, bringing the first knot in the line to such a place where the mark of the place of the needle will again answer its pointing, and continues this till he comes to the desired place above ground, which is certain to be perpendicularly over the part of the mine into which the air-shaft is to be sunk.

PLUMULE, by some denominated *Acrospire,* signifies generally, in botany, the stem or stalk of a plant when it first begins to burst from the seed, and to grow. It claims notice *here* only, as applied to the operation of making malt. It is that inchoate artificial vegetation which is produced by steeping barley, in the process of malting it. *See title* MALT.

PLUSH, a kind of stuff having a sort of velvet nap, or shag, on one side, composed regularly of a single woollen thread, and a double warp; the one wool, or two threads twisted, the other goats' or camels' hair; though there are some plushes entirely of worsted, and others composed wholly of hair.

Plush is manufactured, like velvet, on a loom with three treadles; two of these separate and depress the woollen warp, and the third raises the hair warp, upon which the workman throwing the shuttle, passes the woof between the woollen, and hair, warp; and afterwards laying a brazen broach, or needle, under that of the hair, he cuts it with a knife destined for that use, conducting the knife on the broach, which is made a little hollow all its length, and thus gives the surface of the plush an appearance of velvet.

There are other kinds of plush, all of silk: some of which have a pretty long nap on one side, and some on the other. Some kinds of plush are likewise entirely made of worsted; these are, however, generally called shag. Cotton has also been recently introduced into manufactures of the plush kind.

POCKET, in the wool trade, a word used to denote a larger sort of bag, in which wool is packed up to be sent from one part of the kingdom to another. The pocket usually contains twenty-five hundred-weight of wool.

The pocket of *hops* is a small bag usually containing the best hops.

POCKET-BOOKS, (Ger. *Briftaschen.* Du. *Brieftassen.* Da. *Breftasker.* Sw. *Brefvaskor.* Fr. *Porte-feuilles.* It. *Cartelle.* Sp. *Carteras.* Port. *Carteiras,*) are small cases usually so compactly formed, that they may be carried in the pocket; whence their designation. Pocket-books are sometimes, however, equal in size to the port-folios of painters, &c.; being intended for the use of commercial travellers, and others who have occasion to carry about with them patterns of small volume, or considerable value. Pocket-books are usually made of Morocco leather of various colours, ornamented occasionally with silver or plated mountings, locks and clasps; but some are perfectly plain, and secured only by means of a strap. The best pocket-books are made at London, where they are finished in the most elegant style, and whence there is a considerable trade in the article to different parts of the world. At Birmingham there are several

persons engaged in this branch of trade, who derive considerable emolument from sending assorted parcels of pocket-books to the continent of Europe; where they have scarcely ever failed to meet a ready sale.

Fancy pocket-books made of silk, and embroidered, &c. are seldom exported from England; but in France, Spain, and Portugal, most of the religious recluses are engaged in making them, and baubles of a similar kind.

POINT, an iron or steel instrument, used with some variety in several arts. Engravers, etchers, cutters in wood, &c. use points to trace their designs on the various substances upon which they work. *See* ENGRAVING, &c.

POINT, in manufactures, is a general term used for all kinds of laces wrought with the needle; such as the *point de Venice*, the *point de France*, *point de Genoa*, &c. which are distinguished by the particular economy and arrangement of their points.

POINTING, in the sea language, as applied to the *cable*, is untwisting it at the end, lessening the yarn, twisting it again, and making all fast with a piece of marline, to keep it from ravelling out.

POISON-NUTS. (Ger. *Krähenaugen*. Du. *Braaknooten*, *Kraanvöoger*. Da. *Krantsöine*, *Bræknödder*. Sw. *Räfkaka*. Fr. *Noix vomiques*. It. *Noci vomiche*. Sp. *Mataperros*, *Matacan*, *Nuez vomica*. Port. *Noz vomica*, *Caniräo*. Rus. *Zälibuchu*. Pol. *Wronie oko*. Lat. *Nuces vomicæ*.) *See* NUX VOMICA.

POLCHEN, a German copper coin, equivalent to 7-30ths of a penny, sterling.

POLE, or *vertex of a glass*, is the thickest part of a convex, or the thinnest of a concave glass. If the glass be truly ground, the pole will be exactly in the middle of its surface.

POLE, Perch, or Rod, is a land-measure, containing sixteen feet and a half. Five and a half yards make a pole; forty poles *in length*, make a furlong; and forty *square* poles make a rood. It is here necessary to observe, that the pole is different in different counties; in Lancashire, seven yards make a pole; in Cheshire, an adjoining county, they reckon eight yards to the pole; and in some counties six yards go to a pole.

POLICY OF ASSURANCE, the deed or instrument by which a contract of assurance is effected.

A policy of insurance is, therefore, a contract between A. and B., that upon A.'s paying a premium equivalent to the hazard run, B. will indemnify, or insure, him against a particular event. This is founded upon one of the same principles, as the doctrine of interest upon loans, that of hazard; but not that of inconvenience. For if I insure a ship to the Levant, and back again, at five per cent., here I calculate the chance that she performs her voyage to be twenty to one against her being lost: and, if she be lost, I lose 100*l.* and get 5*l.* Now this is much the same as if I lend the merchant whose whole fortunes are embarked in this vessel, 100*l.* at the rate of eight per cent. For by a loan I should be immediately out of possession of my money, the inconvenience of which we have supposed equal to three per cent.: if therefore I had actually lent him 100*l.*, I must have added 3*l.* on the score of inconvenience, to the 5*l.* allowed for the hazard, which together would have made 8*l.* But, as upon an insurance, I am never out of possession of my money till the loss actually happens, nothing is therein allowed upon the principle of inconvenience, but all upon the principle of hazard. Thus, too, in a loan, if the chance of repayment depend upon the borrower's life, it is frequent (besides the usual rate of interest) for the borrower to have his life insured till the time of repayment; for which he is loaded with an additional premium, suited to his age, and constitution. Thus, if Sempronius has only an annuity for his life, and would borrow 100*l.* of Titius for a year; the inconvenience, and general hazard, of this loan, we have seen, are equivalent to 5*l.* which is therefore the legal interest: but there is also a special hazard in this case; for if Sempronius die within the year, Titius must lose the whole of his 100*l.* Suppose this chance to be, as one to ten: it will follow, that the extraordinary hazard is worth 10*l.* more, and therefore, that the reasonable rate of interest in this case would be fifteen per cent. But this the law, to avoid abuses, will not permit to be taken; Sempronius therefore gives Titius the lender only 5*l.* the legal interest; but applies to Gaius an insurer, and gives him the other 10*l.* to indemnify Titius against the extraordinary hazard. And in this manner, may any extraordinary, or particular, hazard be provided against, which the established rate of interest will not reach; that being calculated by the state to answer only the ordinary and general hazard, together with the lender's inconvenience in parting with his specie for the time. 2 *Black.* 459.

Insurance is, however, in effect nothing more than a wager, for the underwriter, who insures at five per cent. receives five pounds, to return one hundred upon the contingency of a certain event; and it is precisely the same in its consequences, as if he had betted a wager of 95*l.* to five, or nineteen to one, that the ship arrives safe, or that a certain event does not happen. So where a life is insured for a year at ten per cent., that is, where ten pounds are received to pay one hundred, if a certain person die within a year; this insurance is in effect precisely the same, as a wager of nine to one, that the person, whose life is insured, lives a year. It is not surprising, then, that insurance should

have become so prevalent, and pernicious, a mode of gaming, that the legislature was obliged to repress it, and to confine it within those limits, within which it is beneficial, or absolutely necessary, to the security of commerce. The writers on mercantile law, with that natural partiality which authors feel for their subjects, have amused themselves by endeavouring to discover what country could first claim the honour of the invention of insurance. But it is a contract far too simple, and too obvious to the understandings of mankind, however uncultivated, to be dignified by the name of invention. Yet its progress and refinements would be a necessary consequence of the extension of commerce, and the gradual improvement in the science of law. *Ibid. N.* by *Chris.*

The premium or consideration paid for the risk or hazard assured against, must be inserted in the policy, and likewise the day, month, and year, on which the policy is executed, and it must be duly stamped.

Policies for assurance against the risks of sea are distinguished into valued, and open, policies; in the former, the goods or property assured are valued at prime cost, at the time of effecting the policy of insurance; in the latter the value is not mentioned, but is left to be afterwards declared, or to be proved in the event of a claim. In a valued policy, the proper effect of the valuation is the affecting the amount of the prime cost, in the same manner, as if the parties had admitted it at trial; but for every other purpose it must be taken, that the value was fixed in such a manner, as that the insured meant to have an indemnity, and no more. The practice of permitting the insured on a valued policy to recover the whole sum insured upon a total loss, though his interest is less than that sum, is against the statute. A valued policy on profits expected upon a voyage is not within the act, the object of insurance being an indemnity. When a policy is once executed, it cannot be altered by either party; as this would open the door to an infinite variety of frauds, and introduce uncertainty into a species of contract, of which certainty and precision are the most essential requisites. If, however, a policy be filled up by mistake different from the original agreement, it may, even after signing, be corrected by the consent of both parties. An underwriter may, however, shift the insurance, or any part of it, from himself to other insurers, by causing a re-insurance to be made on the same risk, and the new insurers will be responsible to him, in case of loss, to the amount of the re-insurance; but the re-insurer is only responsible to the original *insurer*, and not to the original *insured*.

The form of the policies in common use among the underwriters of London, for sea assurances, is nearly the same that was adopted two hundred years ago; but, as Mr. Park justly observes, its antiquity cannot free it from just censure, on account of its irregularity and confusedness, as well as its frequent ambiguity, occasioned by the same words being used in different senses. The policies, generally used for assurances on lives, or against fire, are infinitely more correct and intelligible.

For decided cases relative to policies, *see* INSURANCE.

FORMS OF POLICIES.

Form of a Policy of Assurance upon a Ship and Furniture, pursuant to Statute.

£500. ——— S. delivered the day of } In the name of God, Amen. as well in own name, as for and in the name and names of all and every other person to whom the same doth, may, or shall, appertain, in part or in all, doth make assurance, and cause and them, and every of them, to be assured, lost or not lost, at and from upon the body, tackle, apparel, ordnance, munition, artillery, boat, or other furniture, of and in the good ship or vessel called the whereof is master, under God, for this present voyage, or whomsoever else shall go for master in the said ship, or by whatsoever other name or names the same ship, or the master thereof, is or shall be named or called: beginning the adventure upon the said ship, &c. from and immediately following and so shall continue and endure until the said ship, with her said tackle, apparel, &c. shall be arrived at and there hath moored at anchor twenty-four hours in good safety; and it shall be lawful for the said ship in this voyage to proceed and sail to and touch and stay at any ports or places whatsoever without prejudice to this assurance; the said ship, &c. for so much as concerns the assured, is, and shall be valued at Touching the adventures and perils at which we the assurers are content to bear and to take upon us in this voyage, they are, of the seas, men of war, fire, enemies, pirates, rovers, thieves, jettisons, letters of mart and countermart, surprisals, takings at sea, arrests, restraints, and detainments of all kings, princes, and people, of what nation, condition, or quality soever, barratry of the master and mariners, and all other perils, losses, or misfortunes, that have or shall come to the hurt, detriment, or damage of the said ship, &c. or any part thereof: and in case of any loss or misfortune, it shall be lawful to the assured, their factors, servants, and assigns, to sue, labour, and travel, for, in, and about, the defence, safeguard, and recovery, of the said ship, &c., or any part thereof, without prejudice to this assurance, to the charges whereof we the assurers will contribute each one according to the rate and quantity of his sum

herein assured: and it is farther agreed by us, the assurers, that this writing or policy of assurance shall be of as much force and effect as the surest writing or policy of assurance heretofore made in Lombard-street, or in the Royal Exchange, or elsewhere in London: and so we the assurers are contented, and do hereby promise and bind ourselves, each one for his own part, our heirs, executors, and goods, to the assured, their executors, administrators, and assigns, for the true performance of the premises, confessing ourselves paid the consideration due unto us for this assurance by the assured of at and after the rate of In witness whereof we the assured have subscribed our names and sums assured in London.

N. B. The ship and freight warranted free from average under three pounds per cent. unless general, or the ship be stranded.

Policy of Assurance upon Goods, ditto.

£1000 ——— G. delivered the day of } In the name of God, Amen. as well in own name, as for and in the name and names of all and every other person or persons to whom the same doth, may, or shall appertain, in part or in all, doth make assurance, and cause and them, and every of them, to be assured, lost or not lost, at and from upon any kind of goods and merchandise whatsoever, loaden, or to be loaden, on board the good ship or vessel called the whereof is master, under God, for this present voyage, or whosoever else shall go for master in the said ship, or by whatsoever other name or names the same ship, or the master thereof, is or shall be named or called: beginning the adventure upon the said goods and merchandise from and immediately following the loading thereof on board the said ship and so shall continue and endure until the said ship, with the said goods and merchandise whatsoever, shall be arrived at and the same there safely landed: and it shall be lawful for the said ship, in this voyage, to stop at any ports or places whatsoever without prejudice to this assurance: the said goods and merchandise, by agreement, are and shall be valued at

Touching the adventures and perils which we the assurers are contented to bear, and do take upon us in this voyage, they are, of the seas, men of war, fire, enemies, pirates, rovers, thieves, jettisons, letters of mart and countermart, surprisals, takings at sea, arrests, restraints, and detainments of all kings, princes, and people, of what nation, condition, or quality soever; barratry of the masters and mariners, and of all other perils, losses, and misfortunes, that have or shall come to the hurt, detriment, or damage, of the said goods and merchandise, or any part thereof: and in case of any loss or misfortune, it shall be lawful to the assured, their factors, servants, and assigns, to sue, labour, and travel, for, in, and about the defence, safeguard, and recovery of the said goods and merchandise, or any part thereof, without prejudice to this assurance, to the charges whereof we the assurers will contribute, each one according to the rate and quantity of his sum herein assured; and it is agreed by us the assurers, that this writing or policy of assurance shall be of as much force and effect as the surest writing or policy of assurance heretofore made in Lombard-street, or in the Royal Exchange, or elsewhere in London: and so we the assurers are contented, and do hereby promise and bind ourselves, each one for his own part, our heirs, executors, and goods, to the assured, their executors, administrators, and assigns, for the true performance of the premises, confessing ourselves paid the consideration due unto us for this assurance by the assured at and after the rate of In witness whereof we the assurers have subscribed our names and sums assured in London.

N. B. Corn, fish, salt, fruit, flour, and seeds, are warranted free from average, unless general, or the ship be stranded; sugar, tobacco, hemp, flax, hides, and skins, are warranted free from average under five pounds per cent.; and all other goods free from average under three pounds per cent. unless general, or the ship be stranded.

Policy of Assurance upon Ship and Goods, ditto.

£10,000 ——— S. G. delivered the day of } In the name of God, Amen. as well in own name as for and in the name and names of all and every other person or persons to whom the same doth, may, or shall appertain, in part or in all, doth make assurance, and cause and them, and every of them, to be assured, lost or not lost, at and from upon any kind of goods and merchandise, and also upon the body, tackle, apparel, ordnance, munition, artillery, boat, and other furniture, of and in the good ship or vessel called the whereof is master, under God, for this present voyage or whosoever else shall go for master, in the said ship, or by whatsoever other name or names the same ship, or the master thereof, is or shall be named or called: beginning the adventure upon the said goods and merchandise from the loading thereof on board the said ship upon the said ship, &c. and so shall continue and endure during her abode there, upon the said ship, &c.; and farther, until the said ship, with all her ordnance, tackle, apparel, &c. and goods and merchandise whatsoever, shall be ar-

rived at upon the said ship, &c. until she hath moored at anchor twenty-four hours in good safety, and upon the goods and merchandise until the same shall be there discharged and safely landed; and it shall be lawful for the said ship, &c. in this voyage, to proceed and sail to and touch and stay at any ports or places whatsoever, without prejudice to this assurance; the said ship, &c. goods and merchandise, &c. for so much as concerns the assured, by agreement between the assured and assurers, in this policy, are and shall be valued at Touching the adventures and perils which we the assurers are content to bear, and to take upon us in this voyage, they are, of the seas, men of war, fire, enemies, pirates, rovers, thieves, jettisons, letters of mart and countermart, surprisals, takings at sea, arrests, restraints, and detainments of all kings, princes, and people, of what nation, condition, or quality soever, barratry of the master or mariners, and of all other perils, losses, and misfortunes, that have or shall come to the hurt, detriment, or damage of the said goods and merchandise, and ship, &c. or any part thereof; and in case of any loss or misfortune, it shall be lawful to the assured, their factors, servants, and assigns, to sue, labour, and travel, for, in, and about the defence, safeguard, and recovery of the said goods and merchandise, and ship, &c. or any part thereof, without prejudice to this assurance, to the charges whereof we the assurers will contribute each one according to the rate and quantity of his sum herein assured; and it is agreed by us the assurers that this writing or policy of assurance shall be of as much force and effect as the surest writing or policy of assurance heretofore made in Lombard-street, or in the Royal Exchange, or elsewhere in London; and so we the assurers are contented, and do hereby promise and bind ourselves, each one for his own part, our heirs, executors, and goods, to the assured, their executors, administrators, and assigns, for the true performance of the premises, confessing ourselves paid the consideration due unto us for this assurance by the assured at and after the rate of In witness whereof we the assurers have subscribed our names and sums assured in London.

N.B. Corn, fish, salt, fruit, flour, and seeds, are warranted free from average, unless general, or the ship be stranded; sugar, tobacco, hemp, flax, hides, and skins, are warranted free from average under five pounds per cent.; and all other goods, also the ship and freight, are warranted free from average, under three pounds per cent. unless general, or the ship be stranded.

It has been decided that *rice* was not corn within the meaning of a memorandum on a policy. *Scott v. Bourdillon*, 2 *N. R.* 213.

The memorandum controuls the general words of a policy, so far as it extends; but upon a stranding, the enumerated articles are in the same situation as other commodities, and the insurers become liable for all damage, though not arising from the stranding. *Brownrig v. Elmsley*, 7 *T. R.* 216.

Policy on fruit from Cadiz to London, with usual memorandum. During voyage fruit was so much damaged by sea-water, that it became rotten and stunk. On ship arriving at an intermediate port, she was prohibited from landing. Ship was too much damaged to proceed, and was sold, and the cargo necessarily thrown overboard. Held that the assured were entitled to recover for a *total* loss.

SHIPS AND GOODS.

London Assurance House.

No. , in London.

No.

By the Governor and Company of the London Assurance.

In the name of God, Amen.

as well in own name as for and in the name and names of all and every other person or persons to whom the same doth, may, or shall appertain, in part or in all, doth make assurance, and causeth and them, and every of them, to be assured, lost or not lost, at and from upon any kind of goods and merchandise whatsoever: and also upon the body, tackle, apparel, ordnance, munition, artillery, boat, and other furniture, of and in the good ship or vessel called the whereof is master, under God, for this present voyage, or whosoever else shall go for master in the said ship or vessel, or by whatsoever other name or names the said ship or vessel, or the master thereof, is or shall be named or called: beginning the adventure upon the said goods and merchandise from and immediately following the loading thereof, on board the said ship or vessel at and upon the said ship or vessel, &c. and so shall continue and endure during her abode there, upon the said ship or vessel, &c. and farther, until the said ship or vessel, with all her ordnance, tackle, apparel, &c. and goods and merchandise whatsoever, shall be arrived at and upon the said ship or vessel, &c. until she hath moored at anchor twenty-four hours in good safety, and upon the goods and merchandise, until the same be there safely discharged and landed: and it shall be lawful for the said ship or vessel, &c. in this voyage to proceed and sail to, and touch and stay at any ports or places whatsoever without prejudice to this assurance, the said ship or vessel, &c. goods and merchandise, &c. for so much as concerns the assured, (by agree-

ment between the assured and the London Assurance,) are and shall be rated and valued at without farther or other account to be given by the assured for the same. Touching the adventures and perils, which the said London Assurance are contented to bear and do take upon them in this voyage, they are, of the seas, men of war, fire, enemies, pirates, rovers, thieves, jettisons, letters of mart and countermart, surprisals, takings at sea, arrests, restraints, and detainments of all kings, princes, and people, of what nation, condition, or quality soever, barratry of the master and mariners, and of all other perils, losses, or misfortunes, that have or shall come to the hurt, detriment, or damage of the said goods or merchandise, and ship or vessel, &c. or any part thereof; and, in case of any loss or misfortune, it shall be lawful to the assured, their factors, servants, and assigns, to sue, labour, and travel for, in, and about the defence, safeguard, and recovery of the said goods, merchandise, and ship or vessel, &c. or any part thereof, without prejudice to this assurance, to the charges whereof the said London Assurance will contribute according to the rate and quantity of the sum here assured; and it is agreed, that this writing or policy of assurance shall be of as much force and effect as the surest writing or policy of assurance heretofore made in Lombard-street, or in the Royal Exchange, or elsewhere in London; and so the said London Assurance are contented, and do hereby promise and bind themselves and their successors to the assured, their executors, administrators and assigns, for the true performance of the premises, confessing themselves paid the consideration due unto them from this assurance by the assured, at and after the rate of per cent. In witness whereof the said London Assurance have caused their common seal to be hereunto affixed, and the sum or sums by them assured to be hereunder written, at their office in London, this day of in the year of the reign of our sovereign lord by the grace of God, of Great Britain, France, and Ireland, king, defender of the faith, &c. and in the year of our Lord

Free from all average on corn, flour, fruit, fish, salt, and seeds, except general.

Free from average on sugar, rum, hides, skins, hemp, flax, and tobacco, under five pounds per cent.; and on all other goods, and ship, under three pounds per cent. except general.

The said governor and company are content with this assurance for

S.G. } S.G. No.
No. } £

By the Corporation of the Royal Exchange Assurance.

In the name of God, Amen.

as well in own name as for and in the name and names of all and every other person or persons to whom the same doth, may, or shall, appertain, in part or in all, doth make assurance, and causeth and them, and every of them to be assured, lost or not lost, upon any kind of goods or merchandise whatsoever, loaden or to be loaden, and also upon the body, tackle, apparel, ordnance, munition, artillery, boat, and other furniture, of and in the good ship or vessel called the burthen or thereabouts, whereof is master, under God, for this present voyage or whosoever else shall go for master in the said ship, or by whatsoever other name or names the same ship or the master thereof is or shall be named or called: beginning the adventure upon the said goods and merchandise from and immediately following the loading thereof on board the said ship and upon the said ship, &c. and so shall continue and endure during her abode there upon the said ship, &c. and farther, until the said ship, with all her ordnance, tackle, apparel, &c. and goods and merchandise whatsoever, shall be arrived at upon the said ship, &c. until she hath there moored at anchor twenty-four hours in good safety, and upon the goods and merchandise, until the same be there discharged and safely landed; and it shall be lawful for the said ship, &c. in this voyage to proceed and sail to, and touch and stay at any ports or places whatsoever, without prejudice to this assurance, the said ship, &c. goods and merchandise, &c. for so much as concerns the assured, (by agreement made between the assured and the corporation in this policy,) are and shall be rated and valued at sterling, without farther account to be given by the assured for the same. Touching the adventure and perils which the said corporation are contented to bear and do take upon them in this voyage, they are, of the seas, men of war, fire, enemies, pirates, rovers, thieves, jettisons, letters of mart and countermart, surprisals, takings at sea, arrests, restraints, and detainments of all kings, princes, and people, of what nation, condition, or quality soever, barratry of the master and mariners, and of all other perils, losses, and misfortunes that have or shall come to the hurt, detriment, or damage of the said goods and merchandise, and ship, &c. or any part thereof: and in case of any loss or misfortune, it shall be lawful to the assured, their factors, servants, and assigns, to sue, labour, and travel for, in, and about the defence, safeguard, and recovery, of the said goods, and merchandise, and ship, &c. or any part thereof, without prejudice to this assurance, to the charges whereof the said corporation will contribute according to the rate and quantity of the sum herein assured: and it is agreed by the said corporation, that this

writing or policy of assurance shall be of as much force and effect as the surest writing or policy of assurance heretofore made in Lombard-street, or in the Royal Exchange, or elsewhere in London, and so the said corporation are contented, and do hereby promise and bind themselves and their successors to the assured, their successors, administrators, and assigns, for the true performance of the premises, confessing themselves paid the consideration due unto them for this assurance by at and after the rate of per cent. In witness whereof the said corporation have caused their common seal to be hereunto affixed and the sum or sums by them assured, to be hereunder written, at their office in the Royal Exchange of London, this day of in the year of the reign of our sovereign lord by the grace of God, of Great Britain, France, and Ireland, king, defender of the faith, &c. and in the year of our Lord

The said corporation are content with this assurance for

Free from all average on corn, flour, fish, salt, fruit, seeds, hides, and tobacco, unless generally or otherwise specially agreed.

Free from average of sugar, rum, skins, hemp, and flax under 5 per cent., and on all other goods, and on stuff under 3 per cent., except the said governor and company, &c.

The Stamp Duties on Policies of Assurance.

Policy of assurance upon any life or lives, or upon any event depending upon life or lives,

Where the sum insured shall not amount to 500*l.* - - - 1 0 0

Amounting to 500*l.* and not to 1000*l.* 2 0 0

Amounting to 1000*l.* and not to 3000*l.* 3 0 0

Amounting to 3000*l.* and not to 5000*l.* 4 0 0

And amounting to 5000*l* or upwards 5 0 0

Policy of assurance from the loss of damage by fire only - - 0 1 0

And for every 100*l.* and so in proportion for any greater or less sum, which shall be insured by any such policy, a duty at the rate of 5*s.* per cent. per annum.

Policy of assurance of or upon buildings, goods, wares, merchandises, or other property, in the West Indies, or elsewhere beyond the seas, from loss or damage by fire, for not exceeding twelve calendar months 0 2 6

And also the additional duty following, viz.

If the whole sum insured shall not exceed 100*l.* - - - 0 5 0

And if the whole sum insured shall exceed 100*l.*, then for every 100*l.*, and also for any fractional part of 100*l.*, whereof the same shall consist - - 0 5 0

Policy of assurance upon any ship or vessel, or upon any goods, merchandises, or other property, on board of any ship, or vessel, or upon the freight, or upon any other interest in or relating to any ship or vessel, which may lawfully be insured, for any voyage from any port in the united kingdom, to any other port in the said kingdom;

Where the premium shall not exceed 20*s.* per cent. on the sum insured,

If the whole sum insured shall not exceed 100*l.* - - - 0 1 3

And if the whole sum exceed 100*l.*, then for every 100*l.*, and also for any fractional part of 100*l.*, whereof the same shall consist - - - 0 1 3

And where the premium shall exceed 20*s.* per cent.

If the whole sum insured shall not exceed 100*l.* - - - 0 2 6

And if the whole sum exceed 100*l.*, then for every 100*l.* and also for any fractional part of 100*l.* - - - 0 2 6

But if the separate interests of two or more distinct persons shall be insured by one policy, then the said duty shall be charged, in respect of each fractional part of 100*l.*, as well as in respect of every full sum of 100*l.*, which shall be thereby insured upon any separate interest.

Policy of assurance upon any ship or vessel, or upon any goods or other property on board, or upon the freight, or any other interest which may lawfully be insured, for or upon any other voyage than before specified, or for any certain period of time, not exceeding twelve calendar months;

Where the premium shall not exceed 20*s.* per cent. on the sum insured,

If the whole shall not exceed 100*l.* 0 2 6

And if the whole sum insured shall exceed 100*l*, then for every 100*l.*, and also for any fractional part of 100*l.*, whereof the same shall consist - - 0 2 6

And where the premium shall exceed 20*s.* per cent.,

If the whole sum insured shall not exceed 100*l.* - - - 0 5 0

And if the whole sum insured shall exceed 100*l.*, then for every 100*l.*, and also for any fractional part of 100*l.*, whereof the same shall consist, - - 0 5 0

But if the separate interests of two or more persons be insured by one policy, then the said duty of 2*s.* 6*d.* or 5*s.* shall be charged in respect of each fractional part of 100*l.*, as well as in respect of every 100*l.* which shall be thereby insured upon any separate interest.

Policy of assurance, commonly called mutual insurance, without premium, from any loss, damage, or misfortune to any ship or vessel, or any goods on board, or the

freight, or any other interest which may lawfully be insured;

Upon any voyage from any port in the united kingdom, or in the islands of Guernsey, Jersey, Alderney, or Sark, or Man, to any other port therein,

For every 100*l.*, and also for each fractional part of 100*l.*, thereby insured to any person - - - 0 2 6

Upon any other voyage whatsoever, or for any other certain term, not exceeding twelve calendar months.

For every sum of 100*l.*, and also for each fractional part thereby insured to any person - - - 0 5 0

Policy of assurance, whereby any other lawful insurance whatever, not hereinbefore charged, shall be made upon any property or interest whatever, from loss or damage of any kind,

Where the premium shall not exceed 20*s.* per cent.

If the whole sum insured shall not exceed 100*l.* - - - 0 2 6

If the whole sum shall exceed 100*l.*, then for every 100*l.* and also for any fractional part of 100*l.*, whereof the said sum shall consist 0 2 6

And where the premium shall exceed 20*s.* per cent. on the sum insured, and also where the insurance shall be made for any other than a pecuniary consideration,

If the whole sum insured shall not exceed 100*l.* - - - 0 5 0

And if the whole exceed 100*l.*, then for every 100*l.*, and also for every fractional part of 100*l.* - - - 0 5 0

But if the separate interests of two, or more, shall be insured by one policy, then the said duty of 2*s.* 6*d.*, or 5*s.*, shall be charged in respect of each fractional part of 100*l.*, as well as in respect of every full 100*l.* which shall be thereby insured on any separate interest.

A policy of insurance, as has been observed before, under title insurance, when effected, becomes the property of the insured; and if it be wrongfully withheld, either by the broker employed to effect it, or by any other person into whose hands it may come, he may maintain an action of trover for it, the same as for any other property.

POLISHER, or Burnisher, among mechanics, an instrument for polishing and burnishing things proper to take a polish.

The gilders use an iron polisher to prepare their metals before gilding, and the blood-stone to give them the bright polish after gilding.

The polisher used by the makers of spurs, bits, &c. is partly iron, partly steel, and partly wood; it consists of an iron bar, with a wooden handle at one end, and a hook at the other, to fasten it to a second piece of wood held in the vice, while the operator is at work. In the middle of the bow within-side, is that properly called the polisher, being a triangular piece of steel, with a tail, whereby it is rivetted to the bow.

The polishers among cutlers are a kind of wooden wheels made of walnut-tree, about an inch thick, and of a suitable diameter. These are turned round by the great wheel, and with the addition of emery and putty, serve to polish the work.

The polishers for glass consist of two pieces of wood; the one flat, covered with old hat; the other long and half round, fastened on the former, whose edge it exceeds on both sides by some inches, which serve the workmen to take hold of, and to work backwards and forwards by.

The polishers used by spectacle-makers are pieces of wood a foot long, seven or eight inches broad, and an inch and a half thick, covered with old beaver-hat, on which they polish the shell and horn frames, in which their spectacle-glasses are to be set.

POLISHING is the operation of giving a gloss or lustre to certain substances susceptible of such embellishment, as precious stones, marble, glass, &c.

Mode of Polishing and Grinding Glass.

In order to grind plate-glass, they lay it horizontally upon a flat stone table, made of a very fine-grained freestone; and for its greater security, they plaister it down with mortar or stucco. The stone table is supported by a strong wooden frame, with a ledge all round its edges, rising about two inches above the glass. Upon the plate to be ground is laid another rough glass, not above half as big, and so loose, as to slide upon the former; but cemented to a wooden plank, to guard it from the injury it must otherwise receive from the scraping of the wheel whereto the plank is fastened, and from the weights laid upon it to promote the triture or grinding of the glasses. The whole is covered with a wheel made of hard, light wood, about six inches in diameter; by pulling of which backwards and forwards alternately, and sometimes turning it round, the workmen, who always stand opposite to each other, produce a constant attrition between the two glasses, and bring them to what degree of smoothness they please, by first pouring in water and coarse sand; after that, a finer sort of sand, as the work advances, till at last they pour in the powder of smalt. As the upper or incumbent glass becomes smooth, it must be removed, and another, from time to time, substituted for it.

The engine just described is called a mill by the workmen, and is employed only in grinding the largest-sized glasses. In grinding lesser glasses, they usually work without a wheel, having four wooden handles fastened to the corners of the stone that loads the upper plank, by which they work it about. The grinder's part done, the glass is turned

over to the polisher, who with fine powder of tripoli stone or emery, brings it to a perfect evenness and lustre. The instrument made use of in this branch, is a board furnished with a felt and small roller, which the workman moves by means of a double handle at both ends. The artist in working this roller, is assisted by a wooden hoop, or spring, to the end of which it is fixed; for the spring, by constantly bringing the roller back to the same points, facilitates the action of the workman's arm.

Manner of Polishing Optical Glasses.

The operation of polishing optic glasses, after being properly ground, is one of the most difficult points of the whole process. Before the polishing is begun, it is proper to stretch an even well-wrought piece of linen over the tool, dusting upon it some very fine tripoli. Then taking the glass in your hand, run it round forty or fifty times upon the tool, to take off the roughness of the glass about the border of it. This cloth is then to be removed, and the glass to be polished upon the naked tool, with a compound powder, made of four parts tripoli mixed with one of fine blue vitriol; six or eight grains of which mixture are sufficient for a glass five inches broad. This powder must be wetted with eight or ten drops of clear vinegar in the middle of the tool; being first mixed and softened thoroughly with a very fine small muller. Then with a nice brush having spread this mixture thinly and equably upon the tool, take some very fine tripoli, and strew it thinly, and equably, upon the tool so prepared; after which, take the glass to be polished, wiped very clean, and apply it on the tool, and move it gently twice or thrice in a straight line backwards and forwards; then take it off, and observe whether the marks of the tripoli, sticking to the glass, are equably spread over the whole surface; if not, it is a sign that either the tool or glass is too warm; in which case you must wait awhile and try again, till you find the glass takes the tripoli every where alike. Then you may begin to polish boldly, there being no danger of spoiling the figure of the glass, which in the other case would infallibly happen. This is Mr. Huygen's method; but it ought to be observed, that almost every operator has a peculiar one of his own.

Sir Isaac Newton no where expressly describes his method of polishing optical glasses; but his method of polishing reflecting metals he thus describes in his Optics. He had two round copper plates, each six inches in diameter, the one convex, the other concave, ground very true to one another. On the convex one he ground the object metal, or concave which was to be polished, till it had taken the figure of the convex, and was ready for a polish. He then pitched over the convex very thinly, by dropping melted pitch upon it, and warming it to keep the pitch soft, whilst he ground it with the concave copper wetted, to make it spread evenly all over the convex, till it was no thicker than a groat-piece; and after the convex was cold he ground it again, to give it as true a figure as possible. He then ground it with very fine putty, till it made no noise; and then upon the pitch he ground the object-metal, with a brisk motion, for two or three minutes; when laying fresh putty upon the pitch, he ground it again till it had done making a noise, and afterwards ground the object-metal upon the pitch as before; and this operation he repeated, till the metal was perfectly polished.

POMATUM. (Ger. *Pommade.* Du. *Pomaad.* Da. *Pomade.* Sw. *Pomada.* Fr. *Pommade.* It. *Pomata.* Sp. Port. Rus. and Pol. *Pomada.* Lat. *Pomatum.*) There are two descriptions, *soft*, and *hard*. The former is nothing more than hog's-lard well cleansed from impurities, by beating in rose-water; after which, a very small quantity of mutton suet is melted with it, and such perfume added, as will give it the odour designed; viz. jasmine, violet, bergamot, clove, &c. &c. Hard pomatum is made by melting mutton-suet, with as much hog's-lard as will destroy its excessive brittleness, and as much white-wax as will produce tenacity, with the addition of a little perfume. It is then melted, and poured into moulds, of the size required.

POMEGRANATE, *Pomegranates*, (Ger *Granatäpfel.* Du. *Granaatappelen.* Da. *Granatæbla.* Sw. *Granatäplen.* Fr. *Grenades.* It. *Granati, Melagrani, Melagranati.* Sp. *Granadas.* Port. *Romãas.* Rus. *Granatnoe jabloko.* Pol. *Granatowe jablko.* Lat. *Granatorum mala,*) is a medicinal fruit, like an apple or quince, full of seeds, inclosed within a reddish pulp, containing either a sweet vinous juice, or one more acrid and acerb. Pomegranates grow in Spain, Portugal, Italy, France, and many other countries. The tree which yields them flowers in June, and the fruit is ripe in September. Of the kernels are made syrups and conserves; and the peel, which is called *maliciorium*, reckoned very astringent, is an ingredient in several remedies and ptisans for dysenteries, diarrhœas, and relaxations of the gums. The ancients used the rind as moderns do sumach, in the preparation of leather. There is but little of the true conserve made; that which ordinarily passes for it, being only sugar melted down, to which they give the colour and sharp taste with cochineal, cream of tartar, and alum.

PONT, or Punt, a long measure used in China, of which ten go to one cobre;

the cobre being about thirteen one-sixth French inches.

PONTAGE, duty paid for the reparation of bridges.

PONTYPOOL-WARE, a species of japanned ware, beautifully variegated with golden, and crimson, and black colours, principally manufactured at Pontypool, in Monmouthshire.

POOP, the stern of a ship, or the highest, uppermost, and hinder part of the ship's hull.

POPLAR. (Ger. *Pappel, Pappelhaum.* Du. *Popelier.* Da. *Popel.* Sw. *Poppelträd.* Fr. *Peuplier.* It. *Pioppo.* Sp. *Alamo.* Port. *Alamo, Alemo.* Rus. *Topol.* Pol. *Topola.* Lat. *Populus.*) Of this genus, there are numerous species, the value of some of which are only now beginning to be known. Linnæus reckons *five,* Miller *seven,* species; but even the larger estimate comes far short of the truth. For our purposes here, however, they may be best distinguished into two species, viz. the aspiring, and the horizontal; this being the great distinction between those which are applicable to mere ornament, and those which are essentially useful, and valuable as timber. The aspiring, or common Lombardy, poplar, is of very inferior consideration, being brittle, and of no value as timber, unless it be of sufficient size to be sawn into boards, and even then, they are only fit for the commonest and coarsest purposes, being soft, subject to warping, and of an unseemly hue. Of the horizontal poplar, there are several sorts, but especially known by the descriptions of *black* and *white.* They will grow to an immense size, and make timber of great value for a variety of purposes, but are always best, and toughest, if not grown on a gravelly soil. A tree of the horizontal poplar has been known, in 20 years, to produce planks of 18 inches in breadth, which, after lying a month in the air, were so hard that none but the best tools would plane them, and *that* with difficulty, it being their distinguishing property to harden by exposure to the air. Boards of this species are excellent for the insides of ships, and other vessels, where fires are necessary to be kept, as they are actually fire proof, inasmuch as if a fire be lighted, even *upon* them, they are not ignitible. They have been lately applied to this purpose in several instances, with the utmost success.

Nor is this the only merit of the poplar, as a tree of use, independent of its ornament: for, from some experiments, it appears, that the poplar may be usefully employed in dyeing. The Italian, or Lombardy poplar, gives a dye of as fine a lustre, and equally durable, as that of the finest yellow wood, and its colour is more easily extracted. It is likewise very apt to unite with other colours in composition. Besides this, M. Dambourney tried also the black poplar, the Virginian, the balsam, or liard, the white, and the trembling poplar; and found that all these dyed wool of a nut-colour, fawn-colour, nankin, musk, and other grave shades, according to the quantity of wood employed, and the length of time it was boiled.

POPPY, (Ger. *Mohn, Magsaamen.* Du. *Heulezaad.* Da. *Vallmue.* Sw. *Valmo, Valmoge.* Fr. *Pavot.* It. *Papavero.* Sp. *Adormidera, Dormidera.* Port. *Dormideiran.* Rus. and Pol. *Mak.* Lat. *Papaver,*) a well-known plant, of which there are nine species. The only one of these that deserves to be noticed in a commercial work, is the white officinal poppy. It grows often to the height of five or six feet, having large flowers, both single, and double, succeeded by capsules, or heads, as large as oranges, each containing about 8000 seeds.

We are told, that in the province of Bahar, in the East Indies, the poppy-seeds are sown in the months of October and November, at about eight inches distance, and well watered, till the plants are about half a foot high; when a compost of dung, nitrous earth, and ashes, is spread over the areas; and a little before the flowers appear, they are again watered profusely, till the capsules are half grown, at which time the opium is collected, for when fully ripe they yield but little juice: two longitudinal incisions from below upwards, without penetrating the cavity, are made at sun-set, for three or four successive evenings; in the morning, the juice is scraped off with an iron scoop, and worked in an iron pot in the sun's heat, till it is of a consistence to be formed into thick cakes, of about four pounds weight; these are covered over with the leaves of poppy, tobacco, or some other vegetable, to prevent their sticking together, and in this situation they are dried.

The wild poppy, which grows commonly in our corn fields, furnishes an extract which has been successfully employed as a sedative; a syrup of its flowers is useful as an anodyne and pectoral. *See* OPIUM.

PORCELAIN, a fine kind of earthenware, chiefly manufactured in China, and thence called China-ware. All earthenwares which are white and semi-transparent are generally called porcelain; but amongst these so great differences may be observed, that, notwithstanding the similarity of their external appearance, they cannot be considered as matters of the same kind.

The word porcelain is of European, probably of Portuguese, derivation; none of the syllables which compose it can even be pronounced or written by the Chinese, whose language comprehends no such sounds. It is called in China, tsé-ki.

The art of making porcelain, however, was brought from Japan, and China. The whiteness, transparency, fineness, neatness,

and even magnificence, of this pottery, which soon became the ornament of sumptuous tables, did not fail to excite the admiration and industry of Europeans; and their attempts have succeeded so well, that in different parts of Europe, earthenwares have been made so like the Oriental, that they have acquired the name of porcelain. The first were made in Saxony, and in France; and afterwards in England, Germany, and Italy; but as all these were different from the Japanese, so each of them had its peculiar character.

It would be to little purpose to give a description of the manufactories in China, on doubtful authority, and which no European ever visits; as little would it avail to attempt any explanation of an art, the *principles* of which are already almost universally known, and the *particular local* excellence of which cannot be carried into practice here, for want of the materials; we shall therefore proceed to notice the different species of China-ware, manufactured in Europe; many of which, especially in the department of painting, are nearly, if not perfectly, comparable with the productions of the mother country of the beautiful sort, at present under consideration.

Beside that of Saxony, which has been long established, porcelain is made at Vienna, at Frankenthal, and in the neighbourhood of Berlin. All these German porcelains are similar to the Saxon, and are made of materials of the same kind, although they differ somewhat from each other. England, and Italy, also have their porcelains.

But in no state of Europe have more effectual attempts been made to discover porcelain, or an earlier establishment of manufactures, than in France. The admirable works produced in the royal manufacture at Sévres do her most honour. This porcelain holds at present a distinguished rank, from its shining white, its beautiful glazing, and coloured grounds. The magnificence of the gilding, the regularity and elegance of its forms, surpass every thing of the kind. In the painting and sculpture much genius and talents are displayed. Lastly, as all the operations of this great establishment are directed by men of known capacity, assisted by philosophical and chemical researches, this manufacture produces porcelain capable of emulating or equalling the most perfect, and most solid, works of this kind.

We must carefully, however, distinguish the qualities which only contribute to beauty and external appearance, from the intrinsic and essential properties, in which the goodness, and solidity, of porcelain consist. All persons who have made experiments in this way have soon discovered the possibility of making compounds very white, beautifully semi-transparent, and covered with a shining glaze; but which cannot be worked for want of tenacity, are not sufficiently compact, are essentially fusible, are subject to break by sudden application of heat and cold; and, lastly, the glazing of which cracks, becomes rough, and consequently loses its lustre by use, because it is too soft.

On the other side, we shall also find it not difficult to compose very tenacious pastes, which shall be capable of being easily worked and well-baked, which in the baking shall acquire the desirable hardness and density, which are infusible, and capable of sustaining very well the sudden change of heat and cold; and in a word, which shall have the qualities of the most excellent porcelain, excepting whiteness and beauty. The materials fit for the composition of such porcelains may be found abundantly in every country, and the only difficulty is to unite beauty and goodness in one composition.

Those potteries, called stone-ware, have all the essential qualities of the best Japanese, if we except whiteness, on which alone the semi-transparency depends. The same grain appears internally in both; the same sound is produced by striking them, when properly suspended; the same density, the same hardness, by which they strike fire with steel; the same faculty of sustaining the heat of boiling liquors without breaking, and the same infusibility in fire, are observable. Lastly, if the earth, of which stone-ware is made, were free from heterogeneous colouring matters, which prevent their whiteness and semi-transparency; if vessels were carefully formed; if all the proper attentions were given; and if these vessels were covered over with a fine glazing; they would be as perfect porcelain as that of Japan. The most perfect porcelain, therefore, is nothing else than a fine white stone-ware.

The French stone-ware, or *poterie de gre*, is formed of a whitish clay, in which a good deal of fine white sandy particles is intermixed. The English stone-ware is composed generally of tobacco-pipe-clay and ground flints. This ware, when sufficiently burnt, has, as well as the French, those qualities of porcelain which are most essential; namely, strength, hardness, the property of sustaining the heat of boiling water, and infusibility.

The principal fault of the English porcelain appears to be in the glazing, which is apt to crack, by the continual adhibition of hot water. Even in this point, however, considerable improvements have taken place of late years. There is now scarcely a county in England without its manufactory of porcelain. Those of the highest order are in Staffordshire, Worcestershire, and Derbyshire, and at Swansea, in Glamorganshire, where it is said there has lately been discovered a species of clay, which enables the proprietor to manufacture porcelain, that has all the properties of the famous porcelain of Sévres

The basis of the porcelains is called by artists a fritt. It is nothing else than a mixture of sand, or of powdered flints, with salts capable of disposing them to fusion, and of giving them a great whiteness by means of a sufficient heat. This fritt is to be then mixed with as much of a white tenacious earth, of an argillaceous or marly nature, as is sufficient to make it capable of being worked upon the wheel, and no more. The whole mixture is to be well ground together in a mill, and made into a paste, which is to be formed, either upon the wheel or in moulds, into pieces of such forms as are required.

Each of these pieces, when dry, is to be put into a case made of earthen-ware. These cases are called by English potters *saggars*, which is a corruption of the word *safe-guard*. . They are generally formed of coarser clays, but which must also be capable of sustaining the heat required without fusion. By means of these cases the contained porcelain is preserved from the smoke of the burning fuel. The whiteness of the porcelain depends much on their compactness of texture, by which the smoke is excluded, and on the purity of the clay of which they are made. These cases are to be ranged in piles one upon another, in a furnace or kiln, which is to be filled with them to the roof. The furnaces are chambers or cavities of various forms and sizes, and are so disposed, that their fire-place is on the outside, opposite to one or more openings which communicate within the furnace. The flame of the fuel is drawn within the furnace, the air of which rarefying determines a current of air from without inwards, as in all furnaces. At first a very little fire is made, that the furnace may be heated gradually; and is to be increased more and more, till the porcelain is baked; that is, till it has acquired its proper hardness and transparency; which is known by taking out of the furnace from time to time small pieces of porcelain placed for that purpose in cases which have lateral openings, and examining them. When these pieces show that the porcelain is sufficiently baked, the fire is no longer to be supplied with fuel, the furnace is to be cooled, and the porcelain taken out, which in this state resembles white marble, not having a shining surface. This is afterwards to be given by covering them with a vitreous composition, called the glazing.

The porcelain when baked and not glazed, is called biscuit, and is more or less beautiful, according to the nature of its composition.

As no imitation of sculpture in porcelain can preserve all the delicacy of its workmanship when covered with a glazing; and as sculptors avoid polishing their marble figures, because the lustre of the polish is disadvantageous; therefore in superior manufactures, all figures, or little statues, and even some ornamental vases, are left in the state of biscuit. The other pieces of porcelain are to be glazed in the following manner: —

A glass is first to be composed, suited to the nature of the porcelain, to which it is to be applied, for every glass is not fit for this purpose. We frequently find, that a glass, which makes a fine glazing for one porcelain, shall make a very bad glazing for another porcelain, shall crack in many places, shall have no lustre, or shall contain bubbles. The glazing then must be appropriated to each porcelain, that is, to the hardness and density of the ware, and to the ingredients of its composition, &c. Much appears to depend on the glaze, and the body of the ware, possessing the property of equally expanding by increase of temperature: if they differ in this respect, the glaze must infallibly crack during the cooling from the furnace.

These glazings are prepared by previously fusing together all the substances of which they consist, so as to form vitreous masses. These masses are to be ground very fine in a mill. This vitreous powder is to be mixed with a sufficient quantity of water, or other proper liquor, so that the mixture shall have the consistence of cream. The pieces of porcelain are to be covered with a thin stratum of this matter, and when very dry they are to be again put into the furnace, in the same manner, as before, and to be continued there till the glazing is well fused. The necessary degree of fire for fusing the glazing is much less than for baking the paste.

The pieces of porcelain which are intended to remain white are now finished; but those which are to be painted and gilded must undergo farther operations. The colours to be applied are for the most part the same as those used for enamel painting. They all consist of metallic oxides, bruised and incorporated with a very fusible glass. The purple precipitate of gold, that bears the name of cassius, affords a crimson; but it requires nice management, as a little too much heat, or carbonaceous vapours, easily spoil it. If the flux contain a great quantity of lead, it will produce a violet. The crimson for soft porcelain is made with fulminating gold, gently decomposed, and muriat of silver. Red oxide of iron, prepared with nitric acid, and afterward calcined by fire, produces a red, or rose colour; but too much heat changes it brown. Yellows are composed of the oxides of lead and antimony, with sand; to which oxide of tin is sometimes added. By adding a little red oxide of iron, the fine lively colour of the marigold is produced. Blues are derived from oxide of cobalt; greens from oxide of copper, and sometimes from a mixture of yellow and blue. When a strong heat is required, the oxides of cobalt and nickel are

mixed, but they afford only a brownish green. Brown reds are obtained by mixing in different proportions manganese, brown oxide of copper, and amber. Oxide of manganese, brown oxide of copper, and a little oxide of cobalt, give a beautiful black, but it is liable to scale and become dull. At Sévres a fine black is made by mixing blue with the oxides of iron and manganese. In melting copper with two parts of glacial acid of phosphorus, and a twelfth part of powdered charcoal, a fine red enamel is found covering the phosphuret of copper, which would make a good colour on porcelain. These colours being ground with gum-water, or with oil of spike, are to be employed for the painting of the porcelain with designs of flowers and other figures. For gilding, a powder, or oxide of gold, is to be applied in the same manner as the coloured enamels. The painted and gilded porcelains are to be then exposed to a fire capable of fusing the glass with which the metallic colours are mixed. Thus the colours are made to adhere, and at the same time acquire a gloss equal to that of the glazing. The gold alone has not then a shining appearance, which must be afterward given to it by burnishing with a blood-stone. Silver applied in the same manner as gold would be very liable to tarnish; but platina, precipitated from its solution by muriat of ammonia, and the muriat expelled, by heat, so as to leave the platina in the form of a light grey powder, may be applied in the same manner as gold, and when burnished, will resemble silver with a slight steel cast.

The operations for the infusible porcelains, and also for such as are of the nature of stone-ware, are somewhat more simple. The sands and stones which enter into their composition are to be ground in a mill; the earths or clays are to be washed; the materials are to be well mixed, and formed into a paste: the pieces are first rudely formed upon a potter's wheel; and when dry, or half dry, they are turned again upon the wheel, or in a lathe or other engine, and their form is made more perfect: they are then placed in the furnace, not to bake them, but only to apply a sufficient heat to give them such a solidity, that they may be handled without breaking, and may receive the glazing. As the pieces of porcelain after this slight heat are very dry, they imbibe water readily. This disposition assists the application of the glazing. The vitrifiable or vitrified matter of this glazing, which has been previously ground in a mill, is to be mixed with such a quantity of water, that the liquor shall have the consistence of milk. The pieces of porcelain are hastily dipped in this liquor, the water of which they imbibe, and thus on their surface is left an uniform covering of the glazing materials. This covering, which ought to be very thin, will very soon become so dry, that it cannot stick to the fingers when the pieces are handled.

The pieces of the porcelain are then put into the furnace to be perfectly baked. The heat is to be raised to such a height, that all within the furnace shall be white, and the cases shall be undistinguishable from the flame. When, by taking out small pieces, the porcelain is known to be sufficiently baked, the fire is discontinued, and the furnace cooled. If the baking have been well performed, the pieces of porcelain will be found by this single operation to be rendered compact, sonorous, close-grained, moderately glossy, and covered externally with a fine glazing. The painting, and gilding, of this porcelain are to be executed in a manner similar to that already described.

Within these few years our importation of porcelain, even from China, has been gradually on the decline, owing to the astonishingly rapid progress of our native manufactures in this line. The Worcester, Staffordshire, and Derbyshire china, are exported mostly to America, and to some few parts of the European continent, as well as to Ireland. — For the foreign names of porcelain, *see* CHINA-WARE.

PORK, the flesh of the hog. When salted and pickled, pork constitutes a considerable branch of the Irish export trade. The chief ports of Ireland whence pork is shipped, are Waterford and Cork, and from these several thousand barrels of the article are annually sent to the West Indies, &c. In the year 1808, 16,889 barrels of pork were shipped from the port of Waterford; which, at 90*s.* per barrel, amounted to the value of 76,900*l.* 10*s.*

Of the American pork that of Burlington is the best, but it is by no means equal to the Irish in flavour, neither does it keep so well, being rather flabby. It may, however, be purchased on very fair terms, and will answer the purpose of a moderate voyage extremely well, provided it be carefully cured.

PORPHYRY, (Ger. *Porphyr.* Du. *Porfiersteen.* Da. and Sw. *Porphyr.* Fr. *Porphyre.* It. Sp. and Port. *Porfido.* Rus. and Pol. *Porfir.* Lat. *Porphyrius lapis,*) includes those stones which contain either felt-spar, schoerl, quartz, or mica, with other species of crystallized stone, on a siliceous or calcareous ground. It is found of several different colours, as green, deep red, purple, black, dark brown, and grey. When the ground is of jasper, the porphyry is commonly very hard; the red generally contains felt-spar, in small white dots or specks, and frequently together with these black spots of schoerl. The green is often magnetic, and is either a jasper or schoerl, with spots of quartz. Sometimes a porphyry of one colour contains a fragment of another of a different colour. Those that have chert for their ground, are fusible *per se.* The cal-

careous porphyry consists of quartz, felt-spar, and mica, in separate grains, united by a calcareous cement; and, lastly, the micaceous ground in which red felt-spar, and greenish soap-rock, are inserted.

The Egyptian porphyry is a most elegant mass, of an extremely firm and compact structure, remarkably ponderous, and of a fine strong purple, variegated more, or less, with pale red and white.

In Upper Egypt and Arabia Petræa, the hard, pale, red, porphyry is also found in surprising quantities; it is variegated with black, white, and green; takes a high polish, and emulates all the qualities of the oriental porphyry. The hard, red-lead coloured porphyry, variegated with black, white, and green, is a most beautiful and valuable substance. It possesses the hardness, and all the other characters, of the oriental porphyry, and even greatly excels it in brightness, beauty, and variety of hues. It is found in great quantities in the island of Minorca, and is superior to all the Italian marbles.

A species of the porphyry found in Arabia is frequently met with in some parts of England, Ireland, and Germany. A kind of porphyry, called sonorous, is found in the mountains of Bohemia, and Upper Lusatia, and in the county of Fulda. It is of a grey colour, sometimes approaching to green, and of a foliaceous fracture. When broken, it has a sound almost metallic. The art of cutting porphyry is now lost, though the ancients appear to have practised it with success, in fashioning those large columns, and other works of porphyry, in some of the buildings at Rome.

The French say that they can form the whole *contour* of a column from porphyry, by means of an iron saw without teeth, and grez, a kind of freestone pulverized, and water.

PORT, the name of a red wine, so called from Oporto or 'Porto, a city and sea-port of Portugal, whence immense quantities of the article are annually exported, almost exclusively to Great Britain. The vine which yields the port wine was originally brought from Burgundy, but the transplantation has had so wonderful an effect upon it, that scarcely any thing can be more distinct from the wines of Burgundy, than that of Oporto. The latter is usually of a remarkably strong body, of a rough and agreeably acid flavour, and its effects are rather stupifying, than exhilarating. Prior to its being exported, it is always well brandied; but it is to be observed, that the wine shipped to Ireland is never so much brandied as what is brought into this country. The wine-consumers of the sister-kingdom have long been used to the luxury of claret, and this will serve to account for the preference they give to light ports, which come nearest to the French wine just mentioned. The merchants of Southampton have been in the habit of importing peculiarly light port wines, whence the English dealers denominate this description of the article, *Southampton port.*

PORT, a harbour, or place of shelter, where ships arrive with their freight, and customs from goods are taken.

Gravesend is usually considered as the boundary of the port of London.

For account of the chief trading ports the World, see EUROPE, ASIA, AFRICA, and AMERICA.

For laws respecting ports in the British dominions, see title HARBOURS, IMPORTATION, and NAVIGATION.

A LIST OF THE PORTS OF ENGLAND AND WALES, WITH THEIR MEMBERS AND CREEKS.

N. B. *Members* are those places where anciently a custom-house had been kept, and where officers, or their deputies, attend, as they are lawful places of exportation and importation.

Creeks are places where commonly officers are, or have been placed, by way of prevention, not out of duty, or right of attendance, and are not lawful places of importation, or exportation, without a particular licence or sufferance, from the port or member under which it is placed.

Ports.	*Members.*	*Creeks.*
London -	———	Gravesend
Ipswich -	Malden - -	Leigh Burnham West Mersey
	Colchester -	East Mersey Bricklesey Wivenhoe
Yarmouth -	Woodbridge Aleborough Southwold ——— Blackney and Cley	Orford Dunwick Walderswick Lestoff

Ports.	Members.	Creeks.
Lynn -	Wells -	Burnham
	———	Hitcham Cross Keys Wisbeach
Boston -	———	Spalding Fosdike Wainfleet Numby Chapel Thedlethorp Saltfleet
Hull -	Grimsby - Bridlington - Scarborough -	Gainthorp
Newcastle -	Whitby - Stockton - Hartlepoole - Sunderland - Shields -	Middleborough
	———	Seaton de la Val Blithenooke
Berwick	———	Aylmouth Warnwater Holy Island East Marshes, containing the coast of Northumberland, bordering upon Scotland
Carlisle -	———	West Marshes, containing the coast of Cumberland bordering upon Scotland
	Whitehaven Mary-Port	Workington Ravenglass Milnthorp
Chester -	Lancaster -	Pile of Fowdrey Grange
	Bolton -	Wynewater Breston and Ribblewater
	Liverpool -	Sankey Bridge Frandisham South shore of the river Mersey, from the red-stones
	———	Hilbree Dawpoole Neston Burton Head Baghill and Moistin
	Aberconway	———
	Beaumaris	Holyhead Amlogh
	Carnarvon -	Pulholly Barmouth
Milford -	Aberdovy -	Aberustah
	Cardigan -	Newport Fiscard
	Pembroke -	Haverfordwest Tenby Carmarthen Lanelthy North Burrys
Cardiff -	Swansea -	South Burrys Neath, or Britton Ferry Newton
	———	Aberthaw Penarth Newport Chepstow

Ports.	*Members.*	*Creeks.*
Gloucester -	———	River Severn, from Bridgenorth to Kingsroad
Bristol -	——— -	Pill Uphill
Bridgewater -	Minehead -	———
Plymouth -	Padstone - St. Ives - Penzance - Helford - Falmouth - Fowey Loo ——— -	Penrin St. Mawes Truro Saltash Stonehouse Cowsland
Exeter -	Ilfracomb - Barnstable - ———	Clovelly Appledere Biddeford Tincomb Starcross Beane and Seator Topsham Pouldram Sydmouth Lympsom Exmouth Aylmouth
	Dartmouth -	Saltcomb Brixham Torbay Totness
Pool -	Lyme - Weymouth - ———	Bridport Charmouth Portland Lulworth Swanidge Wareham
Southampton -	——— Cowes - Portsmouth -	Christchurch Lymington Yarmouth Newport Emsworth
Chichester -	Arundel - Shoreham - Lewes - Pemsey - Hastings - Rye - Hythe -	Pagham Point Selsey Brighton Newhaven Seaford Winchelsea Lyd Rumney Folkstone
Sandwich -	Dover - ——— Feversham - Milton - Rochester -	Deal Ramsgate Margate Whitstable Queenborough

PORTAGE, money paid for sailors' wages while in port.

The following is the form of a portage bill of seamen's wages.

Ship Favorite Nancy's Portage Bill, on a Voyage to Altona.

Time of Entry.	Men's Names.	Post on board.	Time of Discharge.	Time on board.	Wages pr. Month			Whole Wages.		
1818.					£	s.	d.	£	s.	d.
April 1	Thos. Smith	Master	August 1	4 months	6	0	0	24	0	0
Ditto	Peter Saveall	Mate	Ditto	4 ditto	3	10	0	14	0	0
Ditto	Pet. Wilkinson	Cook	Ditto	4 ditto	2	10	0	10	0	0
5	John Smart	Seaman	July 25	3 mo. & 20 days	2	5	0	8	5	0
Ditto	Jos. Howell	Ditto	Ditto	3 mo. & 20 days	2	5	0	8	5	0
April 1	John Vowell	Apprentice	August 1	4 months	0	5	0	1	0	0
Ditto	Rich. Moatley	Ditto	Ditto	4 ditto	4 per yr.			1	6	8
								£66	16	8

PORTAGE is also a duty paid upon different sorts of packages at the port of London. For the rates of portage, *see* PACKAGE, App.

PORT-CRAYON, a case for a pencil, usually four or five inches long, wherein a pencil slides up, and down, by means of a spring, and button. Its outside is filled in eight faces, whereon are drawn the sector lines; its inside is generally round.

PORTERS and PORTERAGE. The London porters are divided into brotherhoods, and consist of four sorts, viz. ticket-porters, fellowship-porters, tackle-porters, and company's porters.

All the ticket-porters must be freemen, and must give security for their honesty and fidelity; they are so called from wearing a ticket at their girdle, with their names stamped thereon.

Their business consists in shipping, and landing, merchandise, exported or imported, also in housing merchants' goods, &c.

The employment of the fellowship-porters is to land, ship off, carry, re-carry, or house all merchants' wares; such as corn, salt, coals, and other commodities that are measurable by dry measure.

These are upwards of 700 in number, and their governor is the alderman of Billingsgate ward.

Tackle-porters are such of the ticket-porters, as are provided with weights, scales, &c. and their business consists in weighing goods, &c.

They land, and ship off, all goods and merchandise, exported, and imported, to or from all parts near the west side of the Sound, or the Baltic Sea, Holland, France, Spain, Italy, Germany, Turkey, and all towards or beyond the Cape of Good Hope.

Any person has liberty to bring any goods into London; but he must neither take up, nor carry, any within the city, otherwise he will be liable to be fined.

By Stat. 39 Geo. 3. c. 58, no innkeeper, warehouse-keeper, or other person, to whom any box, basket, package, parcel, truss, game, or other things whatsoever, not exceeding fifty-six pounds weight, or any porter or other person employed by such innkeeper, warehouse-keeper, or other person, in porterage or delivery of any such box, parcel, &c. within the cities of London, Westminster, or borough of Southwark, and their respective suburbs, and other parts contiguous, not exceeding half a mile from the end of the carriage-pavement, in the several streets and places in the above-mentioned limits, shall ask or demand, or receive or take, in respect of such porterage or delivery, any greater rate or price than as follows:

	s.	d.
For any distance not exceeding one quarter of a mile - -	0	3
Not exceeding half a mile -	0	4
Not exceeding one mile - -	0	6
Not exceeding one mile and a half	0	8
Not exceeding two miles - -	0	10

And so in like manner the additional sum of 3*d.* for every further distance not exceeding half a mile.

Persons asking or receiving more than the above rates, shall, for every such offence, forfeit a sum not exceeding 20*s.* nor less than 5*s.*

PORT-HOLES, in a ship, are the holes in the side of a vessel, through which are put the muzzles of the great guns. These are shut up in storms, to prevent the water from driving through them. The English, Dutch, and French ships have the valve or casements fastened at the top of the port-holes, and the Spanish vessels on one side.

PORTLAND-STONE, a free-stone found in Portland, a peninsula in Dorsetshire. Nicholson calls it a compact sand-

stone, and tells us that its cement is calcareous. It is of a dull white, will not strike fire with steel, but effervesces violently with nitric acid. Portland-stone is mostly brought to London, for the structure of the finest edifices. St. Paul's church, in particular, is built of this stone.

PORTMANTEAU, a small trunk, generally of a roundish form, and either formed entirely of leather, or composed of a wooden chest, covered with leather, or hide in the hair.

PORTRAIT-PAINTING. *See* PAINTING.

POSTAGE and POST-OFFICE. The outline of the present establishment of the general post-office was traced out by Mr. Edmund Prideaux, in the year 1642, who being appointed post-master, first established a weekly conveyance of letters into all parts of the country, whereby the charge of 7000*l.* per annum was saved to the public.

In the year 1654, a regular post-office was established by the Protector and his parliament, for the regulation of which, various acts of parliament have been since passed.

About the year 1784, a great improvement was made in the mode of conveying the mails upon a plan first suggested in 1782, by Mr. John Palmer, of Bath, who proposed that government, (instead of sending the mails in the old mode, by a boy on horseback, and in carts,) should contract with the masters of coaches to carry the mail, along with a guard, for its protection. This plan was at last established, and gradually extended to many different parts of the kingdom; and, upon a fair comparison, it appeared that the revenue was very considerably improved, though Mr. Palmer's numerous reforms, and the great number of new appointments which they rendered necessary, greatly increased the former expence of management. The conveyance of the mails on the new plan was contracted for, after the two first years trial, at 20,000*l.* per annum less than the sum first estimated by Mr. Palmer.

The present establishment of the general post-office for Great Britain consists of one postmaster-general; the salary of one of the two persons who, for many years past, have performed the duties of joint postmasters-general, having been recently abolished by parliament; a secretary, upwards of 150 assistants, and clerks for the head letter-office in London, under the direction of a superintending president of the inland-letter department; and a comptroller of the foreign-letter office. Near 600 deputy-postmasters throughout the kingdom, act under one principal, and nine riding surveyors. There are also distinct offices and clerks, acting under an accountant-general, and a receiver-general; as well as a separate establishment for the two-penny, formerly the penny-post, which has been new modelled and greatly improved in all its branches. There is likewise a postmaster-general of Scotland, with a secretary, comptroller, surveyors, and a separate establishment of all the requisite officers and clerks at Edinburgh, acting under the orders of the joint postmasters-general at London.

LAWS RELATING TO THE POST OFFICE.

The postmaster-general does not come under the denomination of a carrier, for he enters into no contract, and has no hire; the postage of letters being an article of revenue, and not a mere reward for the conveyance. He is therefore, not liable to constructive negligence. *Cowp. R.* 754.

But the safety of letters by the post is provided for, by numerous statutes; and for inferior offences, which do not amount to absolute crimes, by the regulations of the general post office, all inferior officers are punished by dismission, on complaint to the postmaster-general, or his deputies.

The early statutes for the protection of letters, before mail-coaches were invented, still apply to those roads, on which such coaches are not established. The first necessary to be noticed is 5 Geo. 3. c. 25, which enacts that if post-boys conveying the mail-bag, shall quit the mail, or suffer any other person to ride on the horse or carriage, or shall loiter on the road, or not, if possible, convey the mail at the rate of six miles an hour, shall, on conviction before one justice, on oath of one witness, be sent to the house of correction for not exceeding one month, nor less than 14 days. For unlawfully collecting letters to convey them, being convicted in like manner, shall forfeit for every such letter 10*s.* to informer, and be committed for two months, mitigable to one. And any persons *entrusted to take in letters and receive the postage*, embezzling, or employing to their own use, the same; or burning or destroying said letters; or advancing the rates of postage, and not accounting for the money; shall be guilty of felony.

7 Geo. 3. c. 5. extends the punishment to *all persons whether employed in the business of the post-office*, guilty of the like offences, and for stealing out of any letter, any bill, note, or other security for money, and makes the offence felony without benefit of clergy. This statute did not extend to embezzling money itself, or to *parts* of securities. 2 *East. P. C.* c. 16.

42 Geo. 3. c. 81. extends the punishment of felony without benefit of clergy to all *such* persons, stealing *parts* of notes, bills, and other securities out of letters, as also to all persons buying or receiving the same; and the accessaries may be tried whether the principals be apprehended or not, and the offence may be tried either where the offence was committed, or the offender apprehended.

And by the same statute, if any person shall wilfully secrete, or detain, or refuse to deliver to any officer of the post-office authorized to demand the same, any letter or bag of letters intended to be conveyed by the mail, which he shall have found or picked up, or which shall by accident or mistake have been left with any other person, he shall be guilty of a misdemeanor, and punished by fine and imprisonment.

By 52 Geo. 3. c. 143. if any deputy, clerk, agent, letter-carriers, post-boy or rider, or any other officer employed by or under the post-office, on receiving, stamping, sorting, changing, carrying, conveying, or delivering letters or packets, in any way relating to the post-office, shall secrete, embezzle, or destroy any letter, packet, or bag or mail of letters, which shall have come into his hands in consequence of such employment, containing the whole, or any part of any bank note, bank post bill, bill of exchange, exchequer bill, South Sea or East India bond, dividend warrant of the same, or any other company, society, or corporation; navy or victualling, or transport bill; ordnance debenture, seaman's ticket, state-lottery ticket, or debenture, bank receipt for payment on any loan, note of assignment of stock in the funds, letter of attorney for receiving dividends or selling stock in the funds, or belonging to any company; American provincial bill of credit, goldsmiths' or bankers' letter of credit, or note relating to the payment of money, or other bond, warrant, draft, bill, or promissory note whatever, for payment of money; or shall steal and take out of any letter, with which he shall have been so entrusted, or which shall have come to his hands, the whole, or any part, of any such bank note, bank post bill, &c. shall be guilty of felony without benefit of clergy.

And if any person shall steal or take away from any carriage, or from the possession of any person employed to convey letters sent by the post, or from any receiving house for the post-office, or from any bag or mail, sent or to be sent by the same, any letter, packet, bag, or mail, shall suffer death without benefit of clergy.

And all persons who shall counsel, command, hire, persuade, promise, aid, or abet such persons, or shall with a fraudulent intention buy or receive any such securities, instruments, &c., shall suffer in like manner; accessaries may be tried before apprehension or trial of principals. Trials may be in county where offenders are apprehended.

The statutes for regulating the rates of postage, and the exemptions from postage from the 9th Anne to the 53d of Geo. 3. are too numerous to be inserted, but the principal regulations of them are the following.

The King, the persons filling the principal offices of government, the public boards, and the post-office, shall send and receive letters duty free.

Also all members of either house of parliament during the sitting of the same, or within 40 days before, or after, any summons, or prorogation, not exceeding one ounce in weight, on condition that the names of the member, and the post town from which sent, the day of the month at full length, and the year, shall be indorsed thereon; also that the member directing it shall be at, or within 20 miles, of the post town, on the day, or day before, the letter is put into the post-office; and also on condition that no member send more than ten, or receive more than fifteen, letters in one day.

Printed votes of parliament, newspapers in covers open at the sides, and directed *by* or *to* any member, &c. are exempt from postage.

But the postmasters may search to see if any thing else be contained in the cover, and if there be any such found, it shall be charged treble postage.

Persons altering the superscription of franked letters, or counterfeiting the handwriting of members on them to avoid postage, guilty of felony, and to be transported for seven years.

But nevertheless, members who from infirmity are unable to write, may authorise and depute another to frank for them, sending notice thereof under hand and seal, attested by a witness, to the postmaster-general.

Bills of exchange, invoices, merchants' accounts, &c. written on same piece of paper with a letter, or several letters written to several persons on one piece of paper, to pay as so many distinct letters, or by the ounce.

So writs or other legal proceedings.

Patterns and samples of goods in covers open at the sides without any writing inside, to be charged as single letters. But, by 52 Geo 3. if not open at the sides, and weighing only 1 oz., an additional rate of 2*d*, but if less than 1 oz. and open at the side only, the additional rate of 1*d*.

Foreign letters suspected to contain prohibited goods may be opened in the presence of a justice, or magistrate, of the place, or district, on oath of person suspecting. If contraband goods found, to be destroyed, and the letter sent to the commissioners of customs; if none found, the letter to be forwarded with an attestation of the circumstances by the justice, or magistrate.

By 9 Anne, c. 10. No person except the postmaster, and persons authorized by him, shall carry or convey any letters on pain of 5*l*. for every offence, and a penalty of 100*l*. per week besides, to be recovered in any court of record. And by 42 Geo. 3. c. 81. No person shall send or tender, or deliver to be sent, otherwise than by the authority

of the postmaster or his deputies, or to the nearest or most convenient post town to be forwarded by the post, any letter or packet, on pain of 5*l.* to be recovered in any court of record at Westminster.

Except letters *concerning goods* to be delivered *with such goods*, sent by a common carrier; letters of merchants, owners of ships or merchant vessels with cargoes to be delivered; such letters being carried without hire or reward; any commission or return thereof; process or return thereof out of any court, or any letter sent by any private friend in their way of journey; or by any messenger sent on purpose concerning private affairs.

Postmasters may make private agreements with persons living in places (not being post towns) for the receiving and sending to them respectively, letters to and from the post town; but for the delivery of letters within the limits of the post town, he is entitled to no remuneration. 5 *Burr. R.* 2709.

The Rates of the General Post, as they stood regulated by Statute previous to 52 Geo. 3.

Single Letters.

	oz. weight. s.	d.	s.	d.
From any post-office, to any place not exceeding 15 miles - - -	0	3	1	0
Above 15 and not exceeding 30 miles - -	0	4	1	4
Above 30 and not exceeding 50 miles - -	0	5	1	8
Above 50 and not exceeding 80 miles - -	0	6	2	6
Above 80 and not exceeding 120 miles - -	0	7	2	4
Above 120 and not exceeding 170 miles - -	0	8	2	6
Above 170 and not exceeding 230 miles - -	0	9	3	0
Above 230 and not exceeding 300 miles - -	0	10	3	4

For 100 measured miles above 300 miles, a further sum of 1*d.* ounce 4*d.*—Above 300 measured miles, and not amounting to 100 miles, the like further sum for every letter 1*d.* ounce 4*d.* — And where the distance above 300 measured miles shall not exceed 100 miles, and so progressively for any like excess of distance of 100 miles, the like further sum for every letter 1*d.* ounce 4*d.*

Irish Letters.

Every letter conveyed by packet-boats from or to the ports of Milford Haven, to or from any ports in Ireland, over and above the rates payable for such letters, a packet-postage, viz. for every letter 2*d.* ounce 8*d.*

Single letters to soldiers and sailors, under certain restrictions, are chargeable with 1*d.* only.

Foreign Letters.

No letters for foreign parts can be forwarded, unless the postage of such letters be first paid.

	s.	d.
To Portugal - - -	2	2
To Spain - - - -	1	10
Switzerland, and any part of Italy, *via* France - - -	1	7
To France - - -	0	10
To all other parts on the Continent	1	4

And so in proportion for double, treble, and ounce weight.

Newspapers and other periodical publications may be procured from all parts of the Continent, by application at the foreign post-offices, whither also orders for forwarding English newspapers must be sent.

Additional Rates by 52 *Geo.* 3. *c.* 88.

For the port and conveyance of letters by the post within Great Britain, above the distance of twenty miles from the office where such letters may be put in, to the office where the same may be directed,

For every single letter - 1*d.*
For every double letter - 2*d.*
For every treble letter or other letter under an ounce in weight - 3*d.*
And for every ounce in weight, and for every packet not exceeding an ounce in weight, (and so in proportion for every other letter or packet of greater weight than an ounce) - 4*d.*

For the port and conveyance of letters by the post to and from Ireland,

For every single letter - 1*d.*
For every double letter - 2*d.*
For every treble letter or other letter under an ounce in weight - 3*d.*
And for every ounce in weight, and for every packet not exceeding an ounce in weight, (and so in proportion for every other letter or packet of greater weight than an ounce) - 4*d.*

For the port and conveyance of letters by the post to and from his majesty's dominions and plantations in America,

For every single letter an additional rate of 2*d.*
For every double letter - 4*d.*
For every treble letter or other letter under an ounce in weight - 6*d.*
And for every packet not exceeding an ounce in weight, (and so in proportion for every other letter or packet of greater weight than an ounce) - 8*d.*

And for the port and conveyance of letters by the post to and from parts beyond the seas, whether within his majesty's dominions, or not within his majesty's dominions,

For every single letter an additional rate of - - - 2*d.*
For every double letter - 4*d.*
For every treble letter or other letter under an ounce in weight - 6*d.*

And for every packet not exceeding an ounce in weight, (and so in proportion for every other letter of greater weight than an ounce) - - 8*d.*

Not to extend to letters to and from isles of Guernsey, Jersey and Man, except for the conveyance *within* Great Britain.

For every letter or packet containing samples or patterns, to the said places, *not open* at the sides, an additional rate of 2*d.*

For every such open at the sides ditto 1*d.* if the same do not weigh 1 oz.

Not to extend to letters sent by, or to, seamen and soldiers, under 35 Geo. 3. c. 53.

See 1 Geo. 4. c. 89. for rates on letters between Port Patrick, Scotland, and Donaghadee, Ireland.

See 1 & 2 Geo. 4. c. 35. § 19, 20. for rates on letters to any part of Great Britain or Ireland, by way of Chester and Conway.

See 3 Geo. 4. c. 105. for rates on letters between Liverpool and the Isle of Man.

Rates of the Two-penny Post.

For every letter (not first passing by the general post), the postage whereof shall not be paid on putting the same into the office of the said post, the rate hereinafter-mentioned shall be paid, viz. —

Every letter from any place within London and Westminster, Southwark, and their respective suburbs - 2*d.*

Every letter to be forwarded by the general post - - - - 2*d.*

Every letter first passing by the general post, and then by two-penny post, over and above the general postage 2*d.*

Merchants' accounts, bills of exchange, and bills of lading, shall be rated as so many several letters.

Letters sent to and from London, within a distance not exceeding ten miles 3*d.*

Rates of Postage between London and the Cape of Good Hope, Mauritius, and the East-Indies, by 55 Geo. 3. c. 153.

For every single letter	- -	3*s.* 6*d.*
double do.	-	7*s.* 0*d.*
treble do.	- -	10*s.* 6*d.*
And for every ounce in weight		14*s.* 0

And so in proportion for letters and packets above the weight of 1 oz.

For every letter or packet conveyed between the Cape of Good Hope, or the Mauritius, and any part of the continent of Asia; and between the Cape of Good Hope, or the Mauritius, or the continent of Asia, and all intermediate places, and between all the intermediate places respectively.

For every single letter	-	1*s.* 9*d.*
double do.	-	3*s.* 6*d.*
treble do.	-	5*s.* 3*d.*
And for every ounce in weight		7*s.* 0*d.*

And so in proportion, &c.

And newspapers, printed prices current, or any papers liable to stamp duty, and duly stamped, not exceeding 1 oz. in weight, may be conveyed from London to any of the above places, paying for each - - - 3*d.*

The East-India Company not to charge any postage, except for *inland* postage in India, and for any sealed bags or packages which may be sent by the postmaster-general, by ships of the Company.

A mail shall be sent by the postmasters-general to India, &c. monthly; and any wilful delay of sailing shall be punished by a fine of 500*l.*

Persons conveying letters to India, &c. without the authority of postmasters-general, liable to a penalty of five pounds for every such letter so conveyed.

There are exceptions in favour of the directors of the India Company; of such public officers as have been used to receive letters to and from India, &c. duty free; of seamen and soldiers, privileged by 46 Geo. 3. c. 92.; and of owners, charterers, and consignees of vessels, under certain restrictions, by their own ships.

Letters to and from China are declared not to be within the act.

The increase in the revenue of the post-office within the last seven years almost exceeds credibility. In the four last years of the reign of Geo. I. the whole produce was 75,545*l.*

Of the single year, ending Jan. 5. 1828. 1,359,000*l.*

POST ENTRY. When goods are weighed or measured, and the merchant has got an account thereof at the custom-house, and finds his entry, already made, too small, he must make a *post* or additional *entry* for the surplusage, in the same manner as the first was done. As a merchant is always in time, prior to the clearing of the vessel, to make his post, he should take care not to over-enter, to avoid as well the advance, as the trouble of getting back the overplus. However, if this be the case, and an over-entry has been made, and more paid or bonded for customs, than the goods really landed amount to, the land-waiter and surveyor must signify the same, upon oath made, and subscribed by the person so over-entered, that he, nor any other person, to his knowledge, had any of the said goods over-entered on board the said ship, or any where landed the same without payment of custom; which oath must be attested by the collector and comptroller, or other deputies, who then compute the duties, and set down on the back of the certificate, first in words at length, and then in figures, the several sums to be paid.

The following is the form of the CERTIFICATE, necessary to be made in this case, with the indorsement: —

" These are to certify that James Fletcher

did pay his majesty's duties inwards in the Augustus, Thomas Wilson, master, from the Sound, the 9th day of August, 1809, for a hundred and twenty-four tons of iron; and we the officers underwritten did examine the same at the delivery thereof out of the said ship, and found no more than a hundred and eighteen tons of iron; and for further manifestation of the truth hereof, he made oath, that neither he nor any other person, to his use or knowledge, had these goods over-entered on board the said ship, or in any place landed them, without paying customs. Dated at the Custom-house, London, the 25th day of August, 1809.

"THOMAS BARKER, Surveyor.
"J. GREENHALL, Land-Waiter.

"*Jurat*, James Fletcher, that the contents of the above certificate are true."

The indorsement contains a specification of the duties paid, with a deduction of the overplus.

POSTING, in book-keeping, is the mode of transferring articles of different descriptions from the inferior to the superior books of accounts, and there arranging them under their proper heads. *See* BOOK-KEEPING.

POST-PAPER, (GER. and DU. *Postpapier*. DA. *Postpapir*. SW. *Postpapper*. FR. *Papier fin à lettres*. IT. *Carta fina per lettere*. SP. and PORT. *Papel fino*. RUS. *Potschtowaja bumaga*. POL. *Pooztowy papier*,) is a name given to the fine paper used in letter-writing. It has obtained this appellation from letters being usually forwarded by the *post*.

POTS, (GER. *Töpfe*. DU. *Potten*. DA. *Potter*. SW. *Pottor*. FR. *Pots*. IT. *Stoviglie*. SP. *Ollas*. PORT. *Panellas*. RUS. *Gorschokii*. POL. *Garnki*,) well known vessels usually employed for culinary purposes, and made for the most part, of iron, copper, or brass. Articles of this kind are principally manufactured at Birmingham, Sheffield, Wolverhampton, &c.

POT-ASH, (GER. *Pottasche*. DU. *Potas*. DA. *Potaske*. SW. *Potaska*. FR. *Potasse*. IT. *Potassa*. SP. and PORT. *Potassa*. RUS. *Potasch*. POL. *Potasz*. LAT. *Cineres clavellati*,) an alkaline salt, chiefly procured by lixiviation, from the ashes of burnt wood, and other vegetable substances. When pure, it is in form of a whitish powder, of a highly acrid taste, and quickly destroys animal bodies. It is readily soluble in water, and quickly deliquesces when exposed to the air, by attracting its moisture: it also absorbs a portion of carbonic acid from the atmosphere, and becomes altered in its properties, being changed into a nearly neutral, and more mild, salt. In this state it is readily crystallizable.

Pot-ash is of great use in the arts. It is employed in bleaching, making alum, scouring wool; in dying, and calico-printing; for making glass and soap; though soda is usually employed for the two latter purposes. It is also of considerable importance in chemistry and medicine.

POTASSIUM. This name was given by Sir H. Davy to the metallic base of pot-ash. It is solid at the usual temperature of the atmosphere, but quickly becomes soft and malleable by the warmth of the hand; it is perfectly white, and has the lustre of polished silver; but it is quickly tarnished on exposure to the air. Its specific gravity is only .865; it fuses at 150° of Fahrenheit, and becomes volatile at a temperature below that of a red heat. It has not been applied to any use in the arts.

POTATOE, (GER. *Kartoffeln*. DU. *Aardappelen*. DA. *Patater*, *Jordæbler*. SW. *Potatos*, *Jordpäron*. FR. *Pommes de terre*. IT. *Patate*, *Pomi di terra*, *Tartufoli*. SP. *Patatas manchegas*, *Patatas inglesas*, *Comotes*. PORT. *Batatas di terra*, *Pomes de terra*. RUS. *Jabloki semleniie*, *Kartoflu*. LAT. *Tubera virginiana esculenta*,) it is generally supposed, came originally from the province of Virginia, in North America, and it is said was brought into Ireland by Sir Walter Raleigh: others deny this, and say potatoes were not known in North America till long after that period. These writers trace their origin to, South America, from which country, they say, they were brought into Italy, long before they were known in any other part of Europe. Be these different accounts entitled to what credit they may, the root was first introduced into Ireland, we are told, about 1565, and thence was brought to England. It was forty years after their introduction, however, before they were much cultivated about London; and prior to 1663 they did not come into general use. The utility of potatoes, as food for man, and cattle, is well established. The peasantry of Ireland have scarcely any nutriment beside what this plant affords them; yet there are not more hardy, robust, or hale people in the dominions of his Britannic majesty. Instances of the amazing increase of potatoes are very numerous. There are either a prodigious number of different species, or great varieties of the same species; but, for any thing that appears to the contrary, they are all, under similar circumstances of culture, equally prolific, and equally nutritive in quality. Nor is the only part of the produce of this plant, which is valuable, at its root; for it has been recently discovered that the apple, which is borne on its stem, abounds with a saccharine juice, which yields largely a powerful spirit, on distillation. The usual time for planting the potatoe is in April, and May; and of gathering the crop, September and October: but they will produce, with proper care, at all periods of the year; and the same ground, well dug and manured, will

produce two crops in a year. The less the plant is suffered to luxuriate above ground, the more will be the produce at the root, at least so most modern experiments induce us to believe. This article is exported, usually in wicker-baskets, to Gibraltar, the Mediterranean, and the West Indies.

POTTE, a Danish liquid measure.

POTTER'S CLAY, (Ger. *Töpfererde.* Du. *Potäarde.* Da. *Potteleer.* Sw. *Krukomakare-lera.* Fr. *Terre à potier, Terre glaise.* It. *Terra da stoviglie.* Sp. *Tierra de alfareros.* Port. *Barro.* Rus. *Barro.* Prüs. *Glina.* Pol. *Glina zdunska,*) a denomination applied to the different species of clay used in the manufacture of pottery. Staffordshire, and some other parts of England, are wonderfully rich in clay of this description. *See* POTTERY and PORCELAIN.

POTTER'S ORE. (Ger. *Bleyglauz.* Du. *Lootglans.* Da. *Blyglands.* Sw. *Blyglans.* Fr. *Arquifou.* It. *Archifoglio.* Sp. *Alquifol.* Port. *Arquifolho.* Rus. *Kubikowataia ruda, Bleiglanz.* Lat. *Galena.*) *See* ALQUIFOU.

POTTERY, the manufacture of earthenware, or the art of making earthen vessels. In a general sense, therefore, it applies to all the different branches.

All kinds of pottery are made of clays or argillaceous earths, because these earths are capable of being kneaded, and easily receiving any form, and of acquiring much solidity and hardness by exposure to fire. But clays differ much in the effects produced upon them by fire. Some, which are of the purest kind, resist the most violent fire, without receiving any other change than a considerable hardness; but still they are not rendered so compact as other clays. A second kind, by exposure to violent heat, acquires a hardness equal to that of flints, and a texture compact and glossy, like that of good porcelain; but remains nevertheless infusible by the most violent heat. These qualities are occasioned by the intermixture of some fusible materials, as sand, chalk, gypsum, or ferruginous earth, which are in too small a quantity to effect a complete, but only a beginning, or partial, fusion. Lastly, a third kind of clays is first hardened by fire, and afterwards completely fused. This last kind evidently contains the largest quantity of the fusible matters above mentioned.

From the properties of these three principal clays it may be concluded, that, from clays alone, three principal kinds of pottery may be produced. With the first kind of clay, pots or crucibles may be formed, capable of sustaining the most violent fire without fusion, of containing melted metals, and even hard glasses, not too fluid; but which, from want of sufficient compactness, are incapable of containing, during a long time in fusion, very fusible substances, such as nitre, glass of lead, glasses containing much arsenic, &c. by which substances their pores are pervaded. These clays are employed advantageously for the formation of large pots or crucibles used in glass-houses for containing hard glass, as bottle-glass.

With clays of the second kind may be made crucibles and other potteries, commonly called stone ware. Potteries made with these earths, when sufficiently baked, are very sonorous, so hard as to strike fire with steel, capable of containing all liquids, of which the former kind, from their porosity, are incapable, and even resist the action of nitre, glass of lead, and other fluxes, when the earth of which they are formed is of good quality: but their hardness and density, which prevent their sudden expansion and contraction, by the hasty application of heat and cold, make them liable to break in all operations where they are suddenly exposed to these extremes; as, for instance, in a furnace through which a strong current of air passes. If this kind of pottery had not this inconvenience, it would be the best and most perfect for the purposes of ordinary life, as well as for chemistry. Notwithstanding this inconvenience, it is the only pottery that is applicable on many occasions; but then all possible care must be taken to prevent its breaking, by a very gradual application of heat and cold, and by protecting it from currents of cold air.

With the fusible clays may be made many kinds of vessels, which are cheap, as they require little fire to bake them; for all this kind of pottery is but slightly baked; whence its texture is coarse and porous. Some utensils are made of this pottery without glazing; but in general they are covered with a glazing, without which, water, or other liquids, would pass through their pores. Some of this pottery, which is finished with more care, is covered with a white enamel, which makes it very neat, and like porcelain. This is called Delft Ware, *which see.* Other coarser potteries of this kind are glazed with glass of lead mixed with metallic oxides, or fusible coloured earths, from which they receive various colours. This is the ordinary pottery.

A fine kind of pottery is made of white clays, or of such as whiten in the fire, the surface of which is vitrified by throwing into the furnace, when the ware is sufficiently baked, some common salt, and salt-petre. This pottery is called English ware on the Continent, because the first and best was made in England. It is white, fine, well baked, and has some small degree of transparency when thin; so that it is intermediate betwixt porcelain and common stone-ware, and may therefore be called a semi-porcelain.

As the English stone-ware is composed of tobacco-pipe-clay and ground flints, both

which substances are perfectly infusible, singly or jointly, it cannot possess any degree of transparency. The use of the flint is to give strength to the ware, so that it shall preserve its form during the baking: whereas vessels made of clay alone, though infusible by fire, and capable of acquiring, by having been exposed to an intense heat, the hardness of the best porcelain; yet, while they are hot and soft, they sink by their own weight, so as to lose the form given them. The process of manufacturing this stone-ware, is as follows: —

Tobacco-pipe-clay is beaten much in water; by this process, the finer parts of the clay remain suspended, while the coarser sand, and other impurities, fall to the bottom. The thick liquid, consisting of water and the finer parts of the clay, is further purified by passing through hair and lawn sieves, of different degrees of fineness. After this, the liquid is mixed (in various proportions for various wares) with another liquor, of, as nearly as may be, the same density, and consisting of flints calcined, ground, and suspended in water. The mixture is then dried in a kiln; and being afterward beaten to a proper temper, it becomes fit for being formed at the wheel into dishes, plates, bowls, &c. When this ware is to be put into the furnace to be baked, the several pieces of it are placed in the cases made of clay, called seggars, which are piled one upon another, in the dome of the furnace: a fire is then lighted; and when the ware is brought to a proper temper, which happens in about forty-eight hours, it is glazed by common salt. The salt is thrown into the furnace, through holes in the upper part of it, by the heat of which it is instantly converted into a thick vapour; which, circulating through the furnace, enters the seggar through holes made in its side (the top being covered to prevent the salt from falling on the ware), and attaching itself to the surface of the ware, it forms that vitreous coat upon the surface, which is called its glaze.

The yellow, or queen's ware, is made of the same materials as the flint-ware; but the proportion in which the materials are mixed is not the same, nor is the ware glazed in the same way. The flint-ware is generally made of four measures of liquid flint, and of eighteen of liquid clay: the yellow ware has a greater proportion of clay in it; in some manufactories they mix twenty, and in others twenty-four, measures of clay, with four of flint. These proportions, if estimated by the weight of the materials, would probably give, for the flint-ware, about three hundred weight of clay, to one hundred weight of flint, and for the yellow ware somewhat more clay. The proportion, however, for both sorts of ware, depends very much upon the nature of the clay, which is very variable even in the same pit. Hence a previous trial must be made of the quality of the clay, by burning a kiln of the ware. If there be too much flint mixed with the clay, the ware, when exposed to the air after burning, is apt to crack; and if there be too little, the ware will not receive the proper glaze from the circulation of the salt vapour.

This glaze, even when it is most perfect, is in appearance less beautiful than the glaze on the yellow ware.

The yellow glaze is made by mixing together in water, till it becomes as thick as cream, 112 lb. of white lead, 24 lb. of ground flint, and 6 lb. of ground flint glass. Some manufactories leave out the glass, and mix only 80 lb. of white lead, with 20 lb. of ground flint; and others observe different rules.

The ware, before it is glazed, is baked in the fire; by which process it acquires the property of strongly imbibing moisture; it is therefore dipped in the liquid glaze, and suddenly taken out; the glaze is imbibed into its pores, and the ware presently becomes dry. It is then exposed a second time to the fire, by which the glaze it has imbibed is melted, and a thin glassy coat is formed upon its surface; the colour of which coat is more or less yellow, according as a greater or less proportion of lead has been used. The lead is principally instrumental in producing the glaze, as well as in giving it the yellow colour; for lead, of all the substances hitherto known, has the greatest power of promoting the vitrification of others with which it is mixed. The flint serves to give a consistence to the lead during the time of its vitrification, and to hinder it from becoming too fluid, and running down the sides of the ware, and thereby leaving them unglazed.

The yellowish colour which lead gives, when vitrified with flints, may be wholly changed by very small additions of other mineral substances. Thus, to give one instance: the beautiful black glaze, which is fixed on one side of the ware made at Nottingham, is composed of twenty-one parts, by weight, of white lead, five of powdered flints, and three of manganese. The queen's ware at present made, is much whiter than formerly.

The coarse stone-ware, made at Bristol and some other places, consists of tobacco-pipe-clay, and sand, and is glazed by the vapour of salt, like Staffordshire flint-ware; but it is far inferior to it in beauty.

Many other modes of glazing, have been suggested, and some even tried, with various success; as levigated green glass, and pumice-stone; a strong solution of sea-salt; the smoke of coal; and various other things, among which may be reckoned, the residuum left after distilling oxigenized muriatic acid, ground with sand, which makes a good *dark bronze-coloured* glaze, free from the noxious qualities imputable to lead.

But the truth is, that different kinds of pottery require such different kinds of glazing, that there is no laying down any general directions, or even recommending any general recipe. It is, however, important to observe, that if any thing could be substituted for the white lead, it would be highly desirable, as many fatal accidents, it is well known to medical persons, have ensued from baking acid fruits in new vessels of queen's ware glazed with that article.

The glaze of earthen ware may have several defects; it may be scratched, more, or less, readily by a hard body; weak acids, such as vinegar, lemon-juice, verjuice, &c. may attack and dissolve the lead it contains; or oily substances standing long on it may produce the same effect, stain it, or render it dull.

To determine its power of resisting friction, it may be rubbed with sand; and if this scratch it more readily than it does a glaze known to be good, we may be assured it is soft.

If vinegar be boiled for some hours in a vessel coated with a soft glaze, it will attack the glaze, and dissolve a portion of its lead, which will be precipitated from the vinegar on the addition of a few drops of sulphuric acid, commonly called oil of vitriol.

But a method more within every one's reach, and therefore deserving to be known, is, to let fall a drop of strong ink on a piece of earthen-ware, dry it before the fire, and then wash it. If the glaze be too soft, the ink will leave a slight spot.

Some earthen ware can sustain a sudden application of heat, and cold, sufficiently well for the uses of the kitchen, and are therefore called fire-ware. Great improvements have recently been made in this particular sort of ware, as it will really now do, what it was long professed to do, without sufficient authority, viz. bear a repetition of contact with a fierce fire without injury. The great secret is not to place it on anything extremely cold when it is taken off the fire, but suffer it to cool gradually.

So far we have confined our observations to the materials used in the manufacture of pottery, and to the process of glazing; it may now be proper to speak of the implements employed in that important branch of British manufactures.

The wheel, and lathe, are the chief and almost the only instruments in pottery: the first for large works, and the last for small. The potter's wheel consists principally in the nut, which is a beam or axis, whose foot or pivot plays perpendicularly on a freestone sole or bottom. From the four corners of this beam, which does dot exceed two feet in height, arise four iron bars, called the spokes of the wheel; which forming diagonal lines with the beam, descend, and are fastened at bottom to the edges of a strong wooden circle, four feet in diameter, perfectly like the felly of a coach-wheel, except that it has neither axis nor radii, and is only joined to the beam, which serves it as an axis by the iron bars. The top of the nut is flat, of a circular figure, and a foot in a diameter; and on this is laid the clay which is to be turned and fashioned. The wheel thus disposed is encompassed with four sides of four different pieces of wood fastened on a wooden frame; the hind-piece, which is that on which the workman sits, is made a little inclining towards the wheel; on the fore-piece is placed the prepared earth; on the side-pieces he rests his feet, and these are made inclining to give him more, or less, room. Having prepared the earth, the potter lays a round piece of it on the circular head of the nut, and sitting down, turns the wheel with his feet till it has got the proper velocity; then, wetting his hands with water, he presses his fist, or his fingers' ends, into the middle of the lump, and thus forms the cavity of the vessel, continuing to widen it from the middle; and thus turning the inside into form with one hand, while he proportions the outside with the other, the wheel constantly turning all the while, and he wetting his hands from time to time. When the vessel is too thick, he uses a flat piece of iron, somewhat sharp on the edge, to pare off what is redundant; and when it is finished, it is taken off from the circular head by a wire passed under the vessel.

The potter's lathe is also a kind of wheel, but more simple and slight than the former: its three chief members are an iron beam or axis three feet and a half high, and too feet and a half in diameter, placed horizontally at the top of the beam, and serving to form the vessel upon; and another larger wooden wheel, all of a piece, three inches thick, and two or three feet broad, fastened to the same beam at the bottom, and parallel to the horizon. The beam or axis turns by a pivot at the bottom in an iron stand. The workman gives the motion to the lathe with his feet, by pushing the great wheel alternately with each foot, still giving it a greater, or less, degree of motion, as his work requires. They work with the lathe with the same instruments, and after the same manner as with the wheel. The mouldings are formed by holding a piece of wood or iron, cut in the form of the moulding to the vessel, while the wheel is turning round; but the feet and handles are made by themselves, and set on with the hand; and if there is any sculpture in the work, it is usually done in wooden moulds, and stuck on, piece by piece, on the outside of the vessel.

Staffordshire is the chief seat of the pottery manufacture, and hence vast quantities of the numerous articles which it produces, are annually disseminated throughout the British dominions, and exported to most parts of the globe.

For the foreign names of POTTERY-WARE, *see* EARTHEN WARE, and PORCELAIN.

POTTLE signifies, properly, an English measure, containing two quarts. Two pottles, in liquid measure, make a gallon; but, in dry measure, three go to a gallon. But the name is vulgarly and arbitrarily applied to little baskets, of indefinite size, for holding fruit, and other small vegetables, such as pease, mushrooms, &c. &c.

POULI, a copper coin of Italy, equivalent to 8-30ths of a penny sterling.

POUNCE, gum-sanderach, pounded and sifted very fine, to rub on paper, in order to prevent the ink from spreading on the surface of the paper, and to render the writing clear and distinct.

Pounce is also a little heap of charcoal dust, inclosed in a piece of muslin, or some other open stuff, to be passed over holes pricked in a work, in order to mark the lines or designs on paper, silk, &c. placed underneath: which are to be afterwards finished with a pen and ink, a needle or the like. This kind of pounce is much used by embroiderers to transfer their patterns upon stuffs; by lace-makers, and sometimes also by engravers.

POUND, a certain weight used as a standard to determine the gravity and quantity of bodies.

In England we have two different pounds; the pound *troy*, and the pound *avoirdupois*. The pound troy consists of twelve ounces, each ounce of twenty pennyweights, and each pennyweight of twenty-four grains. This pound is used in the weighing of silver, gold, precious stones, &c. It is also used in ascertaining the strength of liquors. Apothecaries likewise make use of this pound though they divide it differently; twenty-four grains making a scruple, three scruples a drachm, eight drachms an ounce, and twelve ounces a pound.

The pound avoirdupois consists of sixteen ounces; but then the avoirdupois ounce is less by forty-two grains than the troy ounce. One hundred and twelve pounds avoirdupois make the hundred weight, or quintal. By this weight almost all coarse and heavy goods are weighed; such as butcher's meat, grocery, cheese, butter, &c. wax, pitch, tallow, and all metals except gold, and silver.

Avoirdupois weight was first used in Henry VIIIth's reign; it was introduced expressly for weighing butcher's meat, and other coarse and heavy articles.

For an explication of the pound-weights of foreign nations, *See* WEIGHTS AND MEASURES.

POUND, also denotes a money of account containing more, or less, according to the several names added thereto, and the different countries it is used in: as in England, a pound sterling; in France, a pound or livre Tournois; in Holland and Flanders, a pound gross, and Flemish, &c. The English pound contains 20*s.*, the shilling 12*d.*, and the penny four farthings. The Irish currency differs from the English, as 13 to 12; thus one shilling English is one shilling and a penny Irish, and 1*l.* English is 1*l.* 1*s.* 8*d.* Irish currency. In America, and the West India Islands, the difference between the value of a pound sterling and the currency, varies in almost every two contiguous states.

Merchants, &c. use initial letters, £. or £. *Sterling*, for pounds sterling; £. *G.* for pounds gros, and £. *l.* or ℔. for pounds Tournois.

POUNDAGE, is understood to comprehend the customs, and other duties, payable on all goods imported, (except those free of duty or liable to tonnage,) being in most cases levied at so much in the *pound* or *per cent.* on the respective rates or values.

POUNDAGE (in law), is the sum of 1*s.* in the pound, payable to the sheriff upon any writ of execution for debt, against the goods or body of the defendant.

This money was formerly payable by the plaintiff, and was never allowed in costs; but by a modern act, in every action in which the plaintiff shall be entitled to levy under an execution against the goods of any defendant, such plaintiff may also levy the poundage-fees and expenses of the execution, over and above the sum recovered by the judgment.

POWDER-BLUE, or STARCH-BLUE, (GER. *Blaussel.* DU. *Blaauwzel, Blaauw.* DA. *Blaafarve, Blau, Blausel.* SW. *Blausell, Blästärkelse.* FR. *Bleu d'empois.* IT. *Turchino d'amido.* SP. *Polvos azules.* PORT. *Azul, Azul de esmalte.* RUS. *Skorbilo.* POL. *Lazur,*) is a composition of starch, some bluish pigment, wax, and occasionally a little alum. The whole of these substances are boiled together, and when dry the composition is reduced to an impalpable powder. The use of this article is to stiffen linen, and give it, at the same time, that azure cast which makes it appear of a softened white hue.

POWDER, *Gun.* *See* GUN-POWDER.

POWDER, *Hair.* *See* HAIR-POWDER.

POWDER-CHESTS, wooden triangular chests, filled with gun-powder, pebble-stones, and such like materials, set on fire when a ship is boarded by an enemy.

POWDER-HORN, a horn case, mounted with silver, brass, or plated ware, in which powder is kept. Powder-horns are used by the light companies of the British army, slung over the shoulder by a cord-belt, Great quantities of powder-horns are manufactured at Birmingham.

POWDER-MILL is generally used to express the whole of the premises whereon gun-powder is manufactured. The principal powder-mills in England are those of Hounslow, Dartford, Waltham-Abbey, &c. *See* GUN-POWDER.

POWDER-SUGAR, (GER. *Puder-*

sucker. Du. *Poejersuiker.* Da. *Puddersukker.* Sw. *Pudersocker.* Fr. *Sucre en pudre.* It. *Zucchero nero o rottame.* Pol. *Cukier maczka,*) loaf-sugar pulverised. *See* SUGAR.

POWER, in law, is an authority which one man gives to another to act for him; and it is sometimes a reservation, which a person makes in a conveyance, for himself to do some acts, as to make leases or the like.

Thus Power of Attorney is an instrument or deed whereby a person is authorised to act for another, either generally, or in a specific transaction. For the form of this instrument, *see* LETTER OF ATTORNEY.

POZZOLANA, or Puzzulana, a reddish kind of earth used in Italy for sand. It takes its name from Pozzoli, in the kingdom of Naples. This mixed with lime, makes the best mortar in the world; for it petrifies in water, penetrates black flints, &c. The best pozzolana is found about Pozzoli, or Puteoli, and Baiæ, and Bumæ, in Naples. *See further* STUCCO.

PRACTICE, in arithmetic, has its name from its general use in business, as it is a rule that teaches the best and most compendious methods of solving almost every question that occurs in mercantile transactions, and is to be preferred to compound multiplication, and to the Rule of Three, whenever the first term is unity. Practice may be defined, a method of finding the value of any quantity of goods, from the price of an integer being given. This method is of Italian origin, and is fully exemplified in most books of arithmetic.

PRECIOUS STONES. (Ger. *Edelsteine.* Du. *Edele steenen.* Da. *Ædelstene.* Sw. *Adle stenar.* Fr. *Pierres precieuses.* It. *Pietre preziose.* Sp. *Piedras preciosas.* Port. *Pedras preciosas.* Rus. *Dorogia Kamenja.* Pol. *Drogie Kamienie.* Lat. *Lapides pretiosi, Gemmæ.*) This appellation is bestowed upon the gems dug from mines, and found either in masses, or small detached pieces, in various parts of the world. Asia, and South America, are the parts of the world supposed to be most abundant in precious stones. For accounts of the different species of precious stones, known in commerce, as the *diamond, ruby, emerald,* &c. *See* each under its proper head. *See* also AFRICA, AMERICA, and EUROPE.

PREMIUM denotes that sum of money, or per centage, which is given to an underwriter for insuring the safety of a ship, or merchandize. The premium is always expressed to have been received at the time of underwriting; "we the assurers, confessing ourselves paid the consideration, due unto us for this assurance by the assured." This being subscribed by the underwriter, it is proper to inquire, whether, if the premium were not actually paid at the time, he could afterwards maintain an action for it against the *assured,* who might then produce his subscription as evidence against himself. Questions upon policies of insurance stand most broadly upon the usage of the place where the policy is effected, and this question would, no doubt, be determined by usage. By the custom of London, the underwriter credits the broker, and not the assured, for the premium; and, therefore, the underwriter cannot demand it of the assured; but the broker as certainly can. *Airey and others, assignees of Milton* v. *Bland.* Sittings at Guildhall, 14 Geo. 3.

But though generally true, that an underwriter, having subscribed a policy, and thereby confessed the receipt of the premium, is estopped from claiming the premium; yet when *by the fraud* of the assured the underwriter is induced to give the credit to the broker for the premium, and the broker to give credit to the assured, in that case the underwriter is entitled to receive the premium from the assured. *Foy* v. *Bell.* 3 *Taunt.* 493.

An underwriter, after executing a policy, and giving credit to the broker for the premium, may recover the premium, if it appear that the assured (to cover a balance due from the broker to himself) procured him to effect the insurance, debiting the assured in account with the premiums, and lodging the policies in the hands of the assured, to enable him to receive the losses. *Mavor* v. *Simeon,* 3 *Taunt.* 487.

Where credit was given by insurance-brokers, in an account delivered in by them to an underwriter, for the premiums of reassurances, declared illegal, by 19 Geo. 2. c. 37.; after which the assured gave notice to the brokers, not to pay the money over to the underwriter and indemnified them for withholding it (*Edgar and another* v. *Fowler.* 3 *East,* 222.); held, that the underwriter could not maintain an action against the brokers, to recover such premiums as for money had and received by them to his use; the transaction being illegal, and the money not having actually been paid, but only credit given for it in account.

A broker effecting a policy, being the common agent of the assured and the underwriter, while the premium remains in his hands for the one party, and the policy for the other, and having received notice of events which entitled the assured to a return of premium before action brought by underwriter to recover the full premium, is authorised to deduct such return, and only to pay over the difference to the underwriter. *Shee* v. *Clarkson,* 12 *E. R.* 507.

The premium or consideration paid, given, or contracted for, must, like the risk, be inserted in the policy. 35 Geo. 3. c. 63. sect. 11.

The premium is always proportioned to the risk.

PRESS in the mechanic arts, a machine made of iron or wood, serving to squeeze or compress any body very closely. The ordinary presses consist of six members, or pieces, viz. two flat smooth planks, between which the things to be pressed are laid; two screws or worms, fastened to the lower plank, and passing through two holes in the upper; and two nuts in form of an S, serving to drive the upper plank, which is moveable, against the lower, which is stable, and without motion.

PRESS *used by inlayers*, resembles the joiner's press, except that the pieces of wood are thicker, and that only one of them is moveable; the other, which is in form of a tressel, being sustained by two legs or pillars, jointed into it at each end. This press serves them for sawing and cleaving the pieces of wood required in marquetry or inlaid work.

PRESS, *founder's*, is a strong square frame, consisting of four pieces of wood firmly joined together with tenons, &c. This press is of various sizes, according to the sizes of the moulds; two of them are required to each mould, at the two extremes whereof they are placed; so that, by driving wooden wedges between the mould and the sides of presses, the two parts of the mould wherein the metal is to be run may be pressed close together.

PRESS, *Printing*. *See* PRINTING.

PRESS, *Rolling*, is a machine used for the taking off prints from copper-plates. It is much less complete than that of the letter-printers. *See its description and use under the article Rolling-press*, PRINTING.

PRESS, *in coining*, is one of the machines used in striking of money, differing from the balance in that it has only one iron bar to give it motion, and press the moulds or coins: it is not charged with lead at its extremes, nor drawn by cordage. *See* COINAGE.

PRESS, *Binder's cutting*, is a machine used equally by book-binders, stationers, and pasteboard-makers; consisting of two large pieces of wood, in form of cheeks, connected by two strong wooden screws, which, being turned by an iron bar, draw together, or set asunder the cheeks, as much, as is necessary for the putting in the books, or paper, to be cut.

PRESS, in the *woollen manufactory*, is a large wooden machine, serving to press cloths, serges, rateens, &c. thereby to render them smooth and even, and to give them a gloss. This machine consists of several members; the principal whereof are the cheeks, the nut, and the worm or screw, accompanied with its bar, which serves to turn it round, and make it descend perpendicularly on the middle of a thick wooden plank, under which the stuffs to be pressed are placed. The calender is also a kind of press, serving to press or calender linens, silks, &c.

PRESS, *used by joiners*, to keep close the pieces they have glued, especially pannels, &c. of wainscot, is very simple, consisting of four members, viz. two screws, and two pieces of wood, four or five inches square, and two or three feet long; whereof the holes at the two ends serve for nuts to the screws.

PRESSES, *used for expressing of liquors*, are of various kinds; some in most respects the same with the common presses, excepting that the under plank is perforated with a great number of holes, or has a channel cut in it, to let the juice expressed run into a tub or receiver underneath; others have only a screw or arbor passing through the middle of the moveable plank, which descends into a kind of square box, full of holes, through which the juices flow as the arbor is turned.

PRESSING, *in the manufactures*, is the violently squeezing a cloth, stuff, &c. to render it smooth and glossy. There are two methods of pressing, viz. cold or hot. As to the former, or cold-pressing, after the stuff has been scoured, fulled, and shorn, it is folded square in equal plaits, and a skin of vellum, or pasteboard, put between each plait. Over the whole is laid a square wooden plank, and so put into the press, which is screwed down tight by means of a lever. After it has lain a sufficient time in the press, they take it out, removing the pasteboards. Some only lay the stuff on a firm table, after plaiting and paste-boarding, cover the whole with a wooden plank, and load it with a proper weight.

The method of pressing hot is this: when the stuff has received the above preparations, it is sprinkled a little with water, sometimes gum-water, then plaited equally, and between each two plaits are put leaves of pasteboard; and between every sixth or seventh plait, as well as over the whole, an iron or brass plate well heated in a kind of furnace. This done, it is laid upon the press, and forcibly screwed down. Under this press are laid five, six, &c. pieces at the same time, all furnished with their pasteboards and iron plates. When the plates are cold, the stuffs are taken out and stitched a little together to keep them in the plaits. This manner of pressing was only invented to cover the defects of the stuffs; and accordingly it has been frequently prohibited.

PRESSMAN, he whose business it is to make the impression of print by the press: distinct from the compositor, who ranges the types. *See* PRINTING.

PRICE-CURRENT, a list of enumeration of various articles of merchandise, with their prices, the customs and excise payable thereon, and the drawbacks allowed upon particular sorts of goods. Lists of this description are published periodically, generally once or twice a week, in most of the great commercial cities and towns of Europe.

PRICKING, in the sea language, is to make a point on the plan or chart, nearly about where the ship then is, or is to be at such time, in order to find the course proper to be steered.

PRIMAGE, is a certain allowance paid by the shipper or consignee of goods, to the mariners and master of a vessel for loading the same. It is mentioned in stat. Hen. 8. c. 14. In some places it is a penny in the pound; in others sixpence for every pack or bale, or otherwise, according to the custom of the place.

PRINCIPAL, the capital sum due, or lent, in opposition to interest.

PRINCIPAL, also denotes the first fund put by partners into a common stock, by which it is distinguished from the calls or accessions afterwards required.

PRINCE'S METAL, (Ger. *Prinzmetall.* Du. *Prinsmetaal.* Da. *Printsametal.* Sw. *Prinsmetall.* Fr. *Metal de Prince.* It. *Metallo del Prince.* Sp. *Metal de principe.* Port. *Metal do principe.* Pol. *Prynemetal.* Lat. *Metallum principis Ruperti,*) a fine kind of brass, or alloy of copper and zinc, in imitation of gold. *See* PINCHBECK.

PRINTING, the art of taking impressions from characters or figures, moveable, or immoveable, on paper, linen, silk, &c. There are three kinds of printing, the one from moveable letters; another from copperplates; and the last from blocks. The first called press-printing, the second rolling press-printing, and the last calico, &c. printing.

For the information acquired on the two last-mentioned kinds of printing, we refer the reader to *titles* ENGRAVINGS, COPYRIGHT, and CALICO.

Press printing resolves itself into only two heads of consideration; viz. with moveable, and with immoveable letters. The latter mode is denominated *stereotype*, and will be found under that designation. To the consideration of common press-printing, we propose to confine this article, and even under that restriction it will be necessarily tedious, though we shall pass over the controverted questions respecting the origin and date of this art, at least, according to its modern application, and other matters, beyond the immediate purpose of a mere dictionary; only briefly observing, that, like many other European arts, it is probably *derived* from the Chinese.

Books were, it should seem, always made of their present shape, an oblong square, from the first invention of printing, according *to the modern mode,* about the middle of the 15th century, the earliest known having been invariably of the folio size. The previous manuscripts were (according to the different purposes, public or private, to which they were applied,) attached to each other longitudinally to make a roll, or latitudinally to make something more resembling what we call *a book.* Like every other art, as it advanced in facility of exercise, it improved in convenience, and ornament. Books of different dimensions soon succeeded, the exclusively heavy folios of early introduction. Since that era it has been usual, as it has been convenient, of latter years to print the larger books, as folio and quarto, on a large type, whilst the smaller, in *duodecimo, octodecimo,* &c. are executed with more diminutive types,—a distinction the ancients did not so much attend to, as they ought. Of these types, the larger have acquired the unmeaning names of cannon, primer, pica, &c. and the very large double sizes of these; while, for the smaller, we have bourgeois, nonpareil, diamond, &c. Roman and italics, of either size, with the *diminutive* of several, as *small* pica, *long* primer, &c. together with the more significative *long, broad-faced, lean-faced, long-bodied,* &c. as the case may be.

The workmen employed in the art of using these types, of which we have just been giving an account, are divided into two departments, compositors, and pressmen. The former arrange and dispose the letters, so as to compose the matter of the page; the latter apply the ink, and take off the impression. The letters are placed in cases, having different divisions, as many in number as there are letters of different sizes, significations, and kinds, with the marks of punctuation, and other such things to be expressed. The compositor holds an instrument usually made of iron, denominated the *composing stick,* in one hand, while with the other he takes the letters, &c. out of the compartments as he wants them, and disposes them in range on a slip of brass, called a *rule,* in his composing stick, and putting a blank piece between every two words, as also, wherever they are proper, all the other points and marks with which his frame or box supplies him, he forms one line after another, till the stick being full, he empties it out upon another instrument, called a *galley;* several of which ranged and wedged tight in a frame, called a *chase,* are ready for the press. It is sufficiently obvious, that this succinct description can give but an inadequate notion of the process of composing, but it is all our limits will allow, and may be sufficient for a general understanding of the art. To fit the paper to receive the impression of the combination of words, for a page so disposed, as we have described, it must be not only well, but equally, moistened. In order to produce the latter effect, a large quantity of it is always laid, sheet over sheet, in a heap, and well pressed down.

The application of the ink to the form, in which the letters for the page are placed, is by two balls, which are a kind of wooden cups with handles, the cavities whereof are filled with wool, or other such matter, and covered with sheep-skin, making a sort of

cushion. One of these the pressman takes in each hand, and applying them on the ink-block, to charge them with ink, he works them one against the other, to mix, and distribute, the ink equally; and, at length, smears over the form, by beating, and daubing them several times over the whole surface thereof. This leaves the form in a condition to be passed under the press, with the moistened paper laid thereon. See further, the four following articles.

PRINTING-INK. (Ger. *Druckerschwärze.* Du. *Drukinkt, Drukzwart.* Da. *Bogtrykkerfarve.* Sw. *Trykkefarve.* Fr. *Encre à imprimier.* It. *Inchiostro da stampa.* Sp. *Polvos de imprenta.* Port. *Bres, ò tinta para imprimir.* Pol. *Czerni lo drukarskie,*) a preparation of linseed oil, reduced by boiling to a proper consistence and tenacity, (to increase which qualities, turpentine is added if necessary,) and lamp-black, in order to make *black* ink. For *red* ink, vermillion is substituted, in lieu of lamp-black.

PRINTING-PAPER, (Ger. *Druckpapier.* Du. *Drukpapier.* Da. *Trykpapir.* Sw. *Trykpapper.* Fr. *Papier à imprimer.* It. *Carta da stampa.* Sp. and Port. *Papel para imprimir.* Rus. *Kaischnajà bumaga.* Pol. *Drukarski papir,*) a general name given to white paper, of whatever quality, used for the purposes of printing. *See* PAPER.

PRINTING-PRESS is a complicated machine, consisting of so many parts, as to render any examination of its composition, or indeed any thing more than a very general description of its structure, impracticable here. Its two principal parts, each whereof consists of several subordinate ones, are, 1st, the *body* of the press, which serves to give the stroke for the impression; and 2dly, the *carriage,* on which the *form* is laid to receive such impression. The body consists of two thick planks, or cheeks of wood, placed perpendicularly, at such a distance from each other, as to admit of the carriage, with all its apparatus, between them. These are held together, with this requisite intervening space, by a transverse immoveable plank at the top, called the *cap.* Under this, at its determined distance, is another transverse plank *moveable,* sustained by, or as it were, hung from, the cap by two long iron bolts or pins. At another determined distance, below this, is a third transverse plank, called the *shelves,* which is immoveable. Below this, at its proper interval, is a fourth transverse plank, called the *winter,* which is moveable. This bears the carriage, and sustains the effort of the press beneath, as the *head* does above; each being, as has been observed, moveable, and each giving way sufficiently for the operations of the machine, by making room for what is to be inserted on the plane of the carriage, and for the subsequent momentum to be produced by the manual operation of the pressman.

The carriage, which, it has been observed, makes the 2d principal member of the press, rests on that transverse plank, which is denominated the *winter,* and on a prop called the *fore-stay.* On this carriage rests the plank, which, by other provisions of the machine, the pressman is enabled to turn in or out. On this plank is a square wooden frame, called a *coffin,* wherein is inclosed a marble, or other polished stone, for the reception of the *form;* which being placed thereon in its proper situation, and with all the accompanying preparations to obtain accuracy, (too numerous and minute to be mentioned,) the pressman, by means of a handle, called *a rounce,* forces down a superincumbent square piece of wood, denominated the *platten,* upon the form, and thereby impresses, on the sheet of paper beneath it, the letters or devices intended to be, what is called, *printed.* From this process, superficially as we have been obliged to describe it, the reader will have perceived, that only one side of a sheet of paper can be printed by one such effort; wherefore, each sheet, having received such impression, is taken out, and remanded to the press, for the other side to receive a similar one, if such be the object for which it has been put into the printer's hands. It requires neither sagacity, nor reflection, to discover, that this double operation is adverse to expedition, as well as to the economizing of labour; of which more hereafter.

Various patents have been obtained of late years for inventions, to facilitate the operation of printing. Most, if not all, of them have had principally in view the substitution of mechanical powers for manual operations; not indeed, however, to the exclusion of other subordinate improvements. Among the more prominent features of these several projects, have been the substitution of a cylinder and a plane, or of two cylinders, to produce a pressure equivalent to that of the two plain surfaces, according to the old-established method, by a process more powerful, more economical, and more expeditious. Secondly, by the use of rollers for supplying the ink, or colouring liquid, to the surface of the form of types, in lieu of the common method by balls, and manual application. For these improvements upon the former system of printing, a patent was obtained so long ago as 1790, by a Mr. Nicholson. The practical operation of the machinery, however, did not prove equal to the expectations formed from the theory, as illustrated by the specification; and, though the honour remained due to Mr. Nicholson of having suggested the *principles,* on which the great object of substituting machinery for manual labour, viz. economy, was to be accomplished, his invention has been superseded by various other devices, more approaching to perfection in design, and practicability in operation. At length, a patent has been obtained by Mr. Cowper, of Nelson-square, for sundry improvements, which bid fair for

having brought the art of printing to a state of comparative perfection. Within the remaining compass which can be dedicated to this article, all that can be offered by way of recommendation, (for description of so complicated a piece of machinery is out of all question,) is, that by the engine, which is the subject of the patent under consideration, worked by steam, or other competent power, both sides of a sheet of paper are printed at once, in consequence of the immediate conveyance of it from one printing cylinder to another, with such rapidity, that it is estimated eight hundred sheets per hour may be completely printed on both sides, with the assistance of only one man and two boys. One of the distinguishing perfections of this machine is, the precisely equal distribution of the ink upon the face of the types, by a process comparatively simple, and without the aid of direct manual labour.

Before we conclude this article, it is necessary to advert to stat. 39 Geo. 3. c. 79; by which the proprietors of printing presses are laid under severe restrictions with respect to possession, and use, of such; and that letter-founders, type-sellers, and press-makers, are subjected to heavy penalties for exercising their respective trades, without having first obtained certificates respectively from the clerks of the peace of the county, district, or place, where they exercise their callings.

PRINTING-TYPES. (Ger. *Lettern.* Du. *Drukletters.* Da. *Bogstaver.* Sw. *Bokstäfver, Stilar, Typer.* Fr. *Caractaréres d'imprimerie.* It. *Carratteri per stampare.* Sp. *Caracteres de imprenta, Letras de molde.* Rus. *Literü tipograsschtschikow.* Pol. *Litery drukarskie.* Lat. *Typir.*) *See* TYPE.

PRINTSELLER. The printseller is very often an engraver. He deals in prints and maps; the latter, however, is a more profitable article than the former, as maps seldom vary much in their purchase. Of late years, this business has experienced an astonishing improvement in Great Britain, and vast quantities of our prints, and maps, have been exported to the continent of Europe, whence, not long ago, we were in the habit of procuring almost every article of this description. This fortunate change is principally attributable to the patriotic efforts of Messrs. Boydell, who, with a zeal highly commendable, have, by holding forth suitable encouragement to native artists, dispelled the lethargy which so long held captive the talents of English engravers, and raised their performances to a pinnacle from whence we trust they will never be deposed.

PRISAGE, is that custom or share that belongs to the king, out of such merchandize as are taken at sea, by way of lawful prize. 13 Eliz. c. 5. *See* PRIZE.

PRISAGE OF WINES, mentioned in 1 Hen. 8. c. 5. is a term almost out of use; being now called *butlerage*, because the king's chief butler receives it. It is a custom, whereby the prince challenges out of every bark laden with wine, containing less than forty tons, two tons of wine; the one before, the other behind, the mast, at his own price, which is twenty shillings a ton; yet this varies according to the custom of the place.

PRIVATEERS are generally considered private ships of war, fitted out by individuals, in order to annoy and plunder the enemy. The commission of a captain of a privateer is only temporary, he being liable to be turned out at the pleasure of the owner, who, in his turn, can only retain his privilege of privateering, so long as it is the will of the prince to permit him to carry on that species of predatory warfare. Though such appointments are useful in war, by harassing the enemy, yet may the system be esteemed but one remove from piracy; for seldom, if ever, are the fitters out of privateers actuated by a wish to promote the public welfare, or to benefit the national cause; self-interest being the main-spring of their proceedings. However, so long as this species of warfare is practised by the nations of Europe, it will be necessary for commercial men to understand at least the *general* regulations under which it is permitted; the *particular* ones, depending on the private and individual compacts of states, are not within our province.

The owners of privateers have a commission which empowers them to appropriate to their own use whatever prize they make, after legal condemnation; and government allows them, besides, further encouragement; but, in case we are at war with more potentates than one, they must have commissions for acting against each of them; otherwise, if a captain, carrying only one against the Spaniards, should in his course meet with, and take, a Frenchman, this prize is not good, but would be taken from him by any man of war he met, and could not be condemned (*for him*) in the admiralty.

The manner of fitting out these privateers has commonly been at the joint expense of several merchants.

In some of these adventures, the men who are on board go on the terms of no prize no pay: and, in this case, the produce of whatsoever is taken goes half to the ship, (for the owners,) and half to the men, divided among them according to the articles of agreement; but, when the men sail for wages, the captures appertain entirely to the owners, except a small part, which is commonly stipulated to be given the sailors, extra of their wages, in order to animate them in their behaviour; and both ways of arming are regulated by the articles entered into between the owners and mariners, of which a copy is added at the end of this article.

No privateers may attempt any thing

against the law of nations, as to assault an enemy in a port or haven under the protection of any prince or republic, be he friend, ally, or neutral; for the peace of such place must be kept inviolable. — *Molloy de Jur. Mar. p.* 42. *sec.* 7.

And, at the time of granting these private commissions, great care is always taken (by bond) to preserve the leagues, with our allies, neuters, and friends, according to the various and several treaties subsisting between us, and it is for this reason that security is demanded, and given by responsible men (not concerned in the ship) that they will give full satisfaction for any damage or injury that they shall commit in their courses at sea, contrary to, and in breach of treaties, and also under the penalties of forfeiting their commissions, and for which their ships are likewise made liable.

If any privateer wilfully commit any spoil, depredation, or any other injuries, either on the ships of friends or neuters, or on the ship or goods of their fellow-subjects, they will be punished, in proportion to the crime, either with death, or otherwise; and the vessels are subject to forfeiture.

Whether a ship taken be lawful prize, or not, shall be tried in the admiralty.

If two ships with letters of marque accidentally meet with a prize at sea, though only one attack and take her, yet the other, being in sight, shall have an equal share of the prize, though he afforded no assistance in the capture; because his presence however struck a terror in the enemy, and made him yield; which perhaps he would not have done, had his conqueror been single, so that all ships that are in sight, though they cannot come up to assist in the engagement, are entitled by the *common law* to a distribution of the spoil. — *Leonard, 2. p.* 182. 1 *H. Black.* 265. 4. *E. Rep.* 238. 13 *E. Rep.* 574.

But, if those to whom letters of marque are granted should, instead of taking the ship and goods appertaining to that nation, against which the said letters are awarded, *wilfully* take or spoil the goods of another nation in amity, this would amount to a *downright piracy,* and the persons so offending would, for such fault, forfeit their vessel, (and the penalties in which their securities are, according to custom, bound, on taking out such letter,) notwithstanding their commission; but this must be understood, where such a capture is done in a piratical manner; for, if it is made upon a strong presumption, supported by many circumstances and appearances that a captain is just, as belonging to him against whom the reprisals are granted, though, upon examination, it proves otherwise, and the suffering parties have their ship and goods restored, yet the captors are not liable to punishment, though sometimes they may be to damages. On the contrary, they are justified in endeavouring to recover their right, or distress the enemy, (for which the letters were granted them,) though in effecting it they may be deceived, as it is natural for the enemy to cover their effects in the best manner they can. It would be impossible always to determine the affair at sea, therefore it is allowable to bring a dubious capture into port, in order to more nice and just scrutiny and inspection; otherwise the goods of an enemy would often escape. However, to guard against unlawful seizures, the government have wisely directed sufficient caution to be given (as before-mentioned) for the due observance of the letters according to law, before they permit their issuing; and, when there is a breach committed, the penalties are inflicted. — *Roll's Ab.* 530. — *Moor,* 776.

The following are such articles of agreement as have been commonly entered into between the captains of privateers, and their crews.

Articles agreed between captain A. B., commander of the private man of war, called the Terrible, (with 20 guns mounted, carrying nine-pound shot, twenty brass pa tereroes, four mortars, and some wall-pieces,) manned with two hundred men, now lying in Church-hole, (designed to cruize against the French and Spaniards,) on the one part, and the said ship's company on the other, witnesseth,

1. That the said captain A. B., for himself, and in behalf of the owners of the said ship Terrible, shall put on board her great guns, swivels, powder, shot, and all other warlike ammunition necessary for them; as also small arms, and provisions sufficient for the said ship's company for a six months' cruize at sea, from their sailing from the Downs; in consideration of which, the owners or their assigns shall be reimbursed out of the first prize or prizes taken by the said ship Terrible, before any dividend is made thereof; the whole charge of warlike stores (great guns and small arms excepted,) victualling, advance-money, and the expenses the owners are at for surgeon's chest, and a set of music; after which, one half of the net proceeds of such prize or prizes, as shall be taken, to be for the account of the owners, and at the disposition of the managers; and the other half of such net proceeds to be the net property of the ship's company; the captain's share of which to be 6 (in some 8) per cent. and the residue to be divided in the proportions mentioned in the eleventh article of these presents.

2. That, for preserving decorum on board the said private man of war, no man is to quit, or go out of her, on board of any other vessel or vessels, or on shore, without leave obtained of the commanding officer on board, under the penalty of such punishment as shall be esteemed proper by the captain and officers.

3. That it shall be entirely in the captain's power to cruise where he shall esteem most beneficial to the interest of the owners and ship's company.

(In some, it is to cruise where the managers, and in others, where the owners shall direct.)

4. That, if any person be found a ring-leader of mutiny, or causing a disturbance on board, refuse to obey the command of the captain and officers, behave with cowardice, or get drunk in time of action, he or they shall forfeit their share, to be divided amongst the ship's company, and be otherwise punished according to law.

5. That all clothes, bedding, watches, and rings in wear, buttons, buckles, and what else is deemed small plunder by custom, is to be divided amongst the ship's company, according to their several stations, the captain not to interfere with them; the cabin-utensils in present use for the commander.

6. That if any person shall steal, or convert to his use, any part of the prize or prizes, or be found pilfering any money or goods, and be convicted thereof, he shall forfeit his share to the ship and company.

7. The captain has the power of taking out of any prize or prizes, whatever stores he may judge necessary for the ship Terrible, without paying for them; provided the prize is not disabled thereby.

8. That whosoever first spies a sail, which proves to be a prize, shall have seven pounds, (in some only one guinea, in others five,) and the first man proved to board a prize before she strikes, shall have a gratuity of ten pounds (in some ten, and in others fifteen guineas) for his bravery, to be deducted out of the gross sum of the prize.

9. That if any private man shall lose a leg, arm, or eyes, in the time of action, or in the ship's service, he shall, besides the advantage of Greenwich Hospital, have a gratuity of 25*l.*, and in proportion to the officers, exclusive of shares; (in others only 20*l.* to a private man, 50*l.* to the captain 40*l.* to the first lieutenant, and 30*l.* to each of the other lieutenants, master, and surgeon;) the said sum to be deducted out of the gross sum of the prize; and, in case of mortality under cure, the said gratuity and shares to be made good to their assigns.

10. That, for the farther encouragement of the said private man-of-war's company, it is agreed that, the chief officers shall have six guineas, the petty officers and able seamen five guineas, able-bodied landmen three guineas, and boys one guinea, advanced to them in the Hope (in some, the officers and seamen have only five guineas, and the landmen two.)

11. That the half of the net proceeds of all prizes taken by the ship Terrible, which is appropriated to the ship's company, be divided amongst them in the manner following, after the captain's 6 or 8 per cent. (as shall be agreed) is taken thereout as above:

When the captain has not the above-mentioned 6 or 8 per cent., but divides with the ship's company, he commonly has twelve shares as follows, viz.: —

	Shares.
The captain	12
The first lieutenant	$5\frac{1}{2}$ to 6
The second lieutenant	$4\frac{1}{2}$ to 6
The third lieutenant	$3\frac{1}{2}$ to 5
The master	$3\frac{1}{2}$ to 5
The first mate	3 to 4
The second mate	2 to 3
The surgeon	$3\frac{1}{2}$ to 4
The surgeon's mate	$2\frac{1}{2}$ to 3
The lieutenants of marines	3 to 4
The gunner	3
The gunner's mates, to each	2
The carpenter	3
The carpenter's mates, to each	2
The boatswain	3
The boatswain's mates, to each	2
The purser	3
The cooper	$1\frac{1}{2}$ to 2
The music, to each of them	2
The caulker	2
The master-at-arms	$1\frac{1}{2}$ to 2
The armourer	$1\frac{1}{2}$
The midshipmen, to each	$1\frac{1}{2}$ to 3
The quarter-masters, to each	$1\frac{1}{2}$
The quarter-gunners, to each	$1\frac{1}{4}$ to 2
The corporals, to each	$1\frac{1}{4}$ to $1\frac{1}{2}$
The sail-maker	$1\frac{1}{2}$
The yeoman of the powder-room	2
The ship's stewards	2
The captain's steward	$1\frac{1}{2}$
The master of languages	$1\frac{1}{2}$
The captain's clerk	2
The ship's cook	$1\frac{1}{2}$ to 2
The captain's ditto	$1\frac{1}{2}$
The able seamen, to each	$1\frac{1}{2}$ to 2
The able landmen, to each	$\frac{3}{4}$
The sea-boys, to each	$\frac{1}{2}$ to $\frac{3}{4}$
The land-boys, to each	$\frac{1}{4}$ to $\frac{1}{2}$

12. That on the death of the captain, the command do devolve on the next officer, and so on in rotation; and for the encouragement of the able seamen and others, on the loss of officers, they are to be replaced out of the ship's company, according to their gallant behaviour, as the captain shall appoint.

13. That whosoever deserts the said ship Terrible, within the time herein-under-mentioned, shall forfeit his prize-money to the owners and company, to enable them to procure others in his room.

14. All and every one on board does covenant and agree, to serve on board the said ship Terrible, the term of six months, beginning at the said ship's departure from the Downs.

15. And, lastly, for the true performance of all and every the afore-mentioned covenants and agreements, and each and every

the said parties do bind themselves, their heirs, executors, and administrators, in the penal sum of five hundred pounds, lawful money of Great Britain, firmly by these presents. In witness whereof, the said parties to these presents have hereunto severally set their hands and seals, the day of in the year of our Lord, and the year of our sovereign lord, King George the Third. *See* PRIZE.

PRIVET, Primp, or Print, an indigenous shrub growing commonly in most parts of the kingdom, but especially on rocks in the most exposed situations, towards the western sea, and flowering in the months of June and July: the juice of the berries, when mixed with a solution of any acid salt, affords a black; with Glauber's salt and spirit of sal ammoniac, red; with urine, a purpleish; and with green sulfat of iron, a green, colour. On steeping these berries in a solution of salt of tartar, they yield a fine blue juice, the shade of which may be made still brighter by adding quick-lime. It is conjectured that these berries have great medicinal virtues, and that some celebrated specifics are made from their juice, especially the *eau medicinale*.

This fruit, with the addition of alum, is said to impart to wool, and silk, a good and durable green colour; but for this purpose the berries should be gathered as soon as they are ripe. The purple colour upon cards is also prepared from their juice. The kernels contained in these berries produce by expression an excellent oil. The wood serves both as fuel, and for the smaller objects of turnery, but especially for pegs, as it is uncommonly firm.

The branches of this shrub are useful for wicker-work, as well as for the finer kinds of basket, on account of their great flexibility.

PRIZE, in maritime affairs, a vessel taken at sea from the enemies of a state, or from pirates; and that either by a ship of war, a privateer, &c. having a commission for that purpose. Vessels are looked on as prizes if they fight under any other standard than that of the state from which they have their commission: if they have no charter-party, invoice, or bill of lading on board: if loaded with effects belonging to the king's enemies, or with contraband goods, those of the king's subjects recovered from the enemy, after remaining four-and-twenty hours in their hands, are deemed lawful prizes.

Although the subject of prizes has lost much of its immediate interest by the return of peace; and although the following abstracts of statutes, and regulations, relative to the whole system of prize-capture and prisage, are by the authority of laws which expired with the war, for the particular occurrences of which, they were enacted to provide; yet much general information on the subject may be collected from them, and from some few determinations of the courts, which arose out of their application.

Regulations relative to Captures by Sea and Land, both by His Majesty's Ships and Private Vessels of War, during Hostilities; being the Substance of an Act for the Encouragement of Seamen, and for the better and more effectually manning His Majesty's Navy during the present War (1805). *45 Geo. 3. c. 72.*

1. The act of 43 Geo. 3. c. 60., is hereby repealed, except as to proceedings under the same, already commenced.

2. *To whom prizes belong.*— The flag and other officers, seamen mariners, and soldiers, on board every vessel of war in his majesty's pay, shall have the sole interest and property of and in all and every ship, vessel, goods, and merchandise, which they have taken, or shall hereafter take during the continuance of hostilities against France, the Batavian republic, the Italian and Ligurian republics, and the kingdom of Spain, since the respective dates when reprisals were granted against the said powers; after the same shall have been adjudged a lawful prize, to be divided in such proportions, and after such manner as his majesty hath, by his proclamation, already ordered and directed, or as his majesty shall think fit to order and direct, by proclamation.

3. *To whom belong prizes, that have been defended by any ports.* — The flag and other officers, seamen, mariners, and soldiers, on board every vessel of war in his majesty's pay, being armed, officered, and employed in his majesty's service, who shall take any fortress upon the land, or any arms, ammunition, stores of war, goods, merchandise and treasure, belonging to the enemies of Great Britain, upon the land, or any ship or vessel, or merchandise, laden on board the same, in any creek, haven, or road, belonging to and defended by the said fortress upon the land, shall have the sole interest and property in the same, after final adjudication thereof as lawful prize, to be distributed in such proportions and manner, as is before mentioned. In all conjunct expeditions of the navy and army against any such fortress upon the land, directed by instructions from his majesty, the flag and general officers and commanders, and other officers, seamen, mariners, and soldiers, acting in such conjunct expedition, shall have such proportionable interest and property in the capture, as his majesty, under his sign-manual, shall think fit to direct.

Where no instructions have been given. — If no such instructions shall have been given by his majesty, the respective commanders-in-chief of the fleet and of the army employed, may make agreements in writing for the division thereof, which agreements

being approved and confirmed by his majesty, shall be binding on all persons, and the share assigned to the fleet by such agreement, shall be distributed according to his majesty's proclamation before mentioned. Both interest and property hereby given to the army, shall not extend to entitle the said army to share in the distribution of any ships or vessels, goods, merchandise, or effects, captured in the *voyage to or from such fortress:* and shares of all officers and seamen, who shall be marked *run*, and also shares not legally demanded within six years after the same shall have been paid into Greenwich hospital, shall be forfeited to the said hospital; unless (with respect to such as shall be marked *run*) such mark shall be taken off by order of the lords of the admiralty, or commissioners of the navy; and unless (with respect to the shares not claimed within the time limited) reasonable cause shall be shown to, and allowed by, the governors of the said hospital, or the judge of the court of admiralty.

5. *Bounty.*—A bounty of 5*l.* shall be granted to British ships for every man on board at the beginning of an engagement with any hostile vessel taken or destroyed; and such number shall be ascertained by the oath of three surviving chief officers or men belonging to said vessel, or of so many as survive:—within fifteen days after the administration of which oath, bills for the amount shall be directed to the treasurer of the navy. In case of total destruction, the probable number on board must be determined by the judgment of the high court of admiralty: subject, nevertheless, to appeal.

6. *Bounty-bills payable to prize-agents.* — The amount not claimed within the time limited for prize-monies shall be forfeited to Greenwich hospital; as also the shares of such men as shall run from his majesty's service.

7. *Salvage for his majesty's vessels.*— If any vessel, formerly belonging to his majesty's subjects, shall be retaken by the enemy, it shall be restored to the former proprietors on their paying a salvage of one-eighth of her value, if the re-captors be king's ships, or one-sixth, if privateers: —provided that the enemy have not yet fitted her out for a ship of war.

8. *Bounty-money and salvage.* — All regulations concerning prizes shall apply to cases of bounty-money and salvage.

9. *Letters of marque and reprisal.* — The lords of the admiralty, or any persons empowered by them, shall, at the request of any owner whom they shall deem fitly qualified, of any ship or vessel registered pursuant to act of parliament, (such owner or owners giving security) cause to be issued in the usual manner one, or more, commissions, or letters of marque and reprisal, to any person whom such owners shall nominate to be commander, or in case of death successively commanders, of such ship or vessel, for the attacking, surprising, seizing, and taking any place or fortress upon the land, or any ship or vessel, arms, or ammunition, stores of war, goods, or merchandise, belonging to, or possessed by, any of his majesty's enemies, in any sea, creek, haven, or river; and that such ships or vessels, and that such arms, ammunition, stores, &c. with all their furniture, tackle, and apparel, so to be taken according to such commission, shall wholly belong to, and be divided among the owners of such ship or vessel, and the several persons who shall be on board the same, and be aiding and assisting in the taking thereof, in such shares and proportions as shall be agreed on with the owner or owners, their agents or factors; but such ships, &c. as may be captured by any private vessels of war belonging to the commissioners of customs or excise, shall belong to his majesty.

10. *How to proceed to obtain letters of marque.* — Every person who shall apply to the lords of the admiralty in order to obtain any commission or letter of marque, shall make such application in writing; and therein set forth a true, particular, and exact description of the ship or vessel for which such commission or letter of marque is requested, specifying her name and burthen, what sort of build she is, the number and nature of the guns on board the same, to what place belonging, the name or names of the owner or owners, and the number of men intended to be put on board the same; all which particulars shall be inserted in every commission or letter of marque to be granted in pursuance of this act; and every commander of a private vessel of war, for which a commission or letter of marque shall be granted, shall produce such commission or letter of marque to the collector, customer, or searcher, of his majesty's customs, belonging to the port whence such vessel shall be first fitted out, or to his lawful deputy; and the said collector, &c. or his deputy shall, without fee or reward, inspect and examine such ship or vessel, so as to ascertain the built and burthen thereof, the number of men, and the number and nature of the guns on board the same; and if such ship or vessel shall be found to be of such built and burthen, and be manned and armed according to the tenor of the description inserted in such commission or letter of marque, or be of a greater burthen and force, then, and not otherwise, such collector, &c. shall immediately, upon the request of the commander of such ship or vessel, give a certificate thereof in writing, under his or their hand or hands, *gratis*, to such commander: which certificate shall be deemed a necessary clearance before such ship or vessel shall be permitted to sail from that port: and, if the commander of

any ship or vessel for which any commission or letter of marque shall have been granted, shall depart before he hath received such certificate, or proceed on a cruize, with a force inferior to that specified, every such commission or letter of marque shall thenceforth be absolutely null and void; and the commander so offending shall forfeit the sum of one thousand pounds (to be recovered, with full costs of suit, by any person who will sue for the same), and shall also be imprisoned for such time as the court shall direct, not exceeding one year for any offence.

11. *Bail and security given before letters of marque are issued.* — Before the granting of any commission or letter of marque, in pursuance of this act, bail and security shall be taken as hath been usual in such cases; and, previously thereto, the persons who propose to give such security shall make oath before the judge of the high court of admiralty of England, or of any other court of admiralty which shall be authorised, in any other of his majesty's dominions, or his or their surrogates, that they are, at the time of their being sworn, respectively worth more than the sum for which they are to be bound, over and above all their just debts.

12. *Penalty on collectors granting false securities.* — If any collector, &c. shall grant a certificate for any ship or vessel not of the burthen and force specified in the commission or shall certify to a greater burthen or force, than she really is, he shall forfeit his office, be for ever incapable of holding any office under government, and shall also forfeit one hundred pounds.

13. *Letters of marque licensed under* 24 Geo. 3. c. 47. — Every ship and vessel, for which such commission or letter of marque shall be granted, and while the same shall remain in force, but no longer, shall be deemed and taken to be licensed pursuant to the act of the 24 Geo. 3. c. 47, for the more effectual prevention of smuggling in this kingdom, although the owner thereof shall not have been furnished with the license required by the said act.

14. *Letters of marque may be forfeited.* — In case the owner, or commander, of any ship or vessel, for which such commission or letter of marque shall be issued, shall be guilty of any offence contrary to any act of parliament for the protection of the customs or excise; or for the prevention of smuggling, such owner, or commander, shall forfeit the commission or letter of marque so issued, besides all other penalties and forfeitures incurred.

15. *Revoking letters of marque.* — The lords of the admiralty may revoke and make void, by any order in writing under their hands, any commission or letter of marque: nevertheless, the secretary of the admiralty shall, with all convenient speed, after such revocation, cause notice thereof in writing to be sent to the owner or owners of the ship or vessel named or described in such order of revocation, or to his or their agent or agents, surety or sureties, or some or one of them.

16, 17, 18, 19, *Ransoms unlawful.* — It shall not be lawful for any of his majesty's subjects to ransom, or contract or agree to ransom, any ship or vessel belonging to any of his majesty's subjects, or any merchandise or goods on board the same, captured by the subjects of any state at war with his majesty, or by any persons committing hostilities against his majesty's subjects, unless in the case of extreme necessity, to be allowed by the board of admiralty. And all contracts and agreements entered into, and all bills, notes, and other securities, given, by any person, for ransom of any ship or vessel, merchandise or goods on board the same, contrary to this act, shall be absolutely null and void in law, and of no effect whatever. And if any person shall, contrary to this act, ransom, or contract, or agree to ransom, any such ship or vessel, merchandise or goods on board the same, every person so offending shall, for every such offence, forfeit five hundred pounds. And in case any commander of any of his majesty's ships, or private ship or vessel of war, commissioned as aforesaid, shall agree for the ransom of any ship, vessel, or cargo, or any part thereof, after the same shall have been taken as prize; and shall actually quit, set at liberty, or discharge, any such prize, instead of bringing the same into some port; then every such commander so acting (unless in a case of extreme necessity, to be allowed by the courts of admiralty), shall forfeit his letter of marque, and shall suffer such penalty as the said court shall adjudge, not exceeding one hundred pounds.

20. *Restoring prizes before adjudication.* — In case any ship or vessel, goods or merchandise, shall be taken or retaken, and restored by the commander of any privateer or other ship, vessel, or boat, under his majesty's protection and obedience, through consent, or clandestinely, or by collusion or connivance of such commander, without being brought to adjudication, the ship or vessel, goods, and merchandise, so taken, and retaken, and restored, and also the ship's tackle, furniture, apparel, arms, and ammunition, shall, upon proof thereof in any court of admiralty, be adjudged to be good prize to his majesty; one moiety to the use of his majesty, and one moiety to the use of such person who shall discover and sue for the same; and the bond given by the captain or commander of such privateer, or other vessel, shall be forfeited to his majesty; and such commander or captain shall forfeit one thousand pounds.

21. *In what cases re-captured ships may pursue their voyage.*—If any ship be retaken

before she has been carried into an enemy's port, it shall be lawful for her, if the re-captors consent thereto, to prosecute her voyage; and then the re-captors need not proceed to adjudication till six months, or till the return of the ship to the port from which she sailed; and it shall be lawful for the master, the owners, or their agents, with the consent of the re-captors, to deliver and dispose of their cargoes, before adjudication; and in case the vessel shall not return directly to the port whence she sailed, or the re-captors shall have no opportunity of proceeding regularly to adjudication within the six months, on account of the absence of the said vessel, the court of admiralty shall, at the instance of the re-captors, decree the restitution to the former owners, paying salvage, upon such evidence as to the said court shall, under the circumstances of the case, appear reasonable; the expense of such proceeding not to exceed the sum of fourteen pounds.

22. *Letters of marque subject to colonial regulations.* — All commanders of private ships of war, or letters of marque, shall, upon their going into any of the ports or harbours in the colonies or plantations in America, be subject to the several laws in force in those colonies relative to the carrying off any servant or slave therefrom, without the consent of the owner, or of any other person, until they have taken out his ticket from the secretary's office there.

23. *Captains deserting their convoy. Vessels, having dispatches on board, pursuing the enemy* — If any captain or other commander of any of his majesty's vessels of war, having transports or merchant-vessels under convoy, shall wilfully desert or sail away from them, in pursuit of, and with a view of capturing, any ship or vessel of the enemy (other than ships or vessels armed and fitted for war only, and which shall be seen hovering about or bearing down upon such convoy); or, having captured a prize, shall wilfully desert the convoy for the purpose of carrying his prize into port; or if the commander of any ship or vessel whatsoever, having his majesty's dispatches on board, shall sail out of his proper course, in pursuit, and with the view of making prize of any ship or vessel of the enemy; such commander shall, if duly convicted thereof by a court-martial, forfeit his share of every such prize to his majesty for the use of Greenwich hospital.

24. *Captains of merchant-ships under convoy disobeying orders.*—If the captain of any merchant-ships under convoy shall wilfully disobey signals or instructions, or any other lawful command of the commander of the convoy, or shall desert the convoy without leave, he shall be liable to be articled against in the high court of admiralty for disobedience to the orders of the convoy; and upon conviction thereof, shall be fined at the discretion of the court, in any sum not exceeding five hundred pounds, and shall suffer such imprisonment, not exceeding one year, as the said court shall adjudge.

25. *Private ships of war under convoy of his majesty's ships.*—Private ships of war, which shall receive general orders and instructions from, and put themselves under the convoy of any of his majesty's ships or vessels, shall not share in any prize or prizes taken by such ships or vessels of his majesty; or by such private ship of war, or letter of marque whilst she shall remain under the care and protection of such convoy, unless such private ship or vessel shall have received orders from the commanders of the convoying ship to chase, or otherwise act hostile against the enemy, and shall have been actually aiding and assisting in such capture.

26. *How offenders on board letters of marque are to be punished.* — All offences committed by any officer or seaman on board any privateer or letter of marque, during the hostilities with France, shall be tried and punished in such manner as the like offences are tried and punished in his majesty's fleet: provided always, that all offenders, accused of such crimes as are cognizable by a court-martial, shall be confined on board such privateer, or letter of marque, in which such offence shall be committed, until they arrive at some port in Great Britain or Ireland, or can meet with such a number of his majesty's ships of war abroad as are sufficient to make a court-martial.

27. *Prize goods not exempt from duties.* — Ships, goods, wares, or merchandise, taken as prizes, and brought into this kingdom, or any of his majesty's dominions, shall not be exempt from the payment of customs or duties, but the whole or part shall be discretionally remitted by the commissioners, if the goods be sold only from necessity, &c.

28. *Naval stores on board of captured vessels.* —The commissioners of his majesty's navy, or victualling, may purchase, for the service of his majesty, all or any naval stores found on board any ships of foreign nations, brought into any of the ports of this kingdom by any of his majesty's ships or vessels, or by any private ships of war or letters of marque; and the commissioners and officers of the customs shall suffer such naval stores, so purchased, to be entered and landed.

29. *Prize-ships considered as British-built.*— All prize-ships or vessels, which shall be legally condemned, shall, to all intents and purposes whatsoever, be considered as British-built ships or vessels, being first duly registered according to the provisions of the act of the 26 Geo. 3. c. 60.

30. *Persons breaking bulk, or embezzling prize-goods.*—If any commander, officer, seamen, mariners, soldiers, or others, shall break bulk on board, or embezzle any of the money, jewels, plate, goods, merchandise, tackle, furniture, or apparel, belonging to

any prize, he shall for every such offence forfeit his whole share therein to Greenwich hospital; and shall also forfeit treble the value of all such money, jewels, plate, goods, merchandise, tackle, furniture, or apparel, as he or they may embezzle.

31. *Ships retaken before carried into the enemy's ports.* — All captures that are conveyed, previously to adjudication, into any port or place or port abroad, that is under his majesty's dominion, must remain under the joint care of the comptroller of the customs, or the naval officer, in his stead, and of the captors or claimants thereof. Bulk shall not be broken till the delivery.

32, 33, 34, 35, 36.—Relate to the salaries of the judges to the admiralty-courts in Bahama, the Bermuda Islands, and Malta.

37, 38. *Admiralty may be directed by his majesty.* — His majesty, heirs, and successors, enjoy the right of giving directions to the admiralty, and of regulating the fees. And the table of fees is to be hung up in some conspicuous part of the admiralty-court.

39, 40, 41, 42. — Contain directions for the conduct of the judges and officers, &c.

43. *Condemnation of prizes.* — The high court of admiralty, within five days after request made for that purpose, shall finish the usual preparatory examination, in order to prove whether the same be lawful prize or not, and that the proper monition usual in such cases shall be issued and executed within three days after request; and in case no claim of such captured ship, vessel, or goods, shall be duly entered in the usual form, and attested upon oath, giving twenty days' notice after the execution of such monition; or if there be such claim, and the claimant or claimants shall not within five days from the time of entering such claim, give security in the sum of sixty pounds sterling, to pay costs to the captor or captors, in case the judge shall decree costs to be due, that then the judge of such court of admiralty shall, upon producing to him the said examination, or copies thereof, and all the papers and writings, upon oath, which may have been found in such capture, or upon oath that no papers or writings were found, proceed with all convenient speed to sentence, either to discharge or acquit such capture, or condemn the same to be good and lawful prize. And in case there shall appear no occasion to enter into any other examination, the judge shall, within ten days, if possible, after such claim made and security given, proceed to sentence; but in case it should appear doubtful to the said judge whether such capture be lawful prize, or not, and necessary, according to the circumstances of the case, for the clearing and determining such doubts, to have an examination of witnesses on pleadings given in by the parties and admitted by the judge, or such other lawful mode of inquiry as the said judge may think requisite, such capture shall forthwith be appraised by persons well skilled in the same, to be named by the parties, and approved and appointed by the court, and sworn truly to appraise the same, for which purpose the judge shall cause, if he think fit, the goods found on board to be unladen, and an inventory thereof being first taken, cause them to be put into proper warehouses, and shall after such appraisement, and within the space of fourteen days after the making of the said claims, proceed to take good and sufficient security from the claimants to pay the captors the full value thereof, in case the same shall be adjudged lawful prize, and shall take good and sufficient security from the captors to pay such costs as the court may think proper, provided that such ship, vessel, or goods shall not be condemned; and after such security duly given, the judge shall make an interlocutory order for releasing or delivering the same to such claimant or claimants, or his or their agent or agents, and the same shall be actually released and delivered accordingly.

44. *Nett proceeds of the capture to be deemed its value.* — If the sentence or interlocutory decree having the force of a definitive sentence of such court of admiralty, &c. shall be finally reversed after sale of any ship or goods, the nett proceeds of such sale (after payment of all expenses attending the same) shall be deemed and taken to be the full value of such ship and goods; the party or parties appellate, and their securities, shall not be answerable beyond the amount of such nett proceeds, unless it appear that such sale was made fraudulently or without due care.

45. *Number included in one adjudication.* — The captors may include in one adjudication any number, not exceeding six, of such small ships, having a commission or letter of marque from the enemy, not exceeding seventy tons each, and which shall have been taken within the space of three months preceding the application to the court of admiralty for such adjudication.

46. *Writings found on board of captures.* — All books, papers, and writings, found in any ship or vessel taken as prize, shall without delay be brought into the registry of the court of admiralty, upon oath, whether such ship or vessel may be proceeded against in order to condemnation; but only such books, papers, aad writings shall be made use of, and translated, as shall be agreed or insisted upon by the proctors of the several parties, captors, or claimants; or in case of no claim, by the captor or his proctor, or agent, or register, to be necessary for ascertaining the property.

47. *Expenses, in claims of joint captures.* — No claim on behalf of any asserted joint capture shall be admitted before condemnation, unless security be given at the time of

entering the same, that the party shall contribute to the actual captor in his proportion of all expense, cost, and damage that shall attend the adjudication. (Provided that nothing herein contained shall extend to the asserted interest of any admiral or flag-officer claiming to share in any prize by virtue of his flag.)

48, 49. *Appeal to commissioners.* — If any captors or claimants shall not rest satisfied with the sentence of the court of admiralty, it shall be lawful to appeal to the commissioners appointed for receiving and determining appeals in causes of prize: but the execution of any definitive sentence appealed from as aforesaid, shall not be suspended by reason of such appeal; save, as is hereafter provided, in case the party or parties appellate shall give sufficient security, to be approved of by the court, in which such sentence shall be given, to restore the effects, concerning which such sentence shall be pronounced, or the full value thereof, to the appellant, in case the sentence or interlocutory decree so appealed from shall be reversed.

50. *Appeals to be void.* — In case any person, who was not a party in the first instance of the cause, shall intervene or interpose an appeal from a sentence, or interlocutory decree, having the force of a definitive sentence, given or pronounced in any admiralty court; such person, or his agent, or agents, shall, at the same time enter his or her claim, otherwise such appeal shall be null and void.

From 51 to 57, inclusive. *Agents for prizes taken by his majesty's ships.* — All appraisements and sales of any ship, goods, wares, or merchandise, as shall be taken by any of his majesty's ships, shall be made by agents appointed by the flag-officers, captains, officers, ships' companies, and others entitled thereto; that is to say, the flag-officers or flag-officer of any fleet or squadron of ships as shall take any prize or prizes, or the majority, if more than one, shall appoint one or more person or persons, agent or agents, as aforesaid; then the captains and commanders, or captain and commander, entitled thereto, or the majority of them, if more than one, may appoint the like number to act for them, and all the other officers usually designated commissioned and warrant-officers may appoint the like number to act for them, and all the remainder of the crew usually designated petty-officers, and the seamen or marines, may appoint the like number. And the agents for prizes are to register in the court of admiralty, where the prize is condemned, their powers of attorney, within twenty days after their appointment, under the penalty of 500*l.* &c. And no person, except the agent, shall receive any part of the commission in respect of such agency business; and every person so nominated agent, (who shall allow to be taken by any other person, as also every other person who shall receive, either himself, or by any person on his behalf, any part of such commission), shall, for every offence, forfeit and pay the sum of one hundred pounds, and also double the amount or value of what shall have been so given as aforesaid. And the registrars of the courts of admiralty shall transmit, half-yearly, to the treasurer of Greenwich hospital, copies of all letters of attorney registered in their courts, under penalty of 500*l.*: and all agents who may not be appointed till after condemnation, shall, within twenty days after the date of their power of attorney, register it under the same penalty. And every agent, on registering his first powers of attorney, shall, with two joint sureties, give bond to the court of admiralty in the sum of 5000*l.* for due execution of his trust as prize-agent: and in case of omission or refusal, his letters of attorney are null, and himself perpetually disqualified as an agent.

58. *The registrars of any courts of vice-admiralty*, in America, or any other part of his majesty's dominions, shall yearly, on the 23d of October, or within three months after, transmit to the treasurer of Greenwich hospital, true copies of all letters of attorney registered in their court; which copies shall, by s. 59. be admissible as evidence of agency.

60. *Prize list to be sent to agents.* — On every capture there shall be sent by the commander of the captured ship to the agent or agents for such capture, a list of persons entitled to shares therein; which prize-list shall be subscribed by the lieutenants, and all the signing officers then on board the ship, and shall contain the names, ages, and description of the persons entitled to share therein, the names being arranged in the same order in which they stand in the muster books, which said names and descriptions shall be taken from the description-book belonging to the said ship, and an alphabetical list, or index, of the names of all such persons shall be prefixed to such prize-list, and the same shall be examined with and corrected by the muster book of the capturing ships deposited in the navy-office, and certified by two of the commissioners of his majesty's navy; and in case no such prize-list shall be sent to such agent, he shall apply to the commissioners of the navy, and such list shall thereupon be made out from the returns in the navy-office, who shall cause the same to be made out, and certify the truth thereof under the hands of any two or more of them; and any person who shall alter the name or rating of any one in the list which shall have been so certified as aforesaid, or erase or take away name or names therefrom, or add any thereto, with intent to defraud any person or corporation whatever, shall forfeit the sum of five

hundred pounds; but this not to extend to prevent the correction of any error.

62. *Agent may be compelled to give security, where there is no claimant.* — In all cases of condemnation in any vice-admiralty court, where there is no claimant or appellant before the court, it shall be lawful for the judge to compel the agent, at the requisition of the captor, to give security at the time of condemnation for the faithful distribution of the proceeds, for the remitting thereof to the treasurer of Greenwich hospital, or to such persons in England as the captors shall appoint, under the direction of the court, for the purpose of being distributed in England.

63. *Agents to vest the proceeds in public securities.* — In all cases where there is no claimant or appellant before the court, it shall be lawful for the said court, at the prayer of the captors, to compel the agents to vest the proceeds of the property condemned, in such public securities as the captors shall elect, there to remain and accumulate for the benefit of the parties entitled till the time of appeal shall be lapsed, subject nevertheless to the further directions of the court, upon the application of the captors.

66. *Agents to transmit accounts to Greenwich hospital.* — Every agent, resident within the United Kingdom, shall within six months after condemnation, under a penalty of 500*l.* give notice of condemnation and of the state of the property, to the treasurer of Greenwich hospital.

From 67 to 72, inclusive. *Agents to exhibit their accounts of sales in the court of admiralty.* — All agents appointed shall, after the sale of any prize is completed, and before the time of the first payment of the prize-money, exhibit in the court of admiralty, in which the prize was condemned, or in the high court of admiralty, a copy of their accounts of sales duly verified upon oath, which copy shall be deposited in the public registry of the court, and all parties interested shall have liberty to object to the charges therein contained; and the said court shall confirm or disallow the accounts, upon hearing the objections, and shall make such farther order, touching the said accounts, as the case may require; and any agent who shall neglect this, shall forfeit 500*l.* to the use of Greenwich hospital, to be recovered in any of his Majesty's courts of record in any of his Majesty's dominions, and shall moreover be subject to the process of the court of admiralty, until he has obeyed the order of the said court, by exhibiting a copy of the said accounts, and until the said accounts shall be duly confirmed; and every agent shall cause advertisements to be twice inserted in the London Gazette, ten days before he exhibits in the court of admiralty his account of sales. The per-centage for agency shall be charged on the net proceeds of prizes; and shall, as far as he is able, complete the distribution of proceeds within three months after commencing the same; but admiralty-judges may, on certificate of prize sailing under flag, or pass of enemy, allow proceeds to be distributed before the lapse of time of appeal; but such proceeds shall be liable to answer any appeal that is instituted before the expiration of such time.

73. *Agents to advertise payment.* — After the sale of any prize taken by any of his Majesty's ships, public notification shall be given by the agents appointed, for the payment of the several shares to the captors aforesaid; that is, if the prize have been condemned in his Majesty's high court of admiralty of Great Britain, then the agents appointed shall publish such notification, under their hands respectively, in the London Gazette; and if in the court of vice-admiralty, in some Gazette or newspaper of public authority, of the place where the prize shall have been condemned: and if there be no Gazette or newspaper, then in some or one of the most public newspapers of such place; and if no newspapers are there published, by affixing notice to the church, or some other public building, directed by the governor of such place; three of which advertisements or notifications shall be delivered to the principal officer of the customs, or other principal officer, resident at the place: who will transmit one of such to the treasurer of the navy, and also to the treasurer of Greenwich hospital respectively: and in every such printed or written notification, the said agents shall specify the name of the prize, and of the capturing ship, as also the precise day of the month and year in which such capture shall have been made, and their place of abode, with their names at at full length, and the precise day of the month and year appointed for the payment of the several shares of the prize; and all such notifications, with respect to prizes condemned in Great Britain, shall be published in the London Gazette three days at least before any proportion of such prize shall be paid; and all such notifications with respect to prizes condemned in any other part of his Majesty's dominions, shall be delivered to the principal officers as aforesaid, one day at least before any proportion of such prize shall be paid: after which several and respective notifications, if any man's share remain in the hands of the agents, either belonging to such men as shall be run, or which shall not be legally demanded and paid within three months next after such notification, then such share remaining in the agent's hands shall be paid to the treasurer of Greenwich hospital.

74, 75. *Amount to be notified.* — On publication of payment, &c. for a prize condemned by the high court of admiralty in Great Britain, a notice of the amount of an

individual share in each class shall be transmitted to the treasurer or paymaster of the navy, and the treasurer of Greenwich hospital; and, together with delivery of any gazette, paper, &c. containing such notification, to the collector, comptroller, searcher, &c. abroad, such account shall be at the same time delivered to him, and it will be forwarded as already stated.

From 76 to 81, inclusive. *Penalty for neglect of notification.* — If any agent shall neglect or refuse to publish any notification herein required, before the payment of any part of such prize or bounty-money, and within the times herein limited, or the manner appointed, or shall not specify in such notification the matters herein directed to be specified, every agent shall for such offence forfeit and pay any sum not exceeding one hundred pounds, at the discretion of the court in which the same shall be sued: and every principal officer beforementioned who shall omit to observe the preceding directions shall forfeit the sum of five hundred pounds.

Notifications registered at Greenwich hospital shall be evidence of agency; and the notice of bounty-bills shall be inserted in the Gazette, three days before distribution.

Four months after the first distribution, all agents for prize or bounty-money shall pay over the balances to the treasurer of Greenwich hospital, and send, at the same time, an account of the produce or amount of such prizes or bounty-money, which he shall verify on oath, and shall also deliver an authentic duplicate of the distribution or prize-list for such prizes and bounties. Any agent who shall refuse to pay the said balances within thirty days after the expiration of four months, shall forfeit the sum of one hundred pounds; or, if he shall have neglected to pay the same by the expiration of said period, the sum of five hundred pounds.

The treasurer of Greenwich hospital will transmit, with all convenient speed, to the navy-office, all the names of those persons whose shares may have been paid over to him; which extract will lie open daily (Sundays excepted) at the navy-office, for inspection, within the usual hours of business, and without fee or gratuity.

82. *An office will be kept open daily at Greenwich hospital* (Sundays excepted) between the hours of nine and four, morning and evening, for the purpose of refunding.

83, 84. *Flag, commissioned, and warrant officers may direct their shares to remain* in their agents' hands, by an order in writing; but proper vouchers must be produced from the parties.

85 to 88, inclusive. *The shares of run men forfeited to Greenwich hospital.* — No agent or agents for prizes or bounty-money shall be liable to be sued or arrested by any person who shall be made *run* from his Majesty's service, unless the person made run shall, before any action brought, obtain a certificate of his *R* being taken off, and the forfeiture of his share of such prizes and bounty-monies, being discharged by the commissioners of his Majesty's navy, and shall produce such certificate to the agent, and unless the said agent, on the producing such certificate, shall refuse to pay the said prize or bounty-money, in case the same be due and payable, within three months after any such demand made, and such certificate produced.

Every agent, out of the United Kingdom, shall, within six months after the commencement of distribution, deliver up and verify his account to the vice-admiralty court which condemned the prize; and shall pay over, or remit, to the deputy-treasurer abroad residing, or the treasurer of Greenwich hospital in England, (at the option of the former) all shares, balances, &c. and shares of run men, remaining in his hands, so that the same shall have been paid to Greenwich hospital within six months after so exhibiting his accounts, on penalty of forfeiting his bond imposed by sec. 57. But, if the condemnation have passed in the East Indies, twelve months are allowed after passing his account.

The lists of prizes accounted for to the treasurer of Greenwich hospital, transmitted by the clerk of the checque six times per annum to persons appointed by the treasurer of Greenwich hospital to receive claims, shall be open for public inspection daily, (Sundays excepted) from the hours of ten till four.

89. *When the ship is not in any of the British, Irish, or North Seas*, the treasurer may, within one month after the regular period of distribution, invest the proceeds in the security of the bank, or of exchequer bills, that the interest may accumulate for the captors' benefit: of whom, should any one apply, from change of ship or other cause, for his share, the treasurer is authorised to pay it from the prize-money which may be in his hands; or, otherwise, to dispose of part of aforesaid securities, unto the amount claimed.

All remedies granted by this act to captors for enforcing the distribution of prizes, &c. may be used by the hospital, &c. &c.

92. *Form of a letter of attorney.* — All share of prize and bounty-money due to petty officers, seamen, marines, and soldiers, shall be paid by the agent or the treasurer of Greenwich hospital, or his deputy, and the clerk of the cheque of the said hospital, or his chief clerk, to the persons entitled thereto, or persons authorised by any order to receive the same, which order shall specify the name of the particular prize; or, if the capture shall have been upon the land; the name of the place or fortress out of which the prize-money shall have arisen, together with the name of his Majesty's ship of war,

by which such prize was taken; and shall contain a full description of the person giving such order, signed by the captain and one other signing officer of the ship in which the party shall be then serving; or if the party be discharged from the service, then such order, with such description as before-mentioned, shall be witnessed by the minister and churchwardens of the parish in which he may reside: and having been admitted and paid, shall remain with the agent of the treasurer of Greenwich hospital, or his deputy, paying the same, and shall be in the following form:

Ship or Place. } Date.

At one day's sight pay to A. B. or his order, the sum of (*in writing*) being the amount of my share of prize or bounty-money for the capture of
when serving as (*quality*) on board his Majesty's ship or vessel the (*name*) (*or if the amount of such share shall not be known by the person making the order, then in lieu of the words* "the sum of (*in writing*) being the amount of my share of," *insert* "my share or proportion of.")

To C. D. agent for the said capture, *or*, the treasurer of Greenwich hospital, London. }

These are to certify, that we have examined the said C. D. who signed the above order in our presence, and from the documents (*to be stated*) which he has shown us, and his answers to our questions, we have reason to believe he was serving on board the said ship at the time of making the capture above specified; he says he was born at
in the county of and
that he is years of age; he is of a (*fair, brown*, or *sallow*) complexion, with (*dark*, or, *light*) eyes; has (*black, brown, light, red*, or *grey*) hair, (*describing any other particularity of his person.*)

Given under our hands,

G. H. captain, E. F. signing officer, } of His Majesty's ship

But if the party should not, at the time of making the order belong to any of his Majesty's ships, then shall be added under the said description:

The said C. D. says, he was discharged from His Majesty's ship or vessel the
by reason of his being invalided, (or, *as the case may be.*)

L. M. Minister, N. O. Churchwardens, P. Q. or Elders } of the parish where the said C. D. *resides.*

Provided always, that from and after the expiration of three years next after any prize or bounty-money shall be paid to the treasurer of Greenwich hospital pursuant to the directions of this act, all such shares of the said prize and bounty-monies as shall then remain unclaimed in the hands of the said treasurer or the said commissioners and governors of the said Royal hospital, shall be paid and refunded to the officers, seamen, marines, and soldiers, claiming and making title to the same, and their legal attornies and representatives, in such and the same manner as has been heretofore adopted by the said Royal hospital, or in such other manner as the said directors may at any time hereafter judge more convenient and proper, and the stamp-duty on such instrument or special power of attorney shall not exceed one shilling for each person subscribing the same.

94, 95. *The treasurer is enabled to appoint deputies* at such ports or places, within the United Kingdom, as he may think fit, whose duty it is to transmit to the clerk of the cheque of Greenwich Hospital all applications in the form hereafter mentioned. And any person desirous of recovering any prize or bounty-monies paid into Greenwich hospital shall transmit to the clerk of the cheque his application and such certificates as he may possess: which application will be referred, by such clerk, to the navy-office: by which, if the certificate, &c. be found correct, the clerk shall certify the same to the treasurer, who shall hereupon send remittance-bills for the amount in the form hereafter-mentioned; or otherwise pay it in any mode that he may, from time to time, judge expedient.

96. *Mode of refunding shares.* — If such claimant reside at a place where there is no such deputy as aforesaid, on application to the treasurer, secretary, or clerk of the cheque, by letter or otherwise, he will be furnished with blank forms to be filled up and attested by the minister, church-wardens, or elders, of his parish: and, on transmitting the same, together with his vouchers as aforesaid, he will receive the amount, after the process already described, either on application at the proper office in Greenwich Hospital, or, if this be inconvenient, by a remittance-bill, or any other method that the treasurer may think fit to employ.

97, 98, 99. *For facilitating the payment of prize and bounty-money.*—It shall be lawful for the said treasurer of the said Royal hospital, or his deputy, to make out two bills for every sum which they shall have occasion to pay to any person of the description last hereinbefore-mentioned, which bills shall be duplicates, and joined together with oblique lines, flourishes, or devices, in such manner as the said treasurer or his deputy shall think proper; and shall be payable to such per-

son by the receiver-general of the land-tax for any county, riding, or city within the United Kingdom, by the collector of the customs for any port, or collector of excise for any collection in the United Kingdom respectively, near which place such person shall happen to reside, according to the appointment of such bills, and being numbered and dated, they shall be signed by the said treasurer or his deputy, and attested by the clerk of the cheque of the said Royal hospital, or his chief clerk, and be written or printed according to the following form, or such other as the treasurer of the said hospital shall from time to time deem convenient.

Royal Hospital, *Greenwich.*

Sir,

Pay to of in the county of upon producing the duplicate hereof, together with a certificate under the hands of the captain, and one other signing officer of the ship to which such belongs, (in case he is in His Majesty's naval service) or of the minister and churchwardens (or, *in that part of the United Kingdom of Great Britain and Ireland called Scotland, under the hands of the minister and two elders*) of the parish where he resides, (in case he is not in such naval service) that to the best of their knowledge and belief, he is the person named in such bill, the sum of sterling, being on account of monies due to the said for captures made by His Majesty's ship if the same shall be demanded within six calendar months from the date hereof, otherwise you are to return this bill to the treasurer of the said Royal hospital.

Attested { Treasurer or his Deputy. / Clerk of the cheque of the said hospital or his chief clerk. }

To the receiver-general of the land-tax of the county of
To the collector of the customs of the port of
To the collector of excise at

N. B. The personating or falsely assuming the name and character of any person entitled, or supposed to be entitled to prize-money, for services performed in His Majesty's navy, in order to receive the same, is felony, without benefit of clergy.

And as soon as the bills shall be made out and signed, the treasurer or his deputy shall cause them to be cut asunder indentwise, through the oblique lines, flourishes, or devices, and shall cause one of the said bills to be transmitted forthwith to the person nominated and appointed as the payer in such bills, and the other of the said bills shall be transmitted forthwith to the said receiver-general of the land-tax, collector of the customs, or collector of the excise, on whom such bills shall be drawn as aforesaid; and the said persons, if the said bills shall be produced and delivered to either of them respectively within six months, if in Great Britain, and if in Ireland then within nine months, from the date hereof, will enquire into the truth thereof by the oath of the person producing the same, or, such person being a quaker, by his solemn affirmation, and upon being duly satisfied, are to testify the same on the back of such bill, and immediately to pay the bill to such person, without fee or reward, on any pretence whatsoever, taking his receipt for the same on the back thereof; but in case the duplicate of such bill shall not be produced and delivered, and the payment thereof be demanded within six or nine calendar months from the date, as the case may be, as aforesaid; or if a proper certificate of the person claiming such a prize or bounty-money be not likewise received, then the said receiver-general, &c. shall return such bill to the treasurer of the said Royal hospital, or his deputy, who shall cause such bill to be cancelled; and from and after the cancelling of the same, such prize and bounty-money shall remain payable in like manner as if the said bill had not been made out; all which said bills and receipts to be so made and given, and also all other receipts for prize and bounty-money, which shall be at any time paid and refunded by the treasurer of the said Royal hospital, or his deputy, to any person or persons whatsoever, shall be free from any duty of stamps whatsoever; and such bills will be repaid by the treasurer to the said receiver-general, &c.

100. *Penalty on receiving fees for refunding.* — No person paying any share or balance of prize-money remitted from Greenwich hospital, shall receive any fee or reward on account of any payment thereof, or of any act relating to the procuring of the payment of the same under any pretence whatever, on pain of forfeiting one hundred pounds.

101, 102. *Official letters free of postage.* — All letters or packets addressed to the treasurer of the said Royal hospital upon any business relative to such prize matters shall be free from the duty of postage, and also all letters or packets sent by the treasurer, or by the secretary of the said Royal hospital, or by the officer for prize matters in the navy-office, upon any such business.

103. *All commanders of His Majesty's ships and vessels of war, or hired armed ships,* shall, from time to time, as soon as the same can be done, transmit to the clerk of the

cheque, of the said hospital, accounts in writing of all prizes taken, with the name of the port to which the capture was sent, and the name and place of abode of the agent, whether it is a single or joint capture, and if joint, the names of the several ships alleged to be aiding in such capture, with the date of the capture, and the place where the same was made.

104. *The prize-money to the representatives of petty-officers, seamen, and marines, deceased,* shall be paid only to their representatives, or their lawful attorney, upon production of the cheque to be granted by the inspector of seamen's wills.

105 and 106 relate to the mere forms of office.

107. *Persons employed by Greenwich Hospital,* in executing the regulations of this act, shall not act as agents for prizes, or be concerned directly or indirectly in the business thereof, under the penalty of five hundred pounds.

108, 109. *Persons retaining proceeds of prizes to pay interest.*—Any captor, agent, or other person, who shall acquire or retain the proceeds of any prize contrary to the provisions of this act, except for reasonable cause, shall pay interest thereon at the rate of one pound per cent. per month, for such time as the same shall so be in his custody or possession, besides all other penalties imposed by this act.

110, 111, 112. *Perjury and forgery.* — A forfeit of five hundred pounds is imposed for the forging, altering, falsifying, &c. any document requisite for the purposes of the act; and the pains and penalties of wilful perjury are applicable to the commission or subornation of a false oath. Also a penalty of one hundred pounds is forfeited by the neglect or refusal of delivering in accounts to the treasurer of Greenwich hospital; and every person who shall commit, admit, or connive at, any fraud or collusion in stating or balancing accounts, is subject to the fine of five hundred pounds.

113. *Unclaimed shares of soldiers.* — All unclaimed shares of soldiers serving in any conjunct expedition with his Majesty's naval forces, as described in this act, shall be paid to the treasurer of Chelsea hospital, within six months after distribution commenced; subject nevertheless to be refunded to any individual entitled to the same, and establishing his claim within six years from such payment: and it shall be lawful for the said treasurer to compel the agents for the army, to exhibit and verify their accounts, and pay over such balances, in like manner as the treasurer of Greenwich hospital is herein empowered to compel the producing and verifying of accounts and payment of unclaimed shares from the naval prize-agents; and the high court of admiralty shall exercise the same powers and authorities for discovering and compelling of payment of all shares of soldiers so remaining unpaid, in this or any former war, in like manner as the said court is enabled to do by this or any other act, respecting the unclaimed shares of mariners serving in His Majesty's ships of war.

This is all of the statute which it has been considered necessary to detail here, as the remaining sections relate almost entirely to the execution of the provisions of it by the courts and their officers, and in an insignificant degree to the merits of the claimants.

In pursuance of the powers given by the preceding statute to the crown, a proclamation was issued for the distribution of prizes during the last war; but as all instruments of this description are for an occasional purpose only, and are governed by the circumstances of the period at which they are promulgated, it has been conceived unnecessary to insert them.

Further provisions, as to naval prize-money, are made by 59 Geo. 3. c. 56. and by 1 Geo. 4. c. 58. We add, on this part of the present subject, the substance of a few recently-determined cases, some of which, though to a certain degree bearing reference to *particular* provisions in the proclamation above adverted to, are all decided on general views and applicable in principle to all times.

A flag-officer, who, after giving orders to one of the ships under his command to cruise, received an appointment to another command, is not entitled to share in a prize taken, after the acceptance of such appointment, by the ship so sent by him to cruise, the ship not being actually under his command at the time of capture. *Johnson v. Marguson,* 1 *H. Black. R.* 261.

By article four of the king's proclamation respecting distribution, as to flag-officers, it is directed that a chief flag-officer, *returning home* from a foreign station, shall have no share of prizes taken by ships *left behind to act under another command.* This applies as well to a command devolving by seniority, as to one by express commission; on *returning home,* means, commencing of departure from a local station. *Nelson v. Tucker,* 4 *E. R.* 238.

A commodore who appoints a captain under him, without authority for that purpose, is not entitled to share as a flag-officer; nor will a subsequent retraction of the appointment bear reference back to prizes taken before it. *Donelly v. Popham,* 1 *Taunt. R.* 1.

An officer under arrest on board a fleet for an offence of which he is afterwards acquitted, is entitled to prize-money taken during such arrest. *Lumley v. Sutton,* 8 *T. R.* 224.

A second captain is entitled to a captain's share of prize money, under the king's proclamation. *Waterhouse v. King,* 2 *E. R.* 507.

Every instrument by which a seaman or marine conveys his prize money or wages in

the hands of the public officers, must be in the form prescribed by the statutes. *Turtle v. Heartwell*, 6 *T. R.* 426.

By an Act for the Relief of the Captors of Prizes, with respect to the bringing and landing certain Prize Goods in this Kingdom (33 *Geo.* 3. *c.* 34, *continued, during hostilities, by* 43 *Geo.* 3. *c.* 134.) *it was provided, that*

1. *Prize goods, after condemnation, may be landed upon payment of certain duties.* — Any goods, wares, or merchandise, taken during the continuance of the hostilities with France, and brought into Great Britain by any of his majesty's ships of war, or any privateer, shall and may, upon condemnation thereof as lawful prize, be landed within any port within this kingdom, and secured, under the king's locks, in warehouses provided at the sole expense of the captors, with the privity and approbation, and under the care and inspection respectively, of the commissioners of customs and excise; and, upon admission of any such goods into such warehouses, there shall be paid by the captors or their agents the certain duties therein specified respectively.

2. *Prize goods duty free.* — No duties whatever shall be taken for any prize goods, consisting of military or ship's stores, viz. sails, cordage, anchors, and cables, masts, yards, bowsprits, blocks, guns, gunpowder, shot, match, gun-carriages, cartridges, and other materials thereunto belonging, and all timber and iron converted into and made fit for ship-building, or for any of the uses and purposes aforesaid; salted beef, pork, and butter, biscuits, small beer, pease, and oatmeal, sailor's clothes, hammocks, bedding, and apparatus and instruments belonging to surgeons, or for any goods which by any law in force, on and immediately before the passing of this act, may be imported into this kingdom duty free: and no public or private ship or vessel of war, that shall have been taken from the enemy, or any part of her sails, cordage, &c. as aforesaid, shall be subject to any duty whatever.

3. *Prize wheat, &c.* — All wheat, wheat-meal, or flour, rye, barley, beer, or bigg, oats, oatmeal, pease, beans, Indian corn, and maize, taken and condemned as prize, shall, on being brought into any port of this kingdom, be warehoused, and subject to such rules, restrictions, duties, penalties, and forfeitures, as are provided and enacted in the act of 31 Geo. 3. c. 30.

4. *East India or Chinese prize goods.* — All goods of the growth, production, or manufacture of China or the East Indies, taken or condemned as prize, shall be publicly exposed to sale in the city of London, by the captors or their agents, notice of such sale being first given to the proper officers of the excise or customs respectively concerned therein; and such goods shall be sold on such conditions, and under such rules, regulations, and restrictions, as are used and practised at the sales of the East India Company, and the goods shall be subject to such duties, and entitled to such drawbacks, as the like goods are subject and entitled to when imported by the East India Company, and the full duties due and payable on such goods shall be paid in all cases by the captors or their agents. Which regulations are further extended, in point of continuance, by 54 Geo. 3. c. 36.

5. *Prize tobacco and snuff.* — Tobacco and snuff of all sorts taken as prize, and brought into any port of Great Britain, not being a port enumerated in the act of the 29th of Geo. 3. c. 68. and in the act of the 31st of Geo. 3. c. 47. shall be removed according to the provisions of the said act the 29th of Geo. 3. as soon as may be, under the usual coast dispatches and security, to some of the ports enumerated in the said act; and such tobacco and snuff, and also tobacco and snuff of all sorts, taken as prize, and brought into any port enumerated in the said act, shall, on condemnation as prize, be warehoused in his majesty's tobacco-warehouse at such port, and be liable to warehouse rent, at the rate of one penny per week for every hogshead, or other package; and such tobacco or snuff may be exported from such warehouse, without payment of any duty, or may be taken out of such warehouse for home consumption or manufacture, on payment of the duties due and payable on tobacco and snuff of the growth and production of his majesty's colonies, plantations, islands, or territories in America; and such tobacco and snuff, so warehoused, shall be subject to the rules, regulations, penalties, and forfeitures, as are provided and enacted with respect to warehoused tobacco and snuff.

6. *Removing of prize goods for exportation.* — Whereas it may, in some cases, be impracticable for the captors to procure vessels to export prize goods directly from the ports where they are warehoused, in pursuance of this act; for remedy whereof, it shall and may be lawful for the commissioners of his majesty's customs, in any case where they shall think proper, to order such goods so secured in any warehouse in this kingdom, tobacco and snuff excepted, to be removed thence for exportation to any custom-house warehouse, at any other place or port in Great Britain, by and under the seal of office of the collector, &c. of the customs at the port whence the goods are intended to be so removed, at the expense of the captors or other person who may have purchased the same.

7. *Prize goods condemned abroad.* — All goods taken as prize, and condemned abroad, shall, on importation into Great Britain, be entitled to the benefit and indulgence granted to prize goods by this act, provided a certi-

ficate, under the hand and seal of the judge of the court in which such goods shall have been condemned, shall be produced to the collector, &c. of the customs at the port or place into which such goods shall be imported, certifying the condemnation thereof, and the master of the ship on board of which such goods shall be imported, shall, together with the importer, proprietor, or consignee, make oath before the said collector, &c. that to the best of their knowledge and belief, the goods so imported are the identical goods mentioned in the said certificate of condemnation.

8. *East India and Chinese prize goods, condemned at an out-port to be brought to London.* — Whereas goods of the growth, production, or manufacture of China or the East Indies, taken as a prize, may be carried into some of the out-ports of this kingdom, and condemned; in all cases, therefore, where such goods shall be carried into any out-port in this kingdom, and condemned as prize, bond, with sufficient security, shall be given to his majesty, in treble the value of such goods, that the same shall be brought to London, and delivered to his majesty's warehouse-keeper at the custom-house for the port of London, to be deposited by him in warehouses provided at the expense of the captors, or their agents, and approved by the commissioners of the customs: and with farther condition to produce a certificate from such warehouse-keeper, within three months from the date of such bond, that the goods have been delivered accordingly; and if such goods shall be sent by land-carriage, they shall be removed under the seals of office of such collector, &c. and shall be accompanied by a transire, expressing the number and make of the packages; and all such goods so removed, either by land or water, shall afterwards be publicly exposed to sale in the city of London, by the captors or their agents, they giving notice of such sale to the proper officers of the customs or excise respectively concerned therein, by the same rules, regulations, and restrictions, in all respects, as the duties payable on the like goods, imported by and sold at the sales of the united company of merchants of England, trading to the East Indies, are computed and charged, and the duties due by law thereon shall be accordingly paid.

9. *Duty on prize ships.* — Any foreign ship or vessel, not being a ship of war, or private vessel of war, having been condemned as prize, shall pay the duty enacted, on arrival in port; and, if it be not paid within three calendar months after such arrival, may be sold by his majesty's commissioners; one part of the produce to defray the duty, another the charges of detention, and the remainder to be paid to the proprietor.

10. *Exporting of prize goods.* — Any prize goods which shall be received into any warehouses in pursuance of this act, may, upon payment of the respective duties before directed, be exported at any time directly thence, without paying any further duty of customs or excise for the same; the person or persons exporting the same giving sufficient security, in double the value of the goods, that the same shall be really and truly exported, and not brought back again or relanded in any part of Great Britain, or landed in the islands of Guernsey, Jersey, or Man, or the islands Faro or Ferro.

By the 35 Geo. 3. c. 31. s. 3. the island of Alderney is placed in the same condition as Guernsey, &c. as to this prohibition.

11. *Prize goods for home consumption.* — If any goods shall be taken out of any warehouse wherein they are secured as aforesaid, to be consumed in this kingdom, the person so taking out the same shall first pay up the remainder of the duties which would have been due and payable to his majesty thereon, if the same had been regularly imported by way of merchandise into this kingdom; and such goods shall, in all other respects, be liable to the same restrictions and regulations to which they would have been subject if this act had not been made.

12. *Privateers having on board liquors, &c. in illegal quantities.* — If any ship or vessel whatever, which shall be commissioned by letters of marque, or general reprisals, or otherwise, shall be found at sea, or in any port of this kingdom, or at any distance from the coasts thereof, having on board any foreign brandy, or other foreign spirituous liquors, in any vessels or casks which shall not contain sixty gallons at the least, except only for the use of the seamen, not exceeding two gallons for each seaman, or any tea exceeding the quantity of six pounds weight, or any goods whatever, which are or may be liable to forfeiture by any act of parliament, upon being imported into Great Britain, then not only all such goods, but also the ship or vessel, on board which they shall be found, with all her guns, furniture, ammunition, tackle, and apparel, shall be forfeited and lost, and the letters of marque, or general reprisals, or any other commissions for such ship or vessel, shall be null and void.

Abstract of an Act to exempt Ships of War, and Private Ships or Vessels of War, taken as Prize, from Payment of Duty. 34 *Geo.* 3. *c.* 70.

1. No ship of war, nor any private ship or vessel of war, which shall be taken from the enemy, and legally condemned as prize, nor the sails, or any of the tackle, apparel, or furniture, belonging to such ship or vessel, shall be chargeable with, or liable to pay, any duty whatever, any law, custom, or usage, to the contrary notwithstanding.

2. In case any duty shall have been paid according to the laws now in force for ships

or vessels of the description before-mentioned, taken since the commencement of hostilities in the present war, or upon their sails, tackle, apparel, and furniture, the commissioners of his majesty's customs in England or Scotland may cause the same to be repaid in such manner as they shall judge proper.

The payment of army prize-money is regulated by 1 Geo. 4. c. 84.

PRIZE SHIPS. The Danes and Swedes being at war, it became a question — "in what light prize ships taken by one or other of those powers should be considered?" — Sir Edward Northey (Att. Gen.) was of opinion, that a Danish ship being taken a prize by the Swedes, and condemned in the court of admiralty in Sweden, the property was altered, and the British subject might lawfully purchase such ship; and such ship being owned by British subjects, might import timber from Sweden; but Swedes being owners of such a ship, could not import timber thence, such ship not being of the build of Sweden; which opinion seems well founded: for though prize ships with us are favoured in the same manner as British built, this is by special provision in an act of parliament, and nothing similar being enacted with regard to ships taken prize by any foreign power, that circumstance of their being taken *prize*, cannot make them of the *build* of that country, as the law expressly requires them to be. *Reeves on Shipping*, p. 177.

Stat. 7 and 8 Will. 3. directed all prize ships to be *specially registered*, mentioning the capture and condemnation, instead of the time and place of building, on proof upon oath that the entire property was British. Besides the register, it had become the practice, in order to make all the circumstances of these ships appear more at large, to grant to the owners of them another document called *a certificate of freedom*; but this practice does not seem to have obtained in Scotland: this certificate recited when, and by whom, the duties on such prize-ships were paid.

The owners of prize-ships, before registering, are to produce a certificate of the condemnation, under the hand and seal of the judge, and also an account of the particulars contained in the before-mentioned certificate, to be made and subscribed by skilful persons appointed by the court to survey the ship; and they are to make oath that the ship in question is the same mentioned in the judge's certificate. Prizes condemned in Guernsey, Jersey, or the Isle of Man, are to be registered at Southampton, Weymouth, Exeter, Plymouth, Falmouth, Liverpool, or Whitehaven. This was to secure the duties payable on such ships; and, for the same purpose, when such prizes are registered in the plantations, an exact and particular account is to be joined to the certificate of registry of the sum the ship sold for, verified by the oath of the person applying for the register.— *Reeves on Shipping*, p. 436. *See* PRIZE, and REGISTER.

PROA, *Flying*, in navigation, is a name given to a vessel used in the South Seas, because, with a brisk trade-wind, it sails near twenty miles an hour. In the construction of the proa, the head, and stern, are exactly alike, but the sides are very different; the side intended to be always the lee-side being flat, and the windward-side made rounding, in the manner of other vessels; and, to prevent her oversetting, which, from her small breadth, and the straight run of her leeward side, would, without this precaution, infallibly happen, there is a frame laid out of her from windward, to the end of which is fastened a log, fashioned in the shape of a small boat, and made hollow. The weight of the frame is intended to balance the proa, and the small boat is by its buoyancy (as it is always in the water) to prevent her oversetting to windward; and this frame is usually called an out-rigger. The body of the vessel is made of two pieces joined endwise, and sewed together with bark, for there is no iron used about her; she is about two inches thick at the bottom, which at the gunwale is reduced to less than one. The sail is made of matting, and the mast, yard, boom, and out-riggers, are all made of bamboo.

PROBAT, or PROBATE, the proof of wills and testaments of persons deceased, in the spiritual court, either by the oath of the executor, or with witnesses, *See* WILL.

PROCTOR, a person commissioned to manage another person's cause, in any court of the civil, or ecclesiastical, law. A proctor is in the spiritual court, what an attorney is in common law.

PROCURATION. Where a merchant resident abroad appoints his agent or correspondent, or where a merchant, during his absence from the seat of his business, empowers his clerk to accept, or indorse, bills on his account, this is termed acceptance, or indorsement, by procuration, and the principal will be bound by such act. *See* LETTER OF ATTORNEY.

PRODUCE, in mercantile affairs, is a term applied to the indigenous merchantable commodities of any territory. Thus we call sugar, coffee, cotton, and the like, "West India *produce*;" hemp, flax, and wood of different kinds, "Russian *produce*," &c. &c.

PROFIT, is the advantage or emolument which a trader acquires by trafficking in goods of any kind. Some trades afford better profits than others, and sometimes local circumstances, and casualties of various descriptions, either improve, or depress, the profits of particular branches of industry and commerce. Five-and-twenty per cent. is considered the general standard of profit among manufacturers.

PROFIT and LOSS, in arithmetic, is

that rule which discovers what is gained or lost in the purchase and sale of goods, and it teaches persons how to fix the price of their goods, so as to gain a certain per centage.

PROFIT and LOSS, in book-keeping, is a separate account inserted in the ledger, exhibiting at one view the gains, and losses, of a merchant in the course of his trade, however complicated it may be.

PROHIBITED GOODS, are such goods as are not allowed to be either exported, or imported. *See* CONTRABAND, and SMUGGLING.

PROMISE is where, upon a valuable consideration, persons bind themselves by words to do or perform such a thing agreed on: it is the nature of a verbal covenant, and wants only the solemnity of writing, and sealing, to make it absolutely the same. Yet from the breach of it, the remedy is different; for instead of an action of covenant, there lies only an action of assumpsit, the damages whereof are to be estimated and determined by a jury.

PROMISSORY NOTE, a note of hand, purporting the payment of a certain sum, at a stated period.

Form of a Promissory Note.

London, 20th July, 1809.

£150.

Two months after date, I promise to pay to John Johnson, Esq. or order, the sum of one hundred and fifty pounds, for value received. GEORGE DAVIS.

Generally interest, after a specified rate, is also added; but if there be no such insertion, it is, nevertheless, recoverable after the rate of *5l.* per cent., that being the highest rate of interest the law allows. *See* BILLS OF EXCHANGE.

PROOF, the shewing or making plain the truth of any matter alleged: either in giving evidence to a jury on a trial, or else on interrogatories, or by copies of records, or exemplifications of them.

PROPOLIS. The propolis, bee-glue, or mastic of bees, is well known to be the first matter collected by the bees of a swarm, newly placed in a hive. This substance is resinous, ductile, odorant, and of a reddish brown colour, more or less deep. It is at first soft and very extensible; but it hardens, and at last becomes solid.

It is not yet known from what part of plants it is extracted: it is believed that it comes from that species of gum-resin which coats, and defends, most of the buds of trees and shrubs from wet. In the mass it is blackish; but it is semi-transparent when in thin plates. The heat of the fingers is sufficient to soften it, and give it all the ductility of wax; but it is more ropy and tenacious. Like wax, it may be kneaded between the teeth, without any perceptible taste. Its odour is aromatic, resembling that of melliot, of balsam of Peru, or of the Banana poplar.

PROTECTION is a privilege from being impressed, and it is granted by the admiralty to different descriptions of persons.

The following persons are, by several acts of parliament, privileged from being impressed:

Two able seamen for every ship of 100 tons, and one for every vessel of 50 tons; parish-apprentices, under eighteen years of age; all other apprentices, for three years from the date of their indentures, except persons above the age of eighteen, who have been at sea before they became apprentices, and all under eighteen years of age, and above fifty-five; foreigners in merchantships and privateers, and landmen, betaking themselves to sea for three years.

The following persons in the fisheries are also entitled to protections:

Masters of vessels or boats, who, either themselves or their owners, within six months before applying for protection, shall have had one apprentice or more under sixteen years of age, bound for five years, and employed in the business of fishing on the coast, or on any of the rivers; four apprentices to every master or owner of any fishing-vessel of thirty tons or upwards, and two to every vessel or boat under thirty tons, during the term of their apprenticeship, and until the age of twenty years, provided they continue during that time in the business of fishing only; one mariner, besides the master and apprentice, to every fishing-vessel of ten tons or upwards, during his continuance in such vessel; and every landman on board such vessel, for two years from his first going to sea, and to the end of the voyage he is engaged in, if he so long continue.

To obtain a protection from the admiralty, an affidavit must be produced, stating that the party comes within one of the preceding descriptions, inserting also the name of the vessel, port, master, age of the apprentice, term of apprenticeship, and date of the indenture, or the name of the landman, mariner, &c. requiring such protection; ~~and if~~ any persons so protected shall be impressed and detained after producing such protection, the officer shall forfeit 20*l.* to the party injured.

Six harpooners to every ship of two hundred tons, employed in the whale fisheries, and so in proportion for any less tonnage, are also entitled to protections.

PROTEST, that act by which the holder of a foreign bill of exchange declares that such bill is dishonoured. The protest is a solemn declaration drawn up upon a separate piece of paper, that the bill has been presented for acceptance or payment, which was refused, and that the holder intends to recover all damages which he, or his principal, or any other party, may sustain, on account of the non-acceptance or non-payment.

A protest is absolutely necessary on a fo-

reign bill of exchange, where it is refused acceptance, or payment, in order to charge the drawer. The payee must demand acceptance from the drawee before protest.

If payee die, there can be no protest before probate or administration.

If a bill, left for acceptance, be lost, the drawee must give a note for the payment thereof; otherwise it may be protested.

If a bill be lost, and no new one can be had, and the drawee does not insist on having the original, but refuses payment on another account, a protest made on a copy is sufficient.

A protest is good evidence of non-acceptance, or non-payment, until the contrary is proved.

A protest on a foreign bill is necessary to recover, against the drawer, not only interest and costs, but also principal; and such protest must be made in due time, and timely notice given to the drawer. What is a *timely* notice must be determined by the customs of the merchants. Convenient notice must be given to the drawer of an inland bill; which notice, as to time, must also rest upon the custom, and verdict of a jury.

But, in case of non-payment of either foreign, or inland, bills, the safest way is to give as early notice, to the person of whom it was received, as possible; that is, by the first post, or, rather, to send the bill to a correspondent, to tender it to the drawer, or indorser. Where they refuse to accept the bill, it may be protested, before the day of payment, for better security but not for non-payment.

Form of a Protest.

On this day, the of one thousand eight hundred and I, of the city of London, Notary Public, by lawful authority duly admitted and sworn, did exhibit the original bill (or note) on the other side, copied to at and demanding payment thereof, was answered by that the said bill (or note)

Therefore, I, the said notary, have protested, and by these presents do solemnly protest, as well against the drawer or subscriber of the said bill (or note), as against all others whom it may concern, for exchange, re-exchange, and all costs, damages, charges, commissions, and interests, suffered and to be suffered for want of payment (or acceptance) of the said bill (or note). This done and protested in my office, at London, the date aforesaid. — *Quod attestor.*

(*Seal.*) NOT. PUB.

On the back of this protest is to be made an exact copy of the bill or note protested, together with a list of the indorsers on such bill or note.

The notary's fees of office, for noting and protesting bills, are settled by general acquiescence. The last regulations were by a general meeting of notaries in 1797, the resolutions of which meeting were approved by the Governor and Company of the Bank of England, and form the rule of charging at this time.

The stamp-duties on these instruments are as follows.

PROTEST of any bill of exchange, or promissory note, of any sum of money, not amounting to 20*l.* - -	0	2	0
Amounting to 20*l.* and not 100*l.*	0	3	0
Amounting to 100*l.* and not 500*l.*	0	5	0
Amounting to 500*l.* or upwards	0	10	0
Protest of any other kind. -	0	5	0
And for every sheet upon which the same shall be written, after the first, a further duty of - - - -	0	5	0

PROW, in navigation, denotes the head or fore-part of a ship, particularly in a galley, being that which is opposite the poop or stern.

PRUNE. *See* PLUM.

PRUNE, *French*, (GER. *Katharinenpflaumen.* DU. *Cathryne pruimen.* DA. *Catrineblommer.* SW. *Catarine plommon.* FR. *Pruneaux de Ste. Catharine, Pruneaux de Tours.* IT. *Prugne, Susine sicce de Santa Catarina.* SP. *Ciruelas pasas de Santa Catharina.* PORT. *Ameixas seccas de Santa Catharina,*) or, as they are sometimes called, Saint Catharine's plums, constitute a lucrative branch of traffic, exclusively carried on by Tours and Châtellerault, two flourishing towns of the French empire. They are prepared with the greatest care at the places where they are grown, and are thence sent to the merchants of Tours and Châtellerault, who supply every other part of France, as well as foreign countries, with the article. They are of different qualities. The best are packed in hampers or baskets made of white osiers, weighing from six, to ten, pounds each; the second quality in quarters, and the third in puncheons. The grand purchases of this fruit are made at the commencement of the new year, and about the beginning of Lent; during which penitential season, the demand is particularly great at Paris, and in other large cities and towns of France. Vast quantities of these prunes are exported to the north of Europe. Their flavour is peculiarly grateful to the palate, and they are said to be extremely wholesome, when taken in moderation.

PRUNELLA is a name given to a sort of silken stuff, but whence derived in this sense does not appear.

It is also a name given by physicians to a certain species of sore throat, of the quinsey kind.

It is also the name of a salt in pharmacy, prepared from purified salt-petre.

PRUNELLO, or PRUNE OF BRIGNOLIA, GER. *Prunellen.* DU. *Pruimellen, Prunellen.*

Da. and Sw. *Bruneller.* Fr. *Prunes de Brignoles, ou Brignolles.* It. *Susine di Brignola.* Sp. *Ciruelas de Briiiola.* Port. *Ameixas de Brinhola.* Rus. *Smokwa.* Pol. *Brunele, Prunele.* Lat. *Pruneolæ, Pruna Brignolensia,*) a sort of French prunes, of which large quantities are annually gathered in Provence, especially in the neighbourhood of Brignolles, whence their name. A very great trade is carried on in the article by the merchants of Provence. This fruit is very different from the common French prunes, though somewhat larger.

PRUSSIAN BLUE. (Ger. *Berlinerblau.* Du. *Berlyns Blaauw.* Da. *Berliner Blaat.* Sw. *Berliner blätt.* Fr. *Bleu de Prusse.* It. *Azurro Prussiano ò di Berlino.* Sp. *Azul de Prussia.* Port. *Azul de Allemanha ò de Prussia.* Rus. *Lasor Berlinskaja.* Lat. *Cæruleum Berolinense.*) Iron is the basis of this fine blue pigment, called, from the place where it was first discovered, Berlin, or Prussian, blue. This colour was accidentally discovered about the beginning of the last century, by a chemist of Berlin; who, having successively thrown upon the ground several liquors from his laboratory, was much surprised to see it suddenly stained with a beautiful blue colour. Recollecting what liquors he had thrown out, and observing the same effects from a similar mixture, he prepared the blue for the use of painters, who found it might be substituted for ultramarine, and have used it accordingly ever since. The process of manufacturing Prussian blue is by calcining a quantity of vegetable alkali, with twice its weight of dried bullocks' blood, until the blood be reduced to a perfect coal. This coal is boiled in water, the lixivium decanted, and poured into a solution of one part of green sulphat of iron (copperas) to six of alum, the lixivium, and the solution, both hot. The mixture will then acquire a very pale blue colour, and deposit as pale a precipitate. On adding more and more of a fresh solution of copperas, the colour becomes deeper and deeper. In order to separate the precipitate, it is now filtrated, the next day washed till the water comes from it insipid, and the blue colour is, finally, gently dried. *See* BLUE.

PUBLICANS, Innkeepers, &c. Persons retailing beer or spirits, by virtue of a license from the magistrate. This being a general term, including innkeeper, alehousekeeper, public-houses, and keepers of wine-vaults, every thing relating to these several branches of business may be classed, with propriety, under the general term publicans; but, as innkeepers, although publicans, as retailers of the same article, are in some degree distinct, as preparing and selling victuals to their guests, the substance of the regulations which constitute the responsibility of innkeepers are first given, which will be followed by those relative to publicans, &c. which are common to all

This subject may be divided as follows:

1. Who may keep an inn.
2. The duty of an innkeeper.
3. His responsibility to his guest, in case of injury or loss.
4. His remedy against his guest.

1. *Who may keep an inn.* — Inns were instituted for the lodging and relief of travellers: every inn is not an alehouse, nor is an alehouse an inn; but if an innkeeper sells ale in common, it is then also an alehouse; and if an alehouse lodges and maintains travellers, it is then also an inn.

And no publican can sell ale or beer by retail, or cider, or perry, to be consumed in his house, without first having obtained a license from two justices, and another from the commissioners of excise. 48 Geo. 3. c. 143. But the executors, assigns, &c. of publicans, can continue to sell without fresh license, by 53 Geo. 3. c. 103. with certain qualifications. *See* 1 *Dick. Pract. Expos.* 5.

Any person who makes it his business to entertain passengers and travellers, and provide lodgings and necessaries for them, and for their horses and attendants, is a common innkeeper, and it is not material whether there be any sign at his door or not. 1 *Haw.* c. 78.

Innkeepers are distinguished from other traders, inasmuch as that by buying and selling victuals, &c. for his guests, he cannot, as such, be a bankrupt, unless also he makes a profit of buying, beyond the necessary consumption of his guests.

2. *Duty of innkeepers.* — The duty of an innkeeper consists chiefly in harbouring and entertaining travellers, finding them proper victuals and lodgings, and securing the goods and effects of his guests; if, therefore, he refuse either lodging, drink, or food, payment for the same being tendered, he will be liable to an action; for, putting out his sign is an implied contract with the public at large, that he will find these articles.

Soldiers billetted are considered as guests.

If an innkeeper, or his servant, sell bad wine or victuals to his guest, an action may be brought against either the master or the servant.

Innkeepers, or persons keeping livery-stables, are compelled to receive a horse, although the owner is not a guest by sleeping in the house.

3. *Responsibility of an innkeeper in case of injury or loss.* — Innkeepers are responsible for the goods of their guests, which are stolen or lost out of their inns, the persons remaining guests, and the property within the custody of the innkeeper; but if a person come to an innkeeper, and desire to be entertained by him, which the innkeeper refuses, on account of his house being already full, whereupon the party says he will shift among the rest of the guests, and is there

robbed, the innkeeper will be in this case exonerated: so also, if the guest were robbed by his servant, or any other person whom he desires may be lodged with him, he shall have no action against the innkeeper.

The innkeeper is liable, although the guest does not acquaint him what goods, &c. he has, but he will not be answerable for any thing stolen from any person who was not actually his guest at the time of the theft; and if, upon any special agreement, a man boards or lodges at an inn, the innkeeper will not be responsible for any losses, nor if the guest deliver goods upon another account.

Such is the general law respecting the liability of an innkeeper; but he may be discharged of it under the enumerated, and some few other, special circumstances. *Burgess* v. *Clements*. 4 *M. & S. Rep.* 306. *and* 3 *Dick. Pract. Expos.* 11.

Remedy of an innkeeper against his guest.—An innkeeper may detain the person of the guest, or his horse, till payment.

By the customs of London and Exeter, if a man commit a horse to any hostler, and he eat out the price of his head, the hostler may take him as his own, upon the reasonable appraisement of four of his neighbours; but the innkeeper has no power to sell the horse, by the general custom of the whole kingdom.

And, although an innkeeper in London has power to sell the horse of his guest for his keep, he cannot justify the taking him to himself at the price agreed upon.

The custom of London, to stop, and sell, horses for their meat, is only that the same horse may be sold for the keep of that particular horse, and not other horses belonging to the same owner.

A horse committed to an innkeeper cannot be detained for the meat of the guest.

Innkeepers, alehouse-keepers, sutlers, who, in giving any account or reckoning, in writing or otherwise, shall refuse to give in the particular number of quarts or pints, or shall sell in measures unmarked, shall not detain any goods or other things belonging to the person from whom such reckoning shall be due, but be left to his action for recovery of the same.

Publicans are bound to receive officers and soldiers billeted upon them by justices and magistrates, and the terms on which they are compellable to entertain them are provided for by the annual mutiny act, or some other statute supplementary thereto.

The last statute, which regulates the licenses of publicans, is 56 Geo. 3. c. 113.

PUDDENING, in a ship, is a thick wreath, or circle of cordage, fastened about the masts, to prevent their yards from falling, when the ropes by which they are suspended are destroyed, in battle, or otherwise.

PUDDY, a measure by which oil is sold in Madras.

PUGIL, in pharmacy, such a quantity of flowers, seeds, or the like, as may be taken up between the thumb and the two forefingers. It is esteemed to be the eighth part of a manipule or handful.

PUMICE-STONE. (Ger. *Bimstein.* Du. *Puim, Puimsteen.* Da. *Pimpsteen, Bimsteen.* Sw. *Pimsten, Klasten.* Fr. *Pierre pouce.* It. *Pietra pomice.* Sp. *Piedra pomez.* Port. *Pedra pomes.* Rus. *Penza.* Pol. *Zuzel Kamienna.* Lat. *Pumex.*) This seems rather a volcanic ejection, than a volcanic product; its colour is grey, white, reddish-brown, or black; it is hard, rough, and porous, and consists of slender fibres parallel to each other; very light, for it swims on water, and difficultly gives fire with steel. The whitest pumice-stone is the lightest. There is a kind, however, that sinks in water, and is much used in Naples and Sicily in building arches; and a still more compact and heavy kind, that is easy to cut, and employed for corner-stones of buildings, as well as for walls in general.

The common pumice-stone described above, is the only kind constituting an article of commerce between the Mediterranean and this country. The greatest quantity of pumice to be met with any where is in the Campo Bianco, in the island of Lipari, a mountain about a quarter of a mile in breadth. The rock also upon which the castle of Lipari is built, is an immense heap of lava, glass, and pumice-stones; which latter, in fact, are nothing else but an imperfect glass, or volcanic ejection, which, if exposed to a considerable degree of heat might be converted into a vitreous mass. Small quantities of pumice-stone are found also in the Arso, in the island of Ischia. But a place in Europe, which in the abundance of its pumices can equal, or perhaps surpass Lipari, is the island of Santorine, in the Archipelago, almost covered with pumice-stone. Many eruptions of pumices are in the Phlegrean Field; one of which overwhelmed the unfortunate town of Pompeii.

The lighter sort of pumice-stone is used for smoothing the surface of metals, wood, paste-board, and stone; for which it is well qualified by reason of its harsh and brittle texture.

Pumice-stono is likewise said to form an excellent glaze for pottery, which contains nothing noxious, and is not affected by any known menstruum.

It has been asserted, that there is a large quantity of pumice-stone on Cader Idris, in Merionethshire.

PUMP, an hydraulic machine for raising water by means of the pressure of the atmosphere. Common as it is, and overlooked by the curious, the pump must be considered a very abstruse and refined invention. There are two sorts of pumps which essentially differ; and all the varieties are but modifications of these. One has a piston with a

perforation and valve; the other has a solid piston: the former is called the common sucking pump; the latter, the forcing pump.

The following are descriptions of the pumps most celebrated for their utility, and as such are most generally used.

The Common Sucking-Pump.

The barrel or body is a cylinder of cast iron, bored smooth within-side; it has a flanch at the top by which it is screwed to a wooden cistern that conveys the water away from the pump. It has also a flanch at its lower end, to screw on a pipe, which brings the water to the pump. In the same flanch is a pair of valves, and there is a bucket or piston which slides up and down within the barrel or body, with a similar pair of valves in it. This bucket is screwed to an iron rod, which rises towards the top of the pump and is moved up and down by means of some machine, usually termed the handle of the pump. When the bucket descends, its valves open upwards, and allow the water which fills the barrel to pass through them. When the bucket arrives at the bottom of the barrel, it is drawn up again; and as the valves shut, and prevent the water from returning through the bucket, it lifts all the water contained in the barrel into the cistern placed at top, at the same time the bucket, in rising, makes a vacuum beneath it: the pressure of the atmosphere upon the surface of the water in the well, causes it to mount up through the pipe, situated at bottom of the barrel, open the valves of the barrel, and fill the space left unoccupied by the ascent of the bucket. When the bucket begins to descend, the column of water beneath it descends also, till it is stopped by the shutting of the barrel's valves; and the valves of the bucket being by this time open, allow the water to pass through as before.

The Forcing-Pump.

In this the barrel or body is screwed upon a square box, which has a pair of valves at the top of the pipe, (whereby the water is conveyed to the barrel,) and another similar pair at the lower end of another pipe which is attached to, and rises from the square box, in a direct line with the grand barrel. The plunger, which descends in the midst of the barrel, is solid: when it is drawn up it makes a vacuum in the barrel, and draws the water up through the valves of the water-conveying pipe, from the well, to fill the barrel. The plunger is then forced down, the valves of the water-conveying pipe shut, and as the element has no other way out of the square box, it passes through the valves attached to the adjacent pipe, and rushes up the latter. The plunger is then drawn up, the valves of the adjacent pipe shut, whilst the valves of the water-conducting pipe open and supply the barrels as before.

The Lifting-Pump.

In this there are two barrels, an upper, and a lower one. The lower barrel is screwed by its top to the upper barrel, (which is the shortest of the two,) and from the side of which a crooked pipe proceeds. A cover is screwed over the top of the upper barrel, with a stuffing-box in the middle of it, which is a box containing cotton or other light substances, through which a piston-rod passes. The piston attached to the bottom part of the rod has two valves, similar to those of the sucking-pump's piston-valve; and at the bottom of the barrel are two valves similar to the flanch valves in the sucking-pump. When the piston descends, the lower valves prevent the water from going out of the barrel; and the piston-valves open to let the water press through them. When the piston returns, the valves in it shut, and it raises the water through the crooked pipe; the stuffing-box preventing its getting out at the top of the barrel; and at the same time by making a vacuum beneath it, filling the barrel through the valves in the same manner as the sucking-pump. The piston then descends, the lower valves shut, and the piston-valves open as before.

In all the pumps we have described, there is a hole at the bottom of the barrel, to get at the valves to repair them; and when the pump is at work, a cover is screwed over this hole. Pumps made upon the above construction, are seldom less than one, or two, feet in the bore of the barrel. The common sucking-pump, may, by a small addition, be converted into a lifting-pump, fitted for propelling the water to any distance, and with any degree of velocity.

The chain-pump consists of two square or cylindrical barrels, through which a chain passes, having a great number of flat pistons, or valves, fixed upon it at proper distances. This chain passes round a kind of wheel-work, fixed at one end of the machine. The teeth of this are so contrived as to receive one-half of the flat pistons which go free of the sides of the barrel by near a quarter of an inch, and let them fold in, and they take hold of the links as they rise. A whole row of the pistons, which go free of the sides of the barrel by near a quarter of an inch, are always lifting when the pump is at work; and as this machine is generally worked with briskness, they bring up a full bore of water in the pump. It is wrought either by one or two handles, according to the labour required.

The many fatal accidents which happen to ships from the choaking of their pumps, makes it an important object in naval affairs, to find some machine for freeing ships from water, not liable to so dangerous a defect. The chain-pump being found least exceptionable in this respect, was adopted in the British navy; but the chain-pump itself is not free from imperfections. If the valves

are not well fitted to the cylinder through which they move, much water will fall back; if they are well fitted, the friction of many valves must be considerable, besides the friction of the chain round the sprocket-wheels, and that of the wheels themselves. To which may be added, the great wear of leathers, and the disadvantage which attends the surging and breaking of the chain. The preference, therefore, which has been given to chain-pumps over those which work by the pressure of the atmosphere, must have arisen from one circumstance, that they have been found less liable to choke.

In point of friction, of coolness, and of cheapness, the sucking-pump has so evidently the advantage over the chain-pump, that it will not fail to gain the preference, whenever it shall be no longer liable to be choked with gravel and with chips.

Buchanan's pump, which, like the common pump, acts by the pressure of the atmosphere, is not liable to the defects incident to other pumps upon that principle, being essentially different from any now in use.

The principal object of its invention was to remove the imperfection of its choking. In attaining this important end, a variety of collateral advantages have also been produced, which enhance its utility.

The points in which it differs essentially from the common pump, and by which it excels, are, that it discharges the water below the piston, and has its valves lying near each other.

The advantages of this arrangement are, that the sand or other matter which may be in the water, is discharged without injuring the barrel or the piston-leathers; by that means avoiding unnecessary wear and tear.

But this pump is not confined to nautical uses alone; its adaption extends to the raising of water in all situations, and with peculiar advantage where it happens to be mixed with sand or substances which destroy other pumps, as, for instance, in alum-works, in mines, in quarries, or in the clearing of foundations; and in its double capacity it will be very convenient in gardens, bleaching-grounds, in stable and farm-yards, and in all manufactories, or other places, where there is a necessity for raising water, and the risk of fire.

With all these advantages, it is a simple and durable pump, and may be made either of metal or wood at a moderate expense.

Such then being the pumps in general use, and all the others only varieties of these, sufficient may have been said on the subject for a merely elementary work; and with the exception of a short account of one of them, viz. the celebrated Mr. Bolton's apparatus for raising water, we shall refer the enquirer after more minute and scientific information to books specifically dedicated to the consideration of hydraulic experiments. The principle of action in Mr. Bolton's apparatus for raising water, may be illustrated in the following manner:

A horizontal pipe is formed of iron or any other substance sufficiently strong, expanding at one end like the mouth of a trumpet, and at the other furnished with a valve that may be opened or shut at pleasure: near this smaller extremity is let in a vertical pipe, at right angles to the horizontal one, furnished at the juncture with a valve opening upwards, and open at the other end. This machine is let down into a stream of water, so deep as to cover the horizontal pipe, the trumpet-like mouth of which is placed so as to meet the current: in this situation, the valve being open, a current passes through the pipe, of equal velocity with the current of the stream; if the valve is then suddenly closed, the recoil of the current will force open the valve of the vertical pipe, through which will rush a column of water: the force of the recoil soon subsiding, the vertical column will press on the valve at its bottom, and cause it to close the end of the vertical pipe, in which the ascending column of water will be detained.

The horizontal valve being then opened, the current will recommence through the horizontal pipe, and upon closing the valve a recoil will happen as before, and an additional quantity of water will rise in the vertical pipe: by a repetition of the above process, the water rising through the pipe will overflow into any vessel placed to receive the water, forming a perpetual pump. The contrivances by which this instrument is made to draw water, from a depth below that of the impelling current, and to raise it to any height, will be mentioned hereafter. The uses to which this engine may be applied, are various: besides the raising of water for the use of brewers, &c. it may be employed in raising water from the sea for salt-works, in draining marshes and pumping ships, and supplying with water those canals that are carried over, or by the side of rivers.

For the more clear description of this invention, it is proper to state its physical principle of action, as follows:

First, when water moves or runs through a pipe, or close channel, or tube, if the end at which the water issues is suddenly stopped, the water will (by its acquired motion, momentum or impetus) act upon the sides or circumference of the pipe; which being supposed strong enough to resist that impetus, the water will issue, with violence or velocity, at any aperture which may exist in or near the shut-end of the pipe; and if to that aperture an ascending pipe is joined, a portion of water will rise in it.

Secondly, if a pipe open at both ends, with an ascending pipe, such as has been described, is moved along, through standing water, in the direction of its length; upon

shutting the hinder part of the pipe, a portion of the water will rise in the ascending-pipe, in the manner which has been stated in the former case, because the water is relatively in motion in respect to the pipe.

Thirdly, if in either of the cases recited, a pipe communicating with water at any lower level is joined to the main pipe, at or near the end at which water enters into it; and if, when such water has acquired motion relatively to that pipe, by the pipe being put in motion, the mouth or end at which the water enters is suddenly shut; the water, continuing its motion relatively to the pipe, will draw or suck up water from the lower level, through the ascending pipe, in order to fill up the vacuity occasioned by the water in the main pipes, persevering in its previous motion. What has been said respecting water, is also true in respect to other fluids.

The apparatus continues its own action when once set going, unless some accident should stop, or derange, it; and is capable of raising water in great quantities, and to great heights; and they also differ in other respects from any thing which has been executed hitherto.

The nature of the said improved invention consists in using valves, of various constructions, instead of cocks to open, or shut, the end or ends of a main pipe: and in the application of mechanism, or contrivances to assist in opening, and shutting, the valves at proper times; whereby water is raised independently of any other power than a current water through the main pipe.

PUNCH, a pointed instrument, or species of stabbing awl, which, driven with a smart blow, perforates bodies. The punch is principally used in giving vent to casks, &c. containing liquids.

PUNCHEON, a little block or piece of steel, on one end whereof is some figure, letter, or mark, engraved either in creux, or relievo, impressions of which are taken on metal, or some other matter, by striking it with a hammer on the end not engraved. There are various kinds of these puncheons used in the mechanical arts; such for instance are those of goldsmiths, cutlers, pewterers, &c. *See also* COINING.

PUNCHEON, in carpentry, is a piece of timber placed upright between two posts, whose bearing is too great, serving, together with them, to sustain some large weights. This term is also used for a piece of timber raised upright, under the ridge of a building, wherein the little forces, &c. are jointed.

Puncheon is also used for the arbor, or principal part of a machine, whereon it turns vertically, as that of a crane, &c.

PUNCHEON, a measure for liquids, containing a hogshead and one third, or eighty-four gallons.

PURCHASE, in the sea-language, is the same as draw in: thus, when they say, "the capstan purchases apace," they mean it draws in the cable apace.

PURCHASE and SALE. *See* SALE.

PURL, (Ger. *Kantiljen*. Du. *Kantiljos*. Da. and Sw. *Cantiller*. Fr. *Canetilles*. It. *Canutiglie*. Sp. *Canutillos*. Port. *Canutilhos*,) is small bits of gold or silver wire, whether real or fictitious, turned or twisted upon a long iron-needle, by means of a spinning-wheel, in such a manner that the wire takes the form of an extremely compact and thin gun-worm. Purl is employed by embroiderers in the decoration of ladies' garments, clerical vestments, liveries of gentlemen's servants, &c. &c.

It is also used for a bitter malt liquor resembling porter, much drank in London by porters and coal-heavers, under a notion of its being more invigorating than other sorts of beer.

PURLINS, in building, those pieces of timber that lie across the rafters on the inside, to keep them from sinking in the middle of their length.

PURPLE, a colour composed of a mixture of red, and blue. A beautiful transparent purple for painting may be made by boiling four ounces of Brazil wood in a pint of stale beer, and half an ounce of logwood, till the liquor is heightened to the colour you desire, which may be ascertained by dipping a piece of paper in it. If you find it too red, add a quarter of an ounce more of logwood, which will increase its purple colour, and by this method you may bring it to any degree of purple, by putting either more, or less, logwood to the former composition, and fixing it with alum. This will produce such a clear purple as no mixture of reds and blues will produce. Madame Mariana of Amsterdam, famous for painting in miniature, and for her excellent manner of illuminating prints, says, that the best purple that can be made, may be composed between the carmine and indigo; to strengthen which on the red side, you may add lake between the lighter and darker part: and lake, when it is used in the same way on the foregoing purple, produces a very fine effect. *See* DYEING.

PURSER, an officer on board king's ships, East Indiamen, &c. who is entrusted and charged with the provisions, beer, water, casks, &c. of the ship, and all the stores thereto belonging. He is to see the provisions received on board, and stowed carefully, the men served their daily allowance, and the oldest provisions expended first; and is accountable to the government for any part of the provisions, or stores, that shall be lost through his neglect or ill conduct. He is to provide the ship with coals, wood, turnery-ware, candles, lanthorns, &c. He likewise is charged with the clothes and effects of persons who die on board; and he sells the same at the mast-head to the rest of the crew, and is obliged to give a satis-

factory account of the same to the executors. He is to keep a regular muster-book for the slop-clothes, sea-victualling, short allowance, &c. the men have been supplied with. He may sell tobacco to the seamen, not exceeding two pounds per month to a man, at the rate settled by the navy-board. He is to keep a sick-book for those sent out of the ship; and is to pass his account within six months after the ship is paid off, at farthest, &c.

PUTCHOCK, Costus Indicus. *See* COSTUS.

PUTLOGS, or Putlocks, in building, are short pieces of timber about seven feet long, used in building scaffolds. They lie at right angles to the wall, with one of their ends resting upon it, and the other upon the poles which lie parallel to the side of the wall of the building.

PUTTY. When tin is melted in an open vessel, its surface soon becomes covered with a grey powder, which is an oxide of the metal. If the heat be continued, the colour of the powder gradually changes, and at last becomes yellow. In this state, it is known by the name of putty, and employed in polishing glass and other hard substances.

Putty is also a kind of paste compounded of whiting and linseed oil, worked together to the consistence of a thick dough. It is used by glaziers for fastening in the squares of glass in sash-windows, and by painters for stopping up the crevices and clefts in timber and wainscots, &c. This, when gotten too hard, as in old glass frames, may be softened by exposure to heat, and thus the old glass may be easily and safely taken out.

PUZZULANA, or Puzzolana. *See* POZZOLANA and STUCCO.

PYRITES, a genus of inflammable substances, composed of sulphur, which has dissolved, or saturated itself with, metals. Thus there are many kinds of pyrites; as of gold, arsenic, iron, &c. It is also the principal ore of sulphur; particularly that called arsenical pyrites, copperas-stone, or marcasite. This is very common, containing a quantity of sulphur in proportion to the iron; and, when thoroughly inflamed, burns by itself. It is either of a compact texture, steel-grained, coarse-grained, or crystallized. In this last form, it shoots mostly into cube and octahedral figures, though it is met with also in innumerable other forms. The liver-coloured marcasite has an appearance between that of the preceding, and the blue copper ore. The iron predominates in this kind, so that it is less fit than the other for extracting sulphur for it, or for the smelting of copper ores. It is formed of a compact texture, coarse-grained, and steel-grained.

PYROMETER is a machine for measuring the alteration in the dimension of metals, and other solid bodies, arising from heat. By means of this instrument, it has been discovered, that the expansion of bars of different metals, of equal dimensions, placed in the same degree of heat, are nearly as follow: Gold, 75; silver, 103; brass, 95; copper, 89; iron, 60; steel, 56; lead, 149.

The results to be ascertained by this machine have been considered of so much importance by philosophers, that the construction, and application, of it has attracted the attention of a very considerable number of them. For further information on the subject, however, a minute discussion of it not coming within our immediate purpose here, we must refer the reader to the Phil. Trans. vol. xlviii. p. 419 and 546.

PYROPS, a mineral found in Bohemia, which was formerly distinguished by the name of Bohemian garnet. It is never found crystallized, but only in round, or angular, fragments, usually small. Colour deep red, which passes to orange, when the mineral is exposed to the sun.

PYROPHORUS. By this name is denoted an artificial product, which takes fire or becomes ignited on exposure to the air. Hence, in the German language, it has obtained the name of *luft-zunder*, or air-tinder. It is prepared from alum by calcination, with the addition of various inflammable substances. Homberg was the first that obtained it, which he did accidentally in the year 1680, from a mixture of human excrement and alum, upon which he was operating by fire, endeavouring to extract, by distillation, from human excrement, an oil, that should transmute mercury into silver; in this attempt, however, he was disappointed, as might be expected.

The preparation is managed in the following manner: Three parts of alum are mixed with from two, to three, parts of honey, or sugar; and this mixture is dried over the fire in a glazed bowl, or an iron pan, diligently stirring it all the while with an iron spatula. At first this mixture melts, but by degrees it becomes thicker, swells up, and at last runs into small dry lumps. These are triturated to powder, and once more roasted over the fire, till there is not the least moisture remaining in them, and the operator is well assured that it can liquify no more: the mass now looks like a blackish powder of charcoal. For the sake of avoiding the previous above-mentioned operation, from four, to five, parts of burned alum may be mixed directly with two of charcoal powdered. This powder is poured into a phial or matrass, with a neck about six inches long. The phial, which, however, must be filled three quarters full only, is then put into a crucible, the bottom of which is covered with sand, and so much sand is put round the former, that the upper part of its body also is covered with it to the height of an inch; upon this the crucible, with the phial, is put into the furnace, and surrounded with red-hot coals. The

fire, being now gradually increased till the phial becomes red-hot, is kept up for the space of about a quarter of an hour, or till a black smoke ceases to issue from the mouth of the phial, and instead of this, a sulphureous vapour exhales, which commonly takes fire. The fire is kept up till the blue sulphureous flame is no longer to be seen; upon this the calcination must be put an end to, and the phial closed for a short time with a stopper of clay or loam. But as soon as the vessel is become so cool as to be capable of being held in the hand, the phial is taken out of the sand, and the powder contained in it transferred as fast as possible from the phial into a dry and stout glass made warm, which must be secured with a glass stopper.

Very good pyrophorus may be made by simply mixing three parts of alum with one of wheat-flour, and calcining them in a common phial till the blue flame disappears. It is to be kept in the phial, well stopped with a good cork, when cold.

If this powder be exposed to the atmosphere, the sulphuret attracts moisture from the air, and generates sufficient heat to kindle the carbonaceous matter mingled with it.

PYROTECNICS, the art of making fire-works In this art the chief objects are to produce a stream of fire, or an explosion. Gunpowder, included in a strong paper implement, affords the latter effect; the fiery stream is produced by mixing the ingredients of gunpowder together in different proportions, and pulverizing them without wetting. These burn more slowly than grained gunpowder. A sky-rocket is formed by ramming this composition into a paper tube, to which an arrow or tail is connected. The explosive stream gives the rocket a progressive motion by its reaction. Rockets are sometimes used in war; but as they are most commonly exhibited for mere amusement, it is usual to include gunpowder in the head of the rocket with balls of a still more slowly burning compound, with additions to vary the colour they exhibit at the instant of the explosion, and for a few seconds afterward. *See title* FIRE.

Lights are also made for signals and station-marks, by means of rockets.

Q, the sixteenth letter of our alphabet. As a numeral, it stands for 500; and with a dash over it, thus $\overline{q}$, for 500,000. When used as an abbreviature, *q* signifies quantity, or *quantum*; thus among physicians, *q. pl.* is *quantum placet, i. e.* as much as you please of a thing; and *q. s. quantum sufficit. i. e.* as much as is necessary.

QUADRANT, in geometry, is either the quarter or fourth part of a circle, or the fourth part of its circumference; the arch of which, therefore, contains 90 degrees.

QUADRANT also denotes a mathematical instrument, of great use in astronomy and navigation, for taking the altitudes of the sun and stars, as also taking angles in surveying heights and distances, &c. This instrument is variously contrived, and furnished with different apparatus, according to the various uses it is intended for; but they have all this in common, that they consist of the quarter of a circle, whose limb or arch is divided into 90 degrees; and also have generally a plummet suspended from the centre, and are furnished with *sight-vanes* or *pinnules*, through which to look at distant objects. An enquiry into the antiquity and origin of these instruments in their first simple construction, as well as any historical account of their progressive improvements in early times, would be misplaced here. Suffice it, therefore, to say, that quadrants are, in the first place, as it were, *generally* divisible into two kinds, viz. *surveying*, and *astronomical*; and that they are further divisible *specifically* to an extent that it is incompatible with our limits to pursue. The first-mentioned *generic* division, *surveying* quadrants, we shall almost pass over, as properly belonging to a science foreign to commercial investigation, and shall only observe respecting *them*, that they are used in different situations and under different circumstances, according to the dimensions to be taken. To ascertain heights and depths, the plane must be disposed at right angles to the horizon; to take horizontal distances, must be disposed parallel to it. For further information on this division of the general subject, we must refer the enquirer to the articles ALTITUDE, and THEODOLITE, in books dedicated to the investigation of general science.

Astronomical quadrants, necessary for navigation, we must divide into two *specific* classes, viz. those which measure altitudes by *direct* vision, and those which determine measurements in all directions, vertical and horizontal, by *reflection*. The former are sufficient for astronomical observation, when the instrument can be kept steady in a fixed position, as on land; the latter are better suited to navigation, where the motion of

the vessel inevitably interferes with the steadiness of position of any instrument.

The simple astronomical quadrant then is usually made of brass, having its limb divided into degrees, minutes, and even sometimes into seconds; with plain *sights* fixed to one side of it; or instead thereof, a telescope, and an index moving about the centre. This apparatus is fixed on a pedestal, and by means of wheels, the periphery of one of which is cut into teeth, may be fixed to any point. By this contrivance, celestial phenomena are observable.

Towards the close of the 16th century, the first great improvement in these instruments was suggested by a Captain Davis, which obtained, by way of commerce, the appellation of the *English* quadrant, or *back-staff*. This instrument dispensed with the plumb-line, and was therefore better adapted to nautical purposes. This was soon improved upon by other persons, whose names are recorded in the annals of astronomical science, Elton, Gunter, and others.

Mural quadrants seem to have been the next great improvement, and were brought into reputation in the reign of our George I. by Graham, one being erected at Greenwich, by the direction of the king, for the use of the celebrated astronomer Halley.

Portable quadrants are a distinguished amelioration of the former invention; and this we owe to Ramsden, of very modern times.

We have gone rapidly through our notice of those varieties of the instrument under consideration, in order to conclude with a somewhat more distinct recognition of that particular one, which is more immediately within our sphere of remark.

Reflecting quadrant. This instrument, which it is almost superfluous, after giving its appellation, to say, is for the purpose of measuring altitudes and distances by *reflection*, has been assigned, in its different stages of improvement, to Sir Isaac Newton, to Dr. Halley, and to Mr. Hadley, some time president of the Royal Society. These claims it is not our purpose to adjust; certain, however, it is, that Hadley's quadrant or sextant, or octant, as it should now, according to its present construction, be called, is that most generally in use. It consists of an arch, which is the eighth part of a circle or index, a speculum, and two horizontal glasses, two skreens, and two sight-vanes.

The speculum is a piece of flat glass quicksilvered on one side, and set in a brass box, with the surface of the speculum perpendicular to the plane of the instrument, against whose centre stands the middle of the glass, its surface coinciding with the middle line of the index. The speculum receives the rays from the object to be observed, and reflects them on the horizon glasses, which are small pieces of mirror turned obliquely to the speculum, and placed on one of the radii. The glass nearest to the centre has only its lower part quicksilvered, and set in brass; the upper part being left transparent, to see the horizon through it. In the middle of the other, or more distantly removed from the centre glass, is left a transparent slip, through which the horizon is to be seen.

The skreens are two pieces of coloured glass set in frames, and are designed to prevent the rays of the sun from injuring the eyes of the observer, and are to be placed in different positions, according to the use to be made of the instrument, impracticable to be made intelligible but by actual inspection of the instrument itself. If the different parts, of which this complicated reflecting machine is composed, be perfect, and they be properly adjusted at the time of using them, both *fore*, and *back*, observations may be made with accuracy, and with reciprocal conformation; insomuch, that notwithstanding the continual motion of a ship in a rough sea, all sorts of angles may be measured, to enable the mariner to ascertain his latitude, time, and longitude.

QUADRUPLE particularly denotes a gold coin, as the quadruple of the Spanish pistole is a piece of four pistoles, worth about 3*l.* 12*s.* sterling, called also *double doubloon*.

QUAKERS. By stat. 7 & 8 Will. 3. c. 27., and 8 Geo. 1. c. 6. quakers making and subscribing the declaration of fidelity mentioned in 1 Will. and Mar. shall not be liable to the penalty against others refusing to take such oaths: and not subscribing the declaration of fidelity, &c. they are disabled to vote at the election of members of parliament.

By 7 and 8 Will. 3. c. 34., made perpetual by 1 Geo. 1. c. 6. quakers, where an oath is required, are permitted to make a solemn affirmation or declaration of the truth of any fact; but they are not capable of being witnesses in any criminal cause, serving on juries, or bearing any office or place of profit under government, unless they are sworn like protestants, &c.; but this clause does not extend to the freedom of a corporation. 1 *Lord Raym.* 337.

By stat. 22 Geo. 2. c. 46. an affirmation shall be allowed in all cases (except criminal) where, by an act of parliament, an oath is required, though no provision is therein made for admitting a quaker to make his affirmation. Convicted of a wilful, false, and corrupt affirmation or declaration, quakers are to suffer as for wilful and corrupt perjury. 7 & 8 Will. 3. c. 34. s. 3.

QUANTUM VALEBANT, is where goods and wares sold are delivered by a tradesman at no certain price, or to be paid for according to the general estimation of the articles; then *quantum valebant* lies, and the plaintiff is to aver them to be worth so much. The same rule is applicable where the law obliges one to furnish another

with goods or provision, as an innkeeper his guests, &c.

QUARANTINE, is the space of forty days, wherein any person, coming from abroad infected, or supposed to be infected, with the plague, is not permitted to land, or come on shore, until so many days are expired.

The prevalence of many infectious disorders, of late years, in foreign countries, and the consequent increase of the danger of their importation in articles of merchandise, have drawn the attention of the legislature to means of prevention. To this end it appeared necessary to establish a more extensive system of quarantine; and accordingly, new regulations, more connected, extensive, and more effectual, are instituted by 45 Geo 3. c. 10. and 46 Geo. 3. c. 98. 51 Geo. 3. c. 46.

These statutes, as well as some further regulations by orders in council authorized by them to be made, we give in a less abridged state than our limits usually admit with respect to statutes, 1st, on account of their universal applicability to all persons concerned in foreign commerce; 2dly, on account of the extreme severity of the penalties; 3dly, on account of many of those penalties being personal, even to the forfeiture of life, not merely pecuniary. The 45 Geo. 3. empowers the lords of the treasury to erect a lazaret upon Chetney Hill, in Kent; and repeals all former acts respecting quarantine. It enacts, that from the 5th of April, 1805, the owners of ships which shall have performed quarantine, shall pay certain duties of customs. (*See App.*) But the treasury may order the duties to be reduced, and afterwards raised again.

No vessel, upon which the quarantine duty is imposed, shall be cleared inwards, in any port of Great Britain, the islands of Guernsey, Jersey, Alderney, Sark, or Man, unless it be first paid; and the tonnage is to be ascertained according to the register under 26 Geo. 3. c. 60.

The owners of vessels, who have paid the quarantine duties, may demand from importers a proportion of those duties.

The duties are to be paid into the exchequer.

Any goods or ships that shall be specified by the orders of his majesty, his heirs, or successors, in council, as arriving from any place whatever under suspicious circumstances of infection, shall be subject and liable to such regulations and restrictions as may be directed respecting the same in the orders of council; as also any ships, vessels, and boats, which may have received any person, merchandise, article, &c. from on board of them; and

The privy council, on emergencies, can make such regulations as may to them appear requisite. 1 to 12.

If the plague, or other infectious distemper, shall appear on board any vessel *within* the Straits of Gibraltar, the master shall immediately proceed to the lazaret there: but, if such plague or other infectious distemper, shall appear on board any vessel *without* the Straits of Gibraltar, then the master shall proceed to the same, for the due performance of quarantine, or to the harbour of Saint Helen's Pool, between the islands of Saint Helen's Tean and North Withel, being two of the islands of Scilly, or such other place as his majesty, in council, shall from time to time direct; where, being arrived, he shall immediately acquaint the principal magistrate thereof, and also some custom-house officer of some port of England near thereunto; who shall, with all possible speed, send intelligence thereof to the commissioners of the customs at London; and the said principal magistrate shall, in like manner, with all possible speed, send intelligence thereof to one of the secretaries of state, and the said vessel shall there remain until his majesty's pleasure be known; nor shall any of the crew or passengers thereof go on shore. But, if the said master or commander shall not be able to make the said island of Scilly, or other place so appointed by his majesty as aforesaid, or shall be forced to go up either of the channels, it shall not be lawful for him to enter into any port, but he shall remain in some open road, till he receive directions by some order of the privy-council, and he shall use every necessary means in his power, to prevent any of his ship's company or passengers from going out of his ship, and to avoid all intercourse with other vessels, or persons, until such master or commander shall have received such directions; and the said master, or any other person on board, who shall be disobedient herein, shall be adjudged guilty of felony, and suffer death. 13.

The commander of any vessel, liable to perform quarantine, shall, from 5th April, 1805, at all times when such vessel shall meet with any other vessel at sea, or shall be within four leagues of the coast of Great Britain or Ireland, or of Guernsey, Jersey, Alderney, Sark, or Man, hoist a signal to denote that his vessel is liable to quarantine: which signal shall be, in the day-time, (if such vessel shall have a clean bill of health) a large yellow flag of six breadths of bunting at the main topmast head; and (if such vessel shall not have a clean bill of health) then a like yellow flag, with a circular mark or ball entirely black thereon, whose diameter shall be equal to two breadths of bunting; and, in the night-time, the signal shall, in both cases, be a large signal lantern, such as is commonly used on board king's ships, with a light at the same mast-head; and such commander shall keep such signals, respectively, hoisted during such time as the vessel shall continue within sight of such other vessel, or within four leagues of the said coasts or islands, and while so in sight, or within such distance, until such vessel

shall have arrived at the place where it is to perform quarantine, and until it shall have been legally discharged therefrom, on failure whereof, such commander shall forfeit for every such offence 200*l.* See sect. 2. of 46 Geo. 3.

And if the commander of any vessel, not liable to perform quarantine, shall hoist such yellow flag, whereby other ships may be put to the inconvenience of changing their course, such commander shall forfeit 200*l.* 14, 15.

The commander, master, &c. of any ship arriving from foreign parts, shall give to the pilot, who shall go on board, a true account of the place and places where such ship shall have loaded, and touched in the course of the voyage; and shall forfeit 200*l.* in case of misrepresentation. And if, after such vessel shall have sailed, any places where she have touched have been made liable to the performance of quarantine, then the pilot, under the penalty of 50*l.* shall give notice thereof to the commander, who shall thereupon act accordingly; and

In case any pilot shall conduct any vessel, liable to perform quarantine, into any place, which is not specially appointed for the reception of such vessels, (unless compelled by stress of weather, adverse winds, or accidents of the seas,) such pilot shall, for every such offence, forfeit 100*l.* 16, 17.

When any place shall be infected with the plague, or other infectious disease, or when any order shall be made by his Majesty in council concerning quarantine, and the prevention of infection as aforesaid, then, as often as any vessel shall attempt to enter into any place in Great Britain, Guernsey, Jersey, Alderney, Sark, or Man, (whether appointed for the performance of quarantine or not,) the principal officer of customs in such place, or such person as shall be properly authorised, shall go off to such vessel, and such officer or other person shall, at a convenient distance from such vessel, demand of the commander thereof, a true answer in writing or otherwise, upon oath or not, according as he shall, by such officer, or other person, be required, to all such questions as shall be put to him; and, if such commander shall thereupon refuse to make a true discovery in any of the particulars concerning which he shall be interrogated, he shall for every such offence, forfeit 200*l.* 18.

If it should appear that such vessel is liable to perform quarantine, and that the port where it so arrives is not the port where it ought to perform quarantine, all officers of his majesty's ships of war, forts, or garrisons, and others whom it may concern, upon notice thereof, and any other persons whom they shall call to their aid, shall oblige such vessel to repair to such places as shall be appointed for performance of quarantine. And in case any such vessel shall come from any place visited with the plague, or other infectious disease, or shall have any person on board actually infected, and the commander shall conceal the same, he shall be adjudged guilty of felony, and suffer death. 19.

Every commander of any vessel ordered to perform quarantine, shall forthwith deliver to the superintendent, or other person appointed to see quarantine performed, such bill of health and manifest as he shall have received during his voyage, together with his log-book and journal, under pain of forfeiting 100*l.* if he shall wilfully refuse and neglect. 20.

If the commander of any vessel, liable to perform quarantine, having notice that such vessel is so liable, shall himself quit, or shall knowingly suffer any seamen or passengers to quit such vessel by going on shore, or by going on board any other vessel or boat, before such quarantine shall be fully performed, (unless in such cases, and by such proper licence as shall be directed concerning quarantine, and the prevention of infection, as aforesaid,) or if the commander of such vessel shall not, within a convenient time after due notice given for that purpose, cause such vessel and her lading to be conveyed into the places appointed to perform the quarantine in, then such commander, for every such offence, shall forfeit five hundred pounds. And, if any person shall so quit such vessel, contrary to the true meaning of this act, it shall be lawful for all persons whatsoever, by any kind of necessary force, to compel such person to return on board; and every such person so quitting such vessel shall, for every such offence, be imprisoned for six months, and shall also forfeit 200l. 21.

When any vessel, which has performed quarantine in a foreign lazaret, shall arrive in Great Britain, Guernsey, Jersey, Alderney, Sark, or Man, with a clean bill of health, no goods, or merchandise, liable to retain the infection of the plague, or other infectious disease, shall be unshipped or moved in order to be landed; but the commander of such vessel shall, immediately upon arrival, give notice thereof, and of the contents of his manifests as aforesaid, and of the foreign port in which such vessel hath performed quarantine, to the principal officer of the customs at the port of arrival, or at the port nearest thereto; and, if the commander, or any person whatsoever, shall land, unship, unload, or move in order to land, any goods, or merchandise, out of the said vessel, before an order of privy council shall be made, giving directions therein, or otherwise than shall be directed in the said order, every such person shall, for every offence, forfeit 200*l.*; and

All persons liable to perform quarantine, shall be subject, during the said quarantine, to such orders as they shall receive from the proper officers, according to such directions as shall be made by order of council; and, if

any person, so obliged to perform quarantine, or any person having had intercourse with them, shall neglect to repair within convenient time, after notice, to the said lazaret, or other place appointed, or shall escape, or attempt to escape, out of the same before quarantine duly performed, the watchmen, and other persons appointed to see quarantine performed, shall compel every such person to return; and every person so neglecting to repair into the said lazaret, or other place, and also every person actually escaping as aforesaid, shall be adjudged guilty of felony, and suffer death; and

Persons quitting any ship, or place, liable to perform quarantine, shall be open to seizure by any constable, &c. and to be conveyed, by the warrant of any justice of the peace, to the place appointed for the performance of it. 22, 23, 24.

25. Contains an indemnity for orders in council to send afloat, for the performance of quarantine, any person who has had intercourse with a suspected vessel.

Officers of customs, and others, to whom it appertains to execute orders concerning quarantine, or the prevention of infection, guilty of any wilful breach or neglect of duty, shall forfeit such office or employment, and become thenceforth incapable to hold the same; and moreover 100*l.*; and, deserting duty when employed, or permitting persons, ship, vessel, goods, or merchandise, to depart, or be conveyed out of the lazaret, &c. unless by order of council; or, being authorised to give a certificate of a ship having duly performed quarantine, knowingly giving false certificate thereof; shall be deemed guilty of felony, and suffer death; and, knowingly and wilfully damaging goods performing quarantine, be liable to pay treble damages, and full costs of suit, to the owner thereof. 26.

If any person, not infected with the plague, or other infectious disease, nor liable to perform quarantine, shall enter the said lazaret, or other place so appointed, whilst any person being under quarantine shall be therein, and shall return, or attempt to return thence (unless by license), the watchmen, &c. shall compel such person to repair into the said lazaret, there to perform quarantine; and, in case such person shall actually escape out of the said lazaret, or other place where he shall be so placed to perform quarantine, he shall be adjudged guilty of felony, and suffer death. 27.

After quarantine shall have been duly performed by any vessel or persons; and, upon proof made by the oaths of the commander of such vessel, and of two persons belonging thereto, or upon proof by the oath of two or more credible witnesses, before the collector, or principal officer, of the customs, or any justice of the peace living near the place, or (when within Guernsey, Jersey, Alderney, Sark, or Man,) before any two jurats, or magistrates, of the said isles, that such vessel, and every such person have duly performed quarantine as aforesaid, and that the same are free from infection; and, after producing a certificate to that purpose from the chief officer who superintends the quarantine, then such collector, or principal officer, or justice of the peace, or jurats, or magistrates, are to give a certificate thereof; and thereupon such vessel, and persons so having performed quarantine, shall be liable to no farther restraint. 28.

All goods, &c. liable to quarantine, shall be opened and aired in such manner, as shall be directed by order in council; and, after such orders shall have been complied with, a certificate thereof shall be given by the chief officer appointed to superintend such quarantine, and proof thereof shall be made by the oaths of two or more credible witnesses, before the authorities last mentioned, as the case may require; and, upon the production of certificates thereof to the commissioners of customs, &c. such goods, &c. shall be forthwith discharged from any restraint or detention upon the same account; (*but see next Stat.*) and persons forging certificates &c. shall suffer death. 29, 30.

Concealing from the officers of quarantine, or clandestinely conveying letters, &c. from any ship performing, or liable to perform quarantine, or from the lazaret, felony, *sans* clergy; and unloading goods, &c. from a vessel liable to perform quarantine, and receiving such articles, a forfeiture of pounds sterling, not exceeding five (nor less than one) hundred. 31.

If it happen, that any part of Great Britain, Ireland, Guernsey, Jersey, Alderney, Sark, or Man, or France, Spain, Portugal, or the Low Countries, be infected with the plague, or any other infectious disease, his majesty, by proclamation, may prohibit all small boats and vessels, under twenty tons burthen, from sailing out of Great Britain, Guernsey, Jersey, Alderney, Sark, and Man, until security be first given by the master thereof, in the penalty of 300*l.* that such boat or vessel shall not go to, or touch at, any place mentioned in such proclamation; nor the master thereof, nor any mariner or passenger therein, shall, during such time, go on board any other ship or vessel at sea; nor shall such master suffer any person to come on board at sea from any other ship or vessel, nor shall, during the time aforesaid, receive any goods or merchandise whatsoever, out of any other ship or vessel; and every boat or vessel, for which such security shall be required, sailing before such security shall be given, shall be forfeited to his majesty; and the master, and every mariner thereof, shall severally forfeit 20*l.*; and publication in the London Gazette of any order in council, to be sufficient notice to all concerned. 32.

The 46 Geo. 3. c. 98. makes the following additional provisions:

1. Any vessel, on board whereof the plague, or an infectious distemper shall actually be, is required, when meeting with another ship within four leagues of Great Britain, or the islands of Guernsey, Jersey, Alderney, Sark, or Man, to hoist a signal denoting its existence; in the day-time a yellow and black flag, of eight breadths of bunting at the main-mast-head; and in the night-time, two large signal lanterns (those commonly used) one over the other at the same mast-head; and such commander, master, &c. shall keep it hoisted until arrival at the port or place where the ship is to perform quarantine; under a penalty of 200*l.*

2. The commander shall deliver to the pilot coming on board, in addition to the particulars enacted by 45 Geo. 3. c. 10. a complete account of the cargo, on penalty of 200*l.* for neglect, refusal, misrepresentation, or omission thereof or therein; whereupon such pilot, under forfeit of 100*l.* shall communicate to the commander information of such of the articles as may be liable to quarantine. Such commander shall hoist a proper signal, and comply in every respect with the aforesaid recited act; and if, unless by stress of weather or other accidents, the pilot conduct the ship to the place not specially appointed for her reception, having omitted to require such account of the cargo, for each offence, 100*l.* shall be paid by him.

3. No vessel that has performed quarantine, having been solely rendered liable to it by communication, against the will of the master and crew, with a ship that was originally subject to perform it, shall be charged with the duties imposed upon the latter by the said recited act; provided such circumstance appear to the satisfaction of the commissioners of the customs.

5. So much of the recited act as relates to the certificate and proof of goods having been opened and aired, is repealed; and such proof shall be hereafter made from the oath of the master of the lazaret, and of the quarantine officers already mentioned in the aforesaid act, (or of two or more credible witnesses serving in the lazaret or vessel, before the superintendent of quarantine, or his assistant; after the administration of which oath, certificate shall be made by the officers of quarantine; on the production of which to the officers of customs, such articles, goods, &c. shall be liable to no further restraint, either at the port of quarantine, or any other place to which they may be conveyed.

6. His majesty's privy-council may order ships coming from America, or the West Indies, on apprehension of the yellow fever, &c. to come to anchor at certain places appointed from time to time by the commissioners of the customs, in order to ascertain whether or not the performance of quarantine be necessary; which shall not, however, take place unless specially ordered afterwards.

7. All persons, ships, boats, and vessels, may be prohibited, by order in council, to go within the limits of any station assigned to ships without clean bills of health, for the performance of quarantine: and every person, for such offence, shall forfeit 500*l.*

8. Forging, altering, or uttering, knowingly and wilfully, any certificate of quarantine, shall be adjudged felony, and punished with death, without benefit of clergy.

9. Consuls and vice-consuls can administer oaths respecting quarantine, in the several places and towns where they reside.

10. Persons authorised to take examinations may administer on oath; and those who swear falsely, or procure others so to do, shall be deemed guilty of wilful and corrupt perjury.

Proclamation, dated April 5, 1805, relative to the Performance of Quarantine.

I. All vessels (not having the plague or other infectious disease, of the nature of the plague, actually on board) coming from the Mediterranean, or from the West Barbary, on the Atlantic Ocean, with clean bills of health; and all ships, vessels, or boats, receiving any person or articles from on board, before the performance of quarantine, shall comply with the directions of this act (45th Geo. 3.), or the orders in council; and all persons on board of, or communicating with such vessel thus rendered liable to quarantine, shall forthwith repair to the lazaret appointed; under penalty of subjecting themselves to all the pains and punishments of death and otherwise, which the law may, in case of non-compliance, decree.

II. All such vessels coming from the Mediterranean, or from the West Barbary, on the Atlantic Ocean, as shall arrive with clean bills of health, and all persons, goods, wares, and merchandise, on board thereof, shall perform quarantine in the places hereinafter appointed, that is to say:—

All such vessels, so arriving as last aforesaid, as shall be bound to the ports of London, Rochester, or Feversham, or other creeks or places within the said ports, shall perform quarantine in Standgate Creek; if bound to the ports of Leigh, Malden, Colchester, Harwich, Ipswich, Woodbridge, Alborough, Southwold, Yarmouth, Blackney and Clay, Wells, Lynn, Wisbeach, Boston, Grimsby, Hull, Bridlington, Scarborough, Whitby, Stockton, Sunderland, Newcastle, Berwick, or other creeks or places within the said ports respectively, they shall perform quarantine in Whitebooth Road, between Hull and Grimsby; if bound to the ports of Carlisle and Chester, or to Liverpool, Lancaster, Whitehaven, Preston, Beaumaris, or to any other creeks or places within the said ports, or to the Isle of Man,

shall perform quarantine in a place called Hoylake, near Liverpool, at the west end of Hoylake, or in Milford Haven; if bound to the ports of Sandwich, Deal, Dover, Rye, Newhaven, Shoreham, Arundel, Chichester, Portsmouth, Southampton, Cowes, or any other creeks or places within the same ports respectively, shall perform quarantine at a place called the Mother-bank, near Portsmouth; if bound to the ports of Poole, Weymouth, Lyme, Exeter, Dartmouth, Plymouth, Looe, Fowey, Falmouth, Gweek, Penrhyn, Truro, Penzance, Scilly, or any other creeks or places within the said ports, shall perform quarantine in a place called St. Ives' Pool, within the mouth of the harbour of Falmouth; if bound to Bridgewater, Minehead, Bristol, Gloucester, Chepstow, Swansea, or any other creeks or places within the said ports, shall perform quarantine in Kingroad and Porshute Pill; if bound to St. Ives, Padstow, Biddeford, Barnstaple, Ilfracomb, Llanelly, Pembroke, Milford, Cardigan, Aberystwith, or any creeks or places within them, shall perform quarantine at Milford Haven; if bound to the islands of Jersey, Guernsey, Sark, or Alderney, or any part of them, shall perform quarantine, either (as aforesaid) at the Mother-Bank, near Portsmouth, or St. Ives' Pool, within the harbour of Falmouth; if bound to the eastern coast of Scotland, comprehending the ports of Leith, Borrowstonness, Alloa, Dunbar, Kirkaldy, Anstruther, Preston-Pans, Dundee, Perth, Montrose, and Aberdeen, or to any member, creek, or other parts thereof, shall perform quarantine in Inverkeithing Bay; if bound to the western ports of Scotland, comprehending the ports of Port Glasgow, Greenock, Irvine, Cambeltown, Oban, Rothsay, Fort William, Air, Port Patrick, Stanraer, and Wigtoun, or to any member, creek, or other part thereof, shall perform quarantine at Holy-Loch, in the Firth of Clyde; if bound to the northern ports of Scotland, comprehending the ports of Inverness, Zetland, Orkney, Stornaway, or to any member, creek, or other parts thereof, shall perform quarantine in Cromarty Bay, in the Murray Frith; if bound to the south-west parts of Scotland, comprehending the ports of Dumfries and Kircudbright, or to any member, creek, or other parts thereof, shall perform quarantine at Carsthorn, at the mouth of the river Nith; if bound to any place on the coasts of England or Scotland, not within any of the ports or limits before-mentioned or described, shall perform quarantine at such place hereinbefore appointed for performance of quarantine as shall be nearest to the port or place to which such vessels respectively shall be bound.

Ships taken as prize shall perform quarantine as if belonging to the port wherein they are carried: by order in council, June, 1806.

III. All goods, wares, and merchandise, imported in any such vessels, shall be opened and aired at the several places before respectively appointed, in the manner and for the time hereinafter directed.

IV. All such vessels, except any ship of war, transport, or other ship in the actual service of government, under a commissioned officer in the navy, not having the plague or other infectious disease of the nature of the plague actually on board, coming from the Mediterranean, or from the West Barbary, on the Atlantic Ocean, as shall not be furnished with clean bills of health, shall perform quarantine in Standgate Creek, and no where else; and, in case any vessels coming from any of the places before described, not being furnished with a clean bill of health, shall come into any of the out-ports of this kingdom, or to any of the islands aforesaid, the principal officers of the customs at such port, or in such islands, or the governor or chief magistrate thereof, shall cause such vessel to depart thence immediately, and proceed to Standgate Creek: and all his majesty's ships of war, as aforesaid, not furnished with clean bills, shall perform quarantine at the Mother Bank, in a separate and distinct place, marked out with yellow buoys: in the centre of which place, a floating lazaret, moored with chains, with a yellow flag, constantly flying at the mast-head, shall be constantly stationed; and all vessels or boats, receiving any person, or articles from on board such ships liable to quarantine, shall perform it in like manner, either at the Mother Bank or in Standgate Creek, respectively.

V. Vessels having on board any articles of the first class hereafter stated, (the produce or manufacture of Turkey, or any place in Africa within the Straits of Gibraltar, or in the West Barbary, on the Atlantic Ocean) and coming from any place in Europe without the Straits, or on the continent of America, where his majesty has declared no sufficient establishment of quarantine, together with all ships receiving any such articles from on board of them, shall perform quarantine in the manner directed to ships from or through the Mediterranean, or the West Barbary, on the Atlantic Ocean, with clean bills of health.

VI. If, either through ignorance, stress of weather, or other circumstance, a ship shall pass the port or place appointed for quarantine; on the commander, or master, or pilot, (if on board) of such vessel, making oath, that the omission was not intentional, to the satisfaction of the superintendent of quarantine, or his assistant, or the authorised officer of the customs, the ship may be permitted to proceed to any other appointed place, at the discretion of such officer of quarantine, keeping proper quarantine-signal hoisted during the whole time; and quarantine shall be performed at such substituted place as if the vessel had been thither bound.

VII. No ship or vessel liable to quarantine, unless from orders, weather, damage, loss, or accident, shall attempt to enter any port or place in Great Britain, or the islands aforesaid. The necessity shall be proved by the commander or master, to the satisfaction of the superintendent or other officer of quarantine, who will propose the quarantine questions hereinafter directed. On default of such satisfactory answers, or of compliance with the directions they may receive, such vessel shall be compelled to proceed to sea by the quarantine officers; who will, if necessary, call in the aid of other officers of any of his majesty's ships.

VIII. On any vessel attempting to enter any port or place appointed for the performance of quarantine, the officer of quarantine, or principal officer of customs, or four or more of them, authorised by commissioners, shall go off to such vessel, and keeping to windward at a convenient distance, make the following queries:

1st. What is the name of the ship, and the name of the commander or master?

2d. Are you the commander or master? Where does she belong?

3d. From whence do you come?

4th. To what place are you bound?

5th. At what ports have you touched since you left the port of your lading, on your homeward voyage?

6th. What ships have you had intercourse or communication with, on your passage, and from whence did they come?

7th. Did the plague, or any other infectious disease or distemper prevail, in any degree, at the place whence you sailed on your homeward voyage, or at any of the places at which you have touched? If at any, say at which, and when. Are any persons on board your ship suffering under any infectious disease, or have any persons died or been ill of a disease of that nature, in the homeward passage? And if any, what number? And if any have died or been ill of such disease, were their bedding and clothes destroyed?

(If the ship shall have sailed from any port in Europe without the Straits, or on the continent of America.)

8th. Have you on board any goods enumerated in this list?

(Handing up a list of articles enumerated in the first class.)

If you have, specify the same, and whether they are of the growth, produce, or manufacture of Turkey, or of any place in Africa within the Straits of Gibraltar, or in the West Barbary, on the Atlantic Ocean, or of what other place? Have you any declaration to prove of what place they are the growth, produce, or manufacture?

(If the ship comes from the Mediterranean, or from any other place respecting which there is any order in council in force concerning quarantine.)

9th. Have you any, and what bill of health?

10th. What number of officers, mariners, and passengers have you on board?

And such commander, master, or other person, having charge of such ship or vessel, shall, upon such demand, give a true answer to such questions in writing or otherwise, and upon oath, or not upon oath, according as he shall be required by such superintendent, or his assistant, or principal officer, or other officer of the customs, authorised as aforesaid, under such pains and penalties as are inflicted by the hereinbefore recited act.

And if it shall appear by the answer so given to the said questions that the said ship or vessel is liable to quarantine, the said commander, master, or other person having the charge or command thereof, shall be directed to repair, and shall repair, forthwith with such ship or vessel to the proper place appointed in that behalf for the performance of quarantine, and shall not be permitted to remain in, or enter into, any port or place, other than the port or place so appointed as aforesaid, unless compelled by stress of weather, damage, loss, or other injury, unavoidably occasioned to the ship or vessel by the perils of the seas; which stress of weather, damage, loss, or other injury, and that the said damage, loss, or other injury, was unavoidable, and not wilfully or intentionally done or occasioned, shall be made appear by the oath and examination of such commander or master, and of the pilot (if any) on board, to the satisfaction of the superintendent or his assistant, or of the principal or other officers of the customs, authorised as aforesaid, at the port or place in which he shall be so detained, or into which he shall be so compelled to enter as aforesaid; in default of which satisfactory proof, or when the cause of such ship or vessel so coming in as aforesaid shall no longer exist, such superintendent, assistant, principal or other officer of the customs, authorised as aforesaid, shall direct, and (if necessary) compel such ship or vessel to repair to the proper place appointed in that behalf for the performance of quarantine, and shall use all necessary means for that purpose, either by firing of guns upon such ship or vessel, or by any other kind of necessary force whatever.

IX. And it is hereby further ordered, that, on the arrival of any ship or vessel liable to quarantine, in any port or place hereby appointed for the performance of quarantine, the superintendent of quarantine, or his assistant, or in case of such superintendent and his assistant being otherwise necessarily engaged, the principal officer of his Majesty's customs at such port or place, or such officer of the customs as shall be duly authorised to act in that behalf, (together with the medical attendant, in such

cases as shall be thought to require his assistance,) shall go alongside such ship or vessel in a boat, (keeping to windward,) and shall see the officers, crew, and all other persons belonging to or being on board such ship or vessel, mustered on the gangway, and the superintendent of quarantine, or his assistant, or such principal or other officer of the customs, authorised as aforesaid, shall then and there, in the presence of the crew, put the following questions to the commander, master, or other person having charge of the ship or vessel:

1st. What is the name of the vessel, and the name of her commander or master?

2d. Are you the commander or master?

3d. To what port or place does she belong?

4th. When did you sail from the port or place whence you took on board your outward cargo, and at what places did you touch before you arrived at the port or place where you took in your present cargo?

5th. Did you carry any bill or bills of health with you to the port or place where you took in the cargo you have now on board? From what places? Were the said bills of health clean, unclean, or suspected?

6th. From what port or places does she now come? When did you sail from such port or place; and at what place or places have you touched in the course of the voyage?

7th. Have you any bill or bills of health on board? From what place or places? Are the same clean, unclean, or suspected? Produce them.

(If the ship shall have sailed from any port or place in Europe without the Straits, or on the continent of America.)

8th. Of what articles does your cargo consist? Have you on board any goods enumerated in this list?

(Handing up a list of articles enumerated in the first class.)

If you have, specify the same; and whether they are of the growth, produce, or manufacture of Turkey, or of any place in Africa, within the Straits of Gibraltar, or in the West Barbary, on the Atlantic Ocean, or of what other place. Have you any declaration to prove of what place they are the growth, produce, or manufacture?

9th. At what place or places was the cargo, or any part thereof, taken on board? On what day did you arrive at the place or places where you took in the whole, or any, and what part of the cargo? And on what day did you sail from such place or places; and what part of your cargo was taken in at ach place, and when?

10th. Did the plague, or any other infectious disease or distemper, prevail in any degree at the places whence you sailed, or any of the places at which your cargo was taken on board, or at which you touched? If at any, say at which, and when.

11th. What number of officers, mariners, passengers, or other persons have you on board? Describe the number of each.

12th. Do the said officers, mariners, passengers, and other persons consist of the same individuals as were on board at the port from which you sailed upon your homeward voyage? If any other persons have been taken on board, or if any of your officers, crew, or passengers, have quitted your ship since you sailed from such port, or before your arrival at this place, or if any other alterations in that respect have taken place, specify the same, the causes, and the time or times of such alterations.

13th. What number of persons (if any) have died on board during the voyage? When and in what part of the voyage did such person or persons die? Of what disease or distemper?

14th. In the course of your voyage have any persons on board suffered from sickness of any kind? What was the nature of such sickness? When did it prevail? How many persons were affected by it? Are there any convalescents on board? Or are all persons on board at present in good health?

15th. Were any of those who died, or who have been sick in the course of the voyage, affected, or suspected to have been affected by any infectious disease or distemper? Were the bedding and clothes of such deceased and sick persons destroyed? If so, when, and in what manner? Were any of the persons immediately employed about the sick, afterwards taken ill? If so, of what disease? and in how many days after having been so employed?

16th. At what precise time after leaving port did such deaths happen? In how many days after being indisposed did the sick die? What were the most obvious appearances of the disease?

17th. Have you spoken to, or otherwise had any communication with any vessel at sea during the voyage? What were the names of such vessels, and to what country, port, or place, did they belong? From what ports or places were they coming, or at what ports or places had they touched on their voyage, and to what country, ports, or places were they bound? What was the nature of the communication held? What do you know respecting the state of health on board such vessels?

18th. Have there been any letters, parcels, or other articles delivered out of, or received into your ship or vessel from any ship, vessel, or boat, met with on the voyage, or before or since your arrival at this place? And what were such letters, parcels, or articles? And where were the same delivered or received, and into or out of what ship, vessel, or boat?

19th. What pilots or other persons, from the shores of Great Britain, or from the islands of Scilly, Guernsey, Jersey, Alderney, Sark, or Man, have been or are now on board your ship or vessel, or have had any communication whatever with the ship's company, or any of the passengers, during the voyage homewards, or before or since your arrival at this place? If any such pilots or other persons have come on board, and have afterwards quitted your ship or vessel, specify the names of such persons, and the time, manner, and circumstances of their so quitting your ship or vessel.

20th. Did you leave any British ships or vessels at any of the ports you sailed from? if you did, mention their names, and the names of the commanders.

21st. Were such ships loading? Were they near their departure, and whither were they bound?

22d. Did you meet with any British ships or vessels at any of the places you touched at? If you did, say when, where, and what were the names and destinations of such ships or vessels, and to what ports or places did they belong.

23d. Do you know whether any foreign vessels, loading at the port from which you sailed, were bound beyond the Straits of Gibraltar? And if so, what were they, and whither were they bound?

24th. Do you know whether any person whatever, employed in loading your vessel, or in bringing any articles into it, on having any communication on board thereof, was taken ill during such employment or communication? Or whether, by the absence of such person or persons, in the course of such employment, any suspicion was entertained of their having been taken ill? If so, of what disease?

25th. Do you know whether or not your cargo, or any part thereof, had been long in warehouse before its being taken on board? If you do, say how long. Have you any knowledge of its being packed or handled on shore, or conveyed from shore, or stowed on board, by persons affected with the plague, or any other infectious disease or distemper?

26th. Did you touch at the Isle of Rhodes, the Morea, or any and what part of the coast of Africa, within or without the Mediterranean? And if so, at what time or times respectively? And had you any and what communication with the shore at those respective places? Did any person on board communicate during the voyage, in any manner whatever, with any ship or vessel coming from any of those places? if so, when, and in what manner? And what do you know of the state of health of the persons on board such ships or vessels?

X. And it is further ordered, that the answers to the aforesaid questions shall be taken down in writing; and that the commander, master, or other person, having the charge of such ship or vessel, shall solemnly make oath to the truth thereof before the superintendent of quarantine, or his assistant, or the principal or other officer of the customs, authorised as aforesaid, (as the case may be,) and such superintendent of quarantine, or his assistant, or such principal or other officer of the customs as aforesaid, (with the advice of the medical attendant, if such shall be judged necessary,) shall, according to the answers returned to the questions hereinbefore set forth, then appoint a proper place or station for such commander, master, or other person, having the charge of such ship or vessel, to repair to with such ship or vessel; who thereupon shall, as soon as possible after having answered the foregoing questions, repair with such ship or vessel to such place or station, where the said ship or vessel shall be forthwith placed, and shall there perform quarantine accordingly; the said commander, or master, or other person having the charge of such ship or vessel, carrying with him the log-book, manifest, and all the ship's papers, all of which he shall there deliver to the superintendent of quarantine, or his assistant, or to the principal or other officer of the customs, authorised as aforesaid, (as the case may be,) the said log-book, manifest, and papers, having been first immersed in vinegar, and fumigated; and such commander, master, or other person having the charge of such ship or vessel, shall there solemnly make oath to the truth of the contents of such log-book, to the best of his recollection and belief, or shall state and specify upon oath in what particulars alone the same, or any part thereof, is false and incorrect, and whether every particular entry therein was made as soon after the fact as possible; and if not, for what reason it was delayed, and when it was made; and also to the truth of all the other ship's papers, before such superintendent or his assistant, or the principal or other officers of the customs, authorised as aforesaid, and shall obey and conform to all such directions as he shall then receive, touching the performance of quarantine, from such superintendent or his assistant, or the principal or other officer of the customs, authorised as aforesaid.

XI. And it is hereby further ordered, that in the case of ships or vessels liable to quarantine arriving at any of the ports of Great Britain or islands aforesaid, if any suspicious circumstances shall appear in the answers returned to the said questions by the commander or master, or other person having charge of any such ship or vessel, or from any other circumstance, the proper officer of the customs at such port or island shall immediately transmit such answers, and give notice of the cause of such suspicion to the lords of his majesty's most honourable privy council, and the commissioners of his ma-

jesty's customs; and shall, without regard to the bill of health, whether clean or otherwise, order such ship or vessel to a station distant from all other ships or vessels in the same port or place, and put her under special guard, in order the more effectually to prevent all communication therewith.

XII. All vessels liable to quarantine as aforesaid, and being furnished with clean bills of health, as well as the crews and passengers on board the same, shall perform a quarantine of fifteen days in the manner heretofore practised, which shall commence from the time when such part of the cargo, if any, as is enumerated in the two classes hereinafter stated, shall have been delivered into the floating lazaret in Standgate Creek, or into the lazaret to be erected at Chetney Hill in case the vessel shall perform quarantine in Standgate Creek; or into lighters or other proper vessels appointed for that purpose, in case the vessel shall perform quarantine at any of the places hereinbefore appointed for the performance thereof, by ships bound to any of the out-ports or islands aforesaid: but, in cases where no part of the cargo shall consist of such goods as are last described, then such quarantine of fifteen days shall commence on the day on which the master, or other person having charge of such vessel, shall have returned on board the same.

XIII. As to all goods, wares, and merchandise coming from the Mediterranean, or from the West Barbary on the Atlantic Ocean, in vessels furnished with clean bills of health; all such goods, wares, and merchandise, (other than such as are enumerated in the first and second classes hereinafter stated,) shall be aired and treated on board the vessel in which they arrive, according to the manner heretofore practised respecting such goods imported in vessels furnished with clean bills of health, and shall continue to be so treated for one week; and all such goods, wares, and merchandise, as are enumerated in the said first and second classes hereinafter stated, coming in vessels with clean bills of health, shall be removed from the vessel to the place appointed for that purpose, and shall there be aired and treated in the manner heretofore practised with regard to such goods, wares, and merchandise, and shall continue to be so treated for fifteen days.

XIV. With respect to vessels not having the plague, or other infectious disease of the nature of the plague, actually on board, and which may arrive in any of the ports of this kingdom, or the islands aforesaid, coming from the Mediterranean, or from the West Barbary on the Atlantic Ocean, not being furnished with clean bills of health; every such vessel (having repaired to Standgate Creek as hereinbefore directed) shall perform quarantine either in the floating lazaret there, or in the land lazaret at Chetney Hill, and no where else, in the manner and for the time hereinafter mentioned.

XV. Immediately after the master or commander of every such vessel so arriving without a clean bill of health shall have undergone the several examinations hereinbefore directed, and shall have returned on board his vessel, two quarantine guardians shall be placed on board.

XVI. The crew or passengers on board of any such vessel under quarantine may be permitted to have communication with others by letters, under the following regulations and restrictions, viz:

In cases where such persons shall perform quarantine in the lazaret at Chetney Hill, an officer, appointed by the superintendent of quarantine, shall daily go to a proper place to be appointed for the receipt of letters from the person under quarantine; and in cases where such persons shall perform quarantine in the floating lazaret, or in a separate vessel, an office-boat, not under quarantine, with an officer appointed by the superintendent of quarantine, shall, in like manner, daily, at a fixed hour, go round the said floating lazaret or vessel, to receive such letters, the usual precaution of dipping such letters in vinegar, and putting them into the fumigating-box, being always first observed; and such letters shall remain in the fumigating-box till such time as the superintendent shall give directions for taking them out to be forwarded; and no person, except the said superintendent of quarantine, or his assistant, or one of the guardians on board the ship or vessel, shall be permitted to deliver such letters from such fumigating-box; and the said persons, so hereby authorised to deliver the same, shall take care, where several letters or papers are inclosed together, to slit open the covers in the manner practised in the lazarets of the Mediterranean.

And all letters *to* such persons so under quarantine shall be delivered to the superintendent or his assistant, and shall be distributed according to his directions; and no communication or conference shall be had by persons not under quarantine with persons so under quarantine, except by permission of the superintendent, or his assistant, and under such regulations and restrictions as shall be directed by the said superintendent; nor, in cases where such persons shall perform quarantine on board any ship or vessel, unless from the boat of the superintendent, or his assistant, one of whom shall always be present during such communication and conference; and such communication and conference shall be had at the distance observed by the superintendent, or his assistant, in their usual communication with ships and persons under quarantine.

XVII. And, for the purpose of preventing all clandestine communication between

the lazaret and hospital, or pest-house at Chetney-Hill, and between the floating lazaret and the hospital-ship, and vessels under quarantine, and between such vessels and the shore, a night-watch shall be regularly kept, and sufficient number of guard-boats and officers appointed; and such boats shall row guard all night, and sentinels, with loaded muskets, and with small pieces of ordnance, loaded with grape or cannister shot, shall be constantly stationed on the most commanding parts of the floating lazaret, at Standgate Creek or elsewhere, and of the lazaret at Chetney Hill; and no houses or other buildings shall be erected at or near the beach, other than those belonging to the said lazaret; and all boats belonging to any floating lazaret, when not on necessary duty, shall be always either on board the same, or fastened thereto by chains with strong padlocks, the keys of which shall be lodged in the custody of a person to be appointed for that purpose by the superintendent; and all the boats belonging to vessels in quarantine shall be taken from them, and no use made of such boats, except for the purpose of carrying goods to the lazaret, or upon occasions of necessity. And such boats shall not be delivered up to the masters of the vessels until the expiration of the quarantine to be respectively performed by them.

XVIII. The superintendent of quarantine, or some proper person appointed by him, shall, as often as required, afford assistance and provide necessaries for the persons in the lazaret at Chetney Hill, and the floating lazaret, or the hospital-ship, and also for those on board vessels under quarantine, taking care to allow of no improper communication with the persons employed for that purpose; which persons shall always place their boats to windward, and shall deliver, by means of buckets with chains, the articles supplied by them.

XIX. The quarantine guardians, placed on board vessels not furnished with clean bills of health, shall be instructed to take especial care that nothing whatever be delivered from on board such vessels, when under quarantine, without an order in writing from the superintendent or his assistant; every such order to be entered in a book by one of the said guardians, and the original to be delivered back to the superintendent or his assistant, and nothing, however little susceptible it may be thought to be of infection, shall be conveyed from one ship or vessel under quarantine to another, nor any personal intercourse be permitted from any such vessel to another; and one of the quarantine guardians, when thereto required by the superintendent of quarantine, or his assistant, shall accompany the lighters or boats which shall be employed in passing to or from the vessel on board of which such guardians are placed, during the passage of such lighters and boats to and from such vessel, in order to prevent any communication in the transit of the cargo from the ship to the floating lazaret, or to the lazaret at Chetney Hill; and shall take care, after every removal of goods, that no remnant of cotton, or of any other article enumerated in either of the said two classes hereinafter stated, remain in the lighters or the boats, but shall, before leaving off work, collect and deliver such remnants into the lazaret with the last package, which they shall then carry from the said vessel.

XX. The said guardians shall take care, that, after the discharge of the cargoes into the lazaret, the holds and between decks of the ships shall be completely swept, and the sweeping burnt.

XXI. The said guardians shall diligently search the lockers, chests, and other repositories of the officers, passengers, and crews, and every part of the vessels, so that no article, so enumerated in either of the said two classes, nor any matter or thing considered as susceptible of infection, remain undelivered to the lazaret, unless what shall be declared by the said superintendent, or medical attendant, to be requisite for daily use; and shall see that all the said chests, lockers, and other repositories, and all the clothes and bedding, in the vessel, be daily opened and aired, in such manner as shall be directed by the superintendent of quarantine, and shall also make the like diligent search in vessels laden with other goods not enumerated in either of the said classes, so as to be able the better to ascertain that nothing enumerated, or considered susceptible, has been left on board.

XXII. One of the said guardians shall make a daily report to the superintendent of quarantine, or his assistant, and to the medical attendant, of the state of health of every person on board, and whether the regulations of quarantine have been properly complied with; and, in case any impediment shall occur in the execution of the duties required of the said guardians, they shall give notice immediately to the master or commander of the vessel in the first instance; and, if thereupon such impediment be not instantly removed, they shall then give notice thereof to the superintendent of quarantine, or his assistant, who shall take care to use effectual means for the removal of the same.

XXIII. If any person on board shall fall sick, and any medical person shall be on board the vessel, such medical person shall confer with the medical attendant along-side the vessel, the medical attendant keeping to windward, at a distance of not less than ten feet; and, in case there shall be no medical person on board, and it shall be necessary for the medical attendant to inspect the sick, the visit shall be made at the ship's boat by the medical attendant in his own boat, keeping to windward at the like distance of not

less than ten feet; and, if any patient, after being examined in the manner before-mentioned, shall be found to require such medical or chirurgic aid, as cannot properly be administered, except in the pest-house, or hospital-ship, he shall be removed either to such pest-house, or hospital-ship, as the case may require.

XXIV. Patients under circumstances which shall induce suspicion, that they may be infected with any pestilential disorder, whether such person shall be in the lazaret at Chetney Hill, or in the floating lazaret, or in any of the ships or vessels performing quarantine, shall be sent to the pest-house, or to one of the huts on shore, or to the hospital-ship, according to the discretion of the superintendent of quarantine, with the advice of the medical attendant; and when it shall appear that there is no longer any reason to apprehend any danger of infection from such patients, they shall be removed to a more commodious apartment in the lazaret, there to complete the remainder of quarantine.

XXV. In case any pestilential disorder shall actually discover itself on board any vessel, or among any of the persons under quarantine, whether in any vessel performing quarantine in the lazaret at Chetney Hill, or in the floating lazaret, the persons affected with such disorder shall be removed, with all possible care and dispatch, under the special direction of the superintendent of quarantine, and medical attendant, to the pest-house, or to one of the huts on shore, and a proper attendant shall be assigned to such patients by the superintendent of quarantine, with the advice of the medical attendant; and such patients shall be visited at a due distance by the said medical attendant, and in case near approach shall be required, some person shall be specifically appointed by the medical attendant for that purpose.

XXVI. The passengers and crew of any vessel under quarantine may have the assistance of any medical persons they may desire from shore, subject to the official visits of the medical attendant, and to such regulations and restrictions as the superintendent of quarantine, with advice of such medical attendant, shall judge necessary; but all such medical persons, as well as all others, if they communicate by contact with the sick, shall perform the same quarantine as the sick persons themselves.

XXVII. After the quarantine-guardians shall have been placed on board any vessel, the pilot may quit such vessel, and be removed to an apartment in the lazaret at Chetney Hill, or in the hospital ship, provided he comes from a vessel having no suspicious sickness on board; but, if otherwise, such pilot shall be sent to the pest-house, or to one of the huts on shore, at the discretion of the superintendent of quarantine, with the advice of the medical attendant; and such pilot shall, in both cases, continue under quarantine until the probationary airing of goods, wares, and merchandise, as hereinafter directed, shall be finished; and, at the expiration of such probationary airing, such pilot, if he continue free from infection, shall be fumigated and discharged from quarantine; provided always, that, during the performance of such quarantine, either on board the hospital-ship, or at the pest-house, or huts on shore, such pilot shall not have communication with any other person, except under similar restrictions to those herein directed, with regard to other persons under quarantine.

XXVIII. Until the lazaret at Chetney Hill shall be erected, such of the passengers and crew of any vessel arriving as above-mentioned, not furnished with clean bills of health, as may be desirous of performing quarantine in a separate vessel, to be hired at their own expense, shall, in case the superintendent of the quarantine, with the advice of the medical attendant, shall see no objection thereto, be permitted to quit the vessel in which they arrived before the hatches are opened, and to go on board any other vessel to perform quarantine, (in which other vessel a quarantine guardian shall be placed at the expense of the person or persons so performing quarantine), and such persons shall there perform a quarantine of thirty days; and such of the passengers and crew as shall remain on board the ship in which they shall have provided, shall continue under quarantine until the ship shall be discharged therefrom.

XXIX. Provided always, That, in case any pestilential accident shall occur among the ship's crew or passengers during the probationary airing of the goods, at whatever stage of the quarantine such accident may happen, the quarantine of all the passengers and crew, and of the pilot, (if there shall be a pilot at that time liable to quarantine in respect of his having been on board such ship or vessel), as well as of the goods, wares, and merchandise, shall re-commence; the sick persons shall be sent to the hospital-ship, or to the pest-house, or to the huts on shore, as above directed; the external guard shall be immediately doubled, and notice of such accident shall be given with all possible dispatch to the privy-council.

XXX. All persons, who shall have to perform quarantine in the lazaret at Chetney Hill, shall perform such quarantine for the same time, and under the same regulations, as those who are permitted to perform quarantine in separate vessels as hereinbefore directed.

XXXI. The baggage, wearing-apparel, books, and every other article belonging to any person on board any vessel arriving as above-mentioned, and not furnished with a clean bill of health, for which they shall have

no immediate occasion, shall be sent to the lazaret at Chetney Hill, or to the floating lazaret, for the purpose of being aired in like manner as other goods of the same description; and, before any of the passengers or crew shall be discharged from quarantine, they, their clothes, and other effects which have remained with them, shall be fumigated.

XXXII. Immediately after the pilot, and such of the passengers and crew of vessels so arriving without clean bills of health as may be directed to perform quarantine in any of the modes hereinbefore mentioned, shall have quitted the vessel in which they shall have arrived, the hatches of such vessel shall be opened, and the probationary airing of the cargo shall commence; which probationary airing shall be in the following manner, viz.

Such a number of bales of the enumerated goods, wares, and merchandise, of the first class, hereinafter stated, as can be ranged upon deck, shall be taken from the hold, and, the seams at one or both ends being ripped open, the contents shall be handled as much as possible by the sailors, in the presence of one of the guardians, and, under this process of handling and turning, such bales shall remain exposed to the air for six days, and on the subsequent day shall be put into a condition to be, and shall accordingly be, delivered to the lighter appointed to transport them to the floating lazaret, or to the lazaret at Chetney Hill; and, as soon as the deck is cleared of the first parcel of goods, a second parcel shall be hoisted up, and treated in like manner for the space of three days, and on the subsequent day shall in like manner be put into such condition, and shall be so delivered as aforesaid; after which, a third parcel shall be hoisted up, and treated in the same manner also for the space of three days, and on the subsequent day shall, in like manner, be put into such condition, and shall be so delivered; but, in case of any suspicious circumstances arising, the probationary airings shall be extended to eight, six, and four days, making, with the three intermediate days, twenty-one days in the whole; or even to a greater length of time, if circumstances shall require.

XXXIII. Of the goods, wares, and merchandise, which shall arrive in vessels without clean bills of health, the articles herein after enumerated in class the first, shall be carried to the floating lazaret in Standgate Creek, or to the lazaret at Chetney Hill, there to be unpacked, opened, and aired for the space of forty-days, viz.

Class the first.—Consisting of those articles which are considered as most liable to infection:—apparel of all kinds, artificial flowers, bast, or any article made thereof, beads, bracelets, or necklaces in strings, beds, bedticks, books, brooms of all sorts, brushes of all sorts, burdets, camblets, canvass, Carmenia-wool, carpets, cordage not tarred, cotton-wool, cotton-yarn, cotton-thread, all articles wholly made of, or mixed with, cotton, silk, wool, thread, or yarn, down, feathers, flax, furriers'-waste, goats'-hair, gold or silver on thread, cotton, hair, wool, silk, or any other substance hereinbefore enumerated; grogram, hats, caps, or bonnets, of straw, chip, cane, or any other material, hemp, hoofs, horn and horn tips, hair of all sorts, leather, linen, liquor of any kind in bottles, or flasks, lute-strings, catlings, or harp-strings, maps, mattresses, mats and matting, mohair-yarn, nets, new or old, paper, pack-thread, parchments, pelts, platting of bast-chip, cane-straw, or horse-hair, quills, rags, sails and sail-cloth, silk, viz. crapes and tiffanies, husks and knubs, raw-silk, thrown and organzine silk, waste silk, wrought silk, skins, hides and furs, and parts or pieces of skins, hides and furs, whether undressed, or in part or wholly tanned, tawed, or dressed, sponges, straw, or any article made of, or mixed with, straw, stockings of all sorts, thread, tow, vellum, whisks, wool, whether raw, or anywise wrought, yarn of all sorts, and all other goods whatsoever, if they shall have arrived in or with packages, consisting wholly, or in part, of any of the articles above enumerated in this class, unless such goods shall be removed from such packages as hereinafter mentioned.

XXXIV. The expurgation of the goods, wares, and merchandise, enumerated in class the first, as before-mentioned, after they have been removed to the floating lazaret at Standgate Creek, or to the lazaret at Chetney Hill, shall proceed in the following manner: that is to say, all bales of cotton shall be opened from one end to the other, and so much taken out as to leave room for handling, daily, the interior of the bale.

The following articles, viz. raw wool, goats'-wool, Carmenia-wool, and hair, shall be taken out of the bags or bales, and shall be ranged in low heaps, not above four feet high, and successively handled and rummaged.

All bales of raw-silk, silk stracee (or refuse), and silk-thrown, shall be opened on one side from end to end, the cords loosened, and way made, by removing a number of skeins, for the porters to handle the interiors of the bales; and, at the expiration of twenty days, that side of the bale which has been opened being resewed, the other side shall be ripped open, and the contents handled and aired in the like manner till the thirty-fifth day, when the bales shall be put in order for delivery.

All packages of cotton, of yarn, of thread, of silk stuffs, of cotton stuffs, of burdets, of camblets, and of linen, shall be opened, and the piece-goods piled in rows, lattice fashion, or in pyramids, turned every four days, and completely spread out and suspended on cords for several days.

Cases of paper, books, parchment, cases

of sponges, and silk and thread stockings, shall be entirely unpacked, and the smaller parcels separated from each other, and so disposed, as to admit of thorough airing. Feathers, straw hats, artificial flowers, coral-beads in strings, and brushes shall be spread out in the same manner; carpets, furs, hides, and skins shall be unbaled, and each piece shall be spread and suspended on cords, and sometimes in the open air, and frequently turned.

All goods packed in or with straw, cotton, or any other article enumerated in the said first class, or considered as susceptible, shall be entirely taken out of, or separated from, the same, and carefully aired.

All goods enumerated in the said first class, concerning the expurgation of which, no particular directions have been hereinbefore given, shall be unpacked, opened, aired, and handled, in like manner, so far as may be, as is hereinbefore directed, with regard to goods of a similar description.

XXXV. Of the goods, wares, and merchandise, which shall be imported in any vessel arriving as above-mentioned, and not furnished with clean bills of health, the articles hereinafter enumerated in class the second, shall, in like manner, be carried to the floating lazaret, or to the lazaret at Chetney Hill, there to be unpacked, opened, or treated, according to the nature thereof, and aired for the space of thirty days; viz.

Class the second.—Consisting of those articles which are considered as liable to infection, but in a less degree; senna, jalap, gum arabic, gum tragacanth, gum myrrh, gum opium, gum scammony, antimony, cantharides, alum, juniper-berries, pomegranates, flowers and seeds, sal nitre, sal ammoniac, madder, shumac, galls, tobacco, coffee, wood in raspings, and cork.

XXXVI. The expurgation of all the goods, wares, and merchandise, enumerated in the said second class, shall be performed by exposing them to the air as much as possible, and by moving them, from time to time, so as to admit of free ventilation.

XXXVII. After the delivery of all the goods, wares, and merchandise, enumerated in the two classes, before-mentioned, into a floating lazaret, or into the lazaret at Chetney Hill, the vessel, with the rest of the cargo, shall then commence and perform a quarantine of thirty days, during which the packages of the goods, wares, or merchandise, not enumerated in either of the classes before-mentioned, remaining on board such vessel, shall be frequently swept and shifted, and moved, from time to time, as much as possible, according to the nature thereof, so as to admit of free ventilation; and at the expiration of the said thirty days, if all persons on board continue free from every appearance of infection, the vessel, and such part of the crew, passengers, and cargo, as shall have remained on board, shall be finally fumigated and discharged.

XXXVIII. Provided always, that, if all the persons on board remain in health, dried fruits, having been shifted from baskets, or other packages made of articles enumerated in the said first class, or considered as susceptible, when such dried fruits shall have been imported in such packages, may be delivered in twenty days; dried fruits in packages of wood, in ten days; barrels of oil, the bungs being first tarred, and the barrels brushed, and then thoroughly washed in sea water, in ten days; grain, pulse, and other seeds in bulk, on the eleventh day, after having been passed through an iron grating, in order to detect any susceptible matter that may be mixed therewith; grain, pulse, and other seeds in sacks, or in casks, or baskets of rush-mat, being shifted into fresh sacks, or packages, in like manner on the eleventh day, being likewise passed through an iron grating; but, in all cases where any goods, wares, or merchandise, shall have been shifted from such susceptible packages as aforesaid into fresh packages, the said susceptible packages shall be sent to the lazaret to perform quarantine, according to the nature thereof, or shall be destroyed, at the option of the importer.

XXXIX. The quarantine of all goods, wares, and merchandise, (as well such as are directed to be left in, as those which are to be removed from the vessel), in cases where the cargo shall consist partly of articles enumerated in the first and second classes, and partly of non-enumerated articles, shall commence, and be computed, from the day on which the whole of the articles enumerated in the said two classes, shall have been removed from the vessel importing the same, to be opened and aired in the manner before directed, except as hereinbefore particularly excepted.

XL. The quarantine of thirty days to be performed by all vessels arriving without clean bills of health, but with cargoes wholly consisting of articles considered as not susceptible of infection, and not enumerated in either of the two classes before stated, shall commence, and be computed from the day on which the quarantine guardians shall be put on board.

XLI. All vessels, and all persons, goods, wares, and merchandise on board thereof, arriving with suspected bills of health, (commonly called touched patents or bills), shall respectively perform quarantine, and be treated in the same manner as above directed concerning vessels arriving without clean bills of health, and persons, goods, wares, and merchandise arriving in such vessels: except only that such persons, goods, wares, and merchandise so arriving with suspected bills of health, shall respectively be subjected to ten days less quarantine.

XLII. With respect to all vessels whatso-

ever, having on board cotton, wool, thread, or yarn, or any other of the articles enumerated in the first class before stated, importing the same into any port or place of this kingdom, or Guernsey, Jersey, Alderney, Sark, or Man, from any port or place in Europe, without the Straits, or in the continent of America, at which there is not a regular establishment for the performance of quarantine, the master, or other person, having charge of every such ship or vessel, is hereby required to bring with him a declaration made by the owner, proprietor, shipper, or consignee, of such vessel, or of the goods, wares, and merchandise on board the same respectively, upon oath, before some magistrate of the port or place whence such master or commander of such vessel shall have brought the said goods, wares, and merchandise, and attested by such magistrate, and also by the British consul, or vice-consul; or, in case there shall be no British consul or vice-consul there, then by two known British merchants, certifying whether the said goods, wares, and merchandise are not of the growth, produce, or manufacture of Turkey, or of any place in Africa, within the Straits of Gibraltar, or in the West Barbary on the Atlantic Ocean; or, affirmatively, of what place they are the growth, produce, or manufacture; and if they are of the growth, produce or manufacture of any of the countries last mentioned, then certifying whether the said vessel is or is not the same in which the goods, wares, and merchandise so imported were brought from Turkey, or from any of the countries last mentioned; and, in case the vessel is the same, the master or commander of such vessel is hereby required to bring with him the bill or bills of health granted at the port where any of the goods were originally taken on board, or copies thereof, attested by a notary public: and, if the vessel, having on board such goods, wares, and merchandise, shall be other than that in which they were imported into any port or place in Europe, without the Straits, or on the continent of America, at which there is not a regular establishment for quarantine, the master of such vessel is hereby required to bring with him a declaration, made and attested in like manner as the declaration before mentioned, certifying whether the said goods, wares, and merchandise were imported into the ports of the countries last mentioned in a vessel with or without a clean bill of health: and such master of any such vessel, if the same shall be bound to the port of London, or to the river Thames, or Medway, shall forthwith produce a declaration or declarations (as the case may be) to the superintendent of quarantine at Standgate Creek; or, if the same shall be bound to any of the out-ports or islands aforesaid, to the proper officer of the customs or of quarantine at such out-port or place; and if it shall appear that none of the goods, wares, or merchandise on board such vessel are of the growth, produce, or manufacture of Turkey, or of any place in Africa within the Straits of Gibraltar, or in the West Barbary on the Atlantic Ocean, such vessel importing the same shall not be obliged to perform quarantine; but shall, on production of such declaration to the proper officers of the customs, be admitted to an entry in the usual and legal manner; but if it shall appear, that such goods, wares, or merchandise, or any part thereof, are of the growth, produce, or manufacture of any of the countries last mentioned, then the superintendent of quarantine at Standgate Creek, or the proper officer of the customs employed in the service of quarantine at the out-port or place at which such vessel shall arrive, as the case may be, shall take care that every such vessel, as well as the crew, passengers and cargo on board the same, shall perform quarantine, according to the nature of the case, at such and the same places as hereinbefore appointed for the performance of quarantine, for the same time, and in the same manner, as vessels, their crews, passengers, and cargoes, coming from or through the Mediterranean, or from the West Barbary on the Atlantic Ocean, with clean bills of health, are hereinbefore respectively required to perform quarantine.

XLIII. All vessels arriving in the ports of this kingdom, or Guernsey, Jersey, Alderney, Sark, or Man, having come from the Mediterranean, or from the West Barbary on the Atlantic Ocean, which with their crews, passengers, and cargoes, shall have previously performed quarantine in the lazaret of Malta, Ancona, Venice, Messina, Leghorn, Genoa, or Marseilles, shall, upon their arrival, be put under quarantine in some of the ports or places hereinbefore appointed for the performance of quarantine, until the master or commander of such vessel shall have produced to the superintendent, or proper officer of the customs employed in the service of quarantine, the proper documents to prove that such vessel, and the crew, passengers, and cargo, on board the same, duly performed quarantine in one of the lazarets last mentioned; and upon so producing such documents, the said vessel shall be forthwith admitted to re-port, and all goods, wares, and merchandise, on board thereof, not hereinbefore enumerated in the first class before stated, shall be admitted to an entry; but all goods, wares, and merchandise, on board any such vessel, which are enumerated in the first class before stated, shall in such case perform a farther quarantine of fifteen days at some one of the ports or places hereinbefore appointed for for that purpose, in such manner as has been heretofore practised.

XLIV. All masters, or other persons having the charge of any ships or vessels

clearing outwards from any port or place in Great Britain, or the islands aforesaid, for any port or place in the Mediterranean, or in the West Barbary on the Atlantic Ocean, or for any port or place respecting which there shall, at the time of such clearing out, be any order of his majesty in council in force, subjecting ships and vessels coming thence to quarantine, shall receive from the principal officers of the customs at such port or place, a printed paper, containing an abstract of such quarantine regulations as shall be thought necessary to be most generally notified and observed by such masters, their officers, crews, and passengers on board; and every such master or other person having charge of any such ship or vessel, shall cause the same printed paper to be affixed on some convenient and conspicuous part of his said ship or vessel, and there to remain affixed until the return of the said ship or vessel to some port or place in Great Britain, or the islands aforesaid, provided the said ship or vessel shall return to Great Britain, or the islands aforesaid, within twelve months.

XLV. Every commander, master, or other person having the charge or command of any ship or vessel about to sail from any port or place in Great Britain, or the islands aforesaid, for any port or place in the Mediterranean, or in the West Barbary on the Atlantic Ocean, or for any port or place respecting which there shall, at the time of such clearing out, be any order of his majesty in council in force, subjecting ships and vessels coming thence to quarantine, shall, before his departure, provide and take on board one or more of the quarantine signal flags and lanterns directed by the hereinbefore recited act of parliament, and likewise a proper quantity of materials and instruments for fumigation and immersion, and shall keep the same on board, to be used in the manner hereinbefore directed, upon the return of such ship or vessel to any port or place in Great Britain.

XLVI. The commanders of any of his majesty's ships of war, who shall meet any vessel liable to perform quarantine, coming to any of the ports of Great Britain, or of Guernsey, Jersey, Alderney, Sark, or Man, shall take due care to prevent the landing of any goods, wares, merchandise, or persons from on board the same, until they shall be put under the direction of the superintendent of quarantine at Standgate Creek, or of the officers of his majesty's customs employed in the quarantine service at any of the out-ports or places hereinbefore mentioned.

XLVII. The commissioners, and other officers of the customs, are to use their utmost diligence and care, that all the regulations for the performance of quarantine before directed, be duly observed.

XLVIII. The commanders of his majesty's ships of war, forts, and garrisons, lying near the sea-coasts, and all justices of the peace, mayors, and sheriffs, shall aid and assist the officers of customs, and all others concerned in stopping such ships as aforesaid, and in bringing them to the places appointed for the performance of quarantine, as well as in enforcing due performance thereof.

The regulations herein contained, to take effect and be in force from the tenth day of May, 1805.

By order of council, dated November 1805, all the regulations in section 42. of the above order are extended to all vessels having on board any of the goods enumerated in the first class thereof, and imported in any ship from any place in Europe without the Straits, or on the continent of America, at which there is not a regular establishment for quarantine, and arriving in any of the ports of Great Britain, Guernsey, Jersey, Alderney, Sark, or Man, from any of the ports in Newfoundland or Cape Breton, or other adjacent islands.

By like order, July 21. 1806, if a master shall bring with him from any place where there is a regular establishment of quarantine a declaration on oath made by the owner, proprietor, shipper, or consignee, before the British consul or vice-consul at such place, to the same purport as that required to be made before some magistrate, it shall have the same effect as the certificate required by sect. 42. of the above order.

By like order of 26th April, 1817, the case of a vessel sailing with goods from any of the ports declared liable to infection to any other port *not* declared so liable, and having there landed the said goods, and afterwards arriving at any place of the United Kingdom, or in the islands of Guernsey, &c. &c. is provided for, by declaring that quarantine shall be dispensed with on condition that the master shall declare upon oath that forty days have intervened since such goods had been discharged from the said vessel at the place not declared liable to infection.

And by like order, May 31. 1817, vessels which shall have performed quarantine at the lazaret at Trieste, were declared only to be liable to the regulations contained in section 43. of orders of April 5. 1805, with respect to vessels from Malta, Ancona, Venice, Messina, Leghorn, Genoa, or Marseilles.

Quarantine Duties payable on Vessels, their Cargoes, or any Part thereof, which shall have performed Quarantine as under mentioned.

	With a clean bill of health.	Without a clean bill.
For every vessel, which vessel, or the cargo of which, or any part whereof shall have performed quarantine in Great Britain, or the islands of Guernsey, Jersey, Alderney, Sark, or Man, and which shall have arrived,		
1. From any port of Turkey, or any place in Africa, within the Straits of Gibraltar, or in the West Barbary on the Atlantic Ocean, the ton burthen - - -	0 7 6	0 15 0
2. From any place whatever (except those enumerated in art. 1.) - - - -	0 3 0	0 10 0
3. From any place whatever, with a cargo which, in whole or in part, shall consist of goods, the growth, produce, or manufacture of Turkey, or of any place in Africa, within the Straits of Gibraltar, or in the West Barbary on the Atlantic Ocean, the ton burthen - - -	0 7 6	0 7 6
4. For every vessel which shall have so arrived under such circumstances as shall induce his majesty in council, or the lords, &c. of the privy council, to subject such vessel to the like quarantine as ships arriving from Turkey, the ton burthen - - - - -	0 7 6	0 15 0

N. B. An additional shilling per ton burthen is paid on every vessel as aforesaid entering inward in the port of London.

QUART is a kind of measure, containing the fourth part of a gallon, and is equivalent to two English pints. The quart, wine measure, is 57.75 cubic inches; the quart, beer, and ale measure, 70.5 cubic inches; and a quart, corn measure, 67.2.

QUARTATION, *Parting*, or *Depart*, among refiners, a method of purifying gold by melting three parts of silver with one of gold, and then casting the mixture into aquafortis; which, dissolving the silver, leaves the gold at bottom, in form of a black powder. *See* ASSAYING.

QUARTER, the fourth part of any thing, the fractional expression for which is $\frac{1}{4}$. Quarter, in weights, is used for the fourth part of a hundred weight avoirdupois, or 28 lbs. As used in dry measure, quarter is the fourth part of a ton in weight, or eight bushels.

QUARTER-DAYS. LADY-DAY, MIDSUMMER, MICHAELMAS, and CHRISTMAS. *See those titles.*

QUARTER-DECK *of a Ship*, is the short upper deck. *See* SHIP.

QUARTER-MASTERS, or *Quartcers*, in a ship of war, are officers whose business it is to rummage, stow, and trim the ship in the hold; to overlook the steward in his delivery of victuals to the cook, and in pumping or drawing out beer, or the like. They are also to keep their watch duly, in conning the ship, or any other duty.

QUARTER-WIND, at sea, a wind that blows upon the ship's quarter. A quarter-wind, is that which comes in abaft the main-mast shrouds, even with the quarter of the ship. It is the best of all winds, as filling all the sails; whereas a wind blowing full in the stern, is kept off by the mizzen and main-mast.

QUARTERN, the quarter of a pint, dry measure.

QUARTO, a book in which every sheet, being twice doubled, makes four leaves or eight pages. It is also a Portuguese measure.

QUARTZ. Some chemists make a distinction between quartz and rock-crystal. In general, those crystals of the siliceous order which are clear and perfect, and do not crack in the fire, are called rock-crystals; and those which are coloured, full of flaws, rounded and irregular, are called quarts.

The transparent quartz or rock-crystal is either colourless and crystallised in hexagonal pyramids, and then called mountain-crystal; or in various other forms, or irregular.

The purest and most transparent of these crystals form the false diamond, called Bristol, or Kerry, stone, *diamant d'Alençon*, &c.

The coloured transparent crystals derive their tinge generally from metallic particles in exceeding small proportion; they all lose their colour when heated; these form the false gems. The most remarkable are the

Red, from Oran in Barbary; false rubies.
Yellow, from Bohemia; false topazes.
Green; false emeralds and prases.
Violet, Blue, } from Bohemia and Saxony.

It is said, that brown crystals may be cleared by boiling them in tallow.

The opaque quartz, or pebbles, are also crystallised, or irregularly figured, either white, gray, or yellowish, or tinged of other

colours by metallic particles. The former are less pure than those of the first series, containing a larger proportion of clay, or at least the clay is less perfectly united with the siliceous part. They are often found in round masses in the beds of rivers.

The coloured opake quartz are either, 1. Black, being mixed with a large proportion of iron. 2. Red. 3. Blue, from Uto, in Sweden. And 4. Green, found at Adelsdorf, in Sweden.

Though the powdery state of other stones does not deserve any particular notice, yet that of quartz or silex does, from the great use that is made of it, and from its seeming to possess properties which are incompatible with it in a grosser state. It is of various colours, and incapable of forming a mass, or hardening with water. The purest is white, the minute particles of which, when inspected through a lens, are transparent, but it is seldom perfectly pure.

QUARTZ (Elastic). Sandschiefer, flexible stone. This stone, remarkable for a certain degree of elastic flexibility, was brought about thirty years ago from the diamond mines of the Brazils. It is met with likewise in Thuringia. It is supposed, however, to have been known in the sixteenth century, and to be described by Gassendi, in his life of Peirsec, as a flexible whetstone. In its form and appearance it resembles the Turkey hone, or novaculite.

QUASSIA, (Ger. *Quassie.* Du. *Kwassiehout.* Da. *Qvassebark.* Sw. *Qvassiæträd.* Fr. *Bois de quassie.* It. *Leguo di quassia.* Sp. *Leno de quassia.* Port. *Páo de quassia.* Lat. *Lignum quassia,*) a tree growing in South America and the West Indies, of which there are three species, the *amara, simaruba, and excelsa.* It received its name from Quassi, a negro of Surinam, who first discovered its medicinal virtues.

1. *The quassia amara,* is a native of South America, particularly of Surinam, and also of some of the West India islands. The root, bark, and wood, of this tree, have all places in the materia medica. The wood is most generally used, and is said to be atonic, stomachic, antiseptic, and febrifuge.

2. *The quassia simaruba,* is common in all the woody lands in Jamaica. The wood of this tree is hard, and useful for buildings. It splits freely, and makes excellent staves for sugar-hogsheads. It has no sensible bitter taste. The leaves are numerous and alternate. The flowers are of a yellow colour, and placed on spikes beautifully branched. The fruit is of that kind called a *drupa,* and is ripe towards the end of May. It is of an oval shape, is black, smooth, and shining. The pulp is fleshy and soft; the taste nauseous and sweet. The nut is flattened, and one side winged. The kernel is small, flat, and tastes sweet. The roots are thick, and run at a small depth under the surface of the ground to a considerable distance. The bark is rough, scaly, and warted. The inside, when fresh, is a full yellow, but when dry, is pale. It has but little smell. The taste is bitter, but not very disagreeable. This is the true *cortex simaruba* of the shops. It used to be imported formerly from Guiana; but we now have it from our own islands at a more moderate rate.

3. *The quassia excelsa,* or *polygama,* was named by Sir Joseph Banks, Dr. Solander, and Dr. Wright. It is very common in the woodlands of Jamaica; is beautiful, tall, and stately; some being 100 feet long, and 10 feet in circumference; eight feet above the ground. The trunk is straight, smooth, and tapering; sending off its branches towards the top. The outside bark is pretty smooth, of a light grey, or ash-colour, from various lichens. The bark of the roots is of a yellow cast, somewhat like the *cortex simaruba.* The wood is of a yellow colour, tough, but not very hard. It takes a good polish, and is used as flooring. The flowers are small, of a yellowish-green colour, with a very small calyx. The fruit is a smooth back *drupa,* round-shaped, and of the size of a pea. Except the pulp of the fruit, every other part of this tree has an intensely bitter taste. Its taste and virtues are nearly equal to the quassia of Surinam. The happiest effects result from the use of this medicine in obstinate remitting fevers from marsh-miasmata; in agues which have resisted the use of Jesuits' bark, and in dysenteries of long standing. It is in daily practice in dropsies from debility; either in simple infusions, or tincture by itself, or joined with aromatics and chalybeates. Physicians in Jamaica prescribe it with great success.

Besides its use in medicine, quassia is consumed in large quantities by the brewers to give a bitter taste to their beer; but is very much inferior to hops for that purpose, as well in flavour, as in the essential quality of preventing the liquor from becoming sour. This however is prohibited by statute. *See* HOPS.

QUAY or Key. *See* KAY.

QUEEN'S WARE, the yellow stoneware. *See* STONE-WARE.

QUERCITRON BARK, the bark of a species of oak growing spontaneously on the continent of North America, particularly in Massachuset's Bay, where it is commonly called yellow oak; and in other parts, particularly in Pennsylvania, the black oak. Linnæus terms it *quercus nigra.* — It is very rough, of a dark brown or black colour on the outside, and of a yellowish brown within. If boiled in water, its decoction becomes yellow by the addition of alum; or a kind of olive brown, by the addition of a solution of iron by some mineral or vegetable acid. On account of this property, it has been introduced for dyeing yellow. Its tinging particles very much resemble, in their pro-

perties and effects, those of the weld plant; though all the colours given by the latter may be communicated more advantageously by the quercitron bark. This bark may be advantageously peeled from the tree in the spring months; and as its rough blackish outside part, making nearly half of the whole, contains little or no colouring matter, it is cut off from the inner part; which being thoroughly dried, and coarsely ground, is then closely packed and pressed in proper casks, and so shipped.

QUERN-STONES, a name given by some traders to grindstones, and the stones of hand-mills in general.

QUESTMEN, persons appointed to enquire into abuses, especially such as relate to weights and measures.

QUICKEN-TREE, Mountain-ash, or Roan-tree, an indigenous shrub growing in hedges, woods, mountains, or boggy situations, principally in Wales, Scotland, and the northern parts of England.

The wood is tough, and durable, being advantageously converted into tables, spokes for wheels, chairs, &c. The roots are also very firm, and are formed into spoons, handles for knives, and similar utensils.

The branches, leaves, and unripe fruit of this tree, have also been usefully employed in tanning.

QUICKSILVER. *See* MERCURY.

QUILLS, (Ger. *Posen, Federkiele.* Du. *Pennen, Penneschagten.* Da. *Penne.* Sw. *Pennor.* Fr. *Tuyaux.* It. *Cannoni ò penne da scrivere.* Sp. *Canones para escriber.* Port. *Canos para escrever.* Rus. *Stivoli.* Pol. *Pipy, Pipki,*) large feathers taken out of the end of the wings of geese, ostriches, swans, turkies, crows, &c. They are denominated according to the order in which they are fixed in the wing; the second and third quills being the best for writing, as they have the largest and roundest barrels. Crow-quills are chiefly used for drawing. In order to harden a quill that is soft, thrust the barrel into hot ashes or sand, stirring it till it is soft, and then taking it out, press it almost flat upon your knee with the back of a penknife, and afterwards reduce it to roundness with your fingers. Another method to harden quills, is by setting water and alum over the fire, and while it is boiling, put in a handful of quills, the barrels only, for a minute, and then lay them by. Large quantities of quills were annually imported into Great Britain from Germany, and Holland. The goodness of quills is judged by the size of the barrels, but particularly by the weight; hence the denomination of quills of fourteen, fifteen, &c. loths; viz. the thousand consisting of twelve hundred quills, weighing fourteen, fifteen, &c. loths. The loth is a German weight, equivalent to something more than an ounce. Particular attention should be paid, on purchasing quills, that they may not be left-handed, that is, out of the left wing.

QUILTING, a method of sewing two pieces of silk, linen, or stuff on each other, with wool or cotton between them; by working them all over in the form of chequer or diamond-work, or in flowers. The same name is also given to stuff so worked.

QUINQUINA. *See* JESUITS' BARK, *and* CHINA.

QUINTAL, a hundred pounds weight. The quintal differs in many places, according as the pound consists of more or fewer ounces. The English quintal consists usually of 112 lbs. avoirdupois, and is divided into four quarters. *See* WEIGHTS *and* MEASURES.

QUIRE of paper, a quantity of twenty-four sheets.

QUI TAM, in law, a species of action wherein a penalty is given, half to the king and half to the informer: this term is taken from part of the declaration, which states, the party sues, *Qui tam, as well for himself,* as for the King.

QUOIN, or Coin, on board a ship, a wedge fastened on the deck close to the breech of the carriage of a gun, to keep it firm up to the ship's side.

QUOTIENT, in arithmetic, is the number produced by the division of the two given numbers, the one by the other.

QUOYL, or, as it is by corruption pronounced Coil, is, in sea-language, a ring or circle, made by rolling the cable round in that shape.

R, The seventeenth letter of the alphabet, as a numeral denotes eighty; and with a dash over it, thus $\overline{R}$, it signifies eighty thousand. ℞ or R, in medical prescriptions, stands for *recipe*, or take.

RABBETING, in carpentry, the planing or cutting of channels or grooves in boards. In ship-carpentry, it signifies the letting-in of the planks of the ship into the keel; which, in the rake and run of a ship, is hollowed away, that the planks may join the more closely.

RABBIT-SKINS. *See* CONEY-WOOL.

RACK. *See* ARRACK, a liquor.

RACK, an engine of torture to extort

confession. Formerly used by most governments, but now, it is presumed, only under the authority of the Inquisition.

RACK, in *rigging*, a term for a plank with holes in it.

RACK-RENT, the full or utmost rent lands or tenements demised will bear.

RACKOON-SKINS, (Ger. *Schuppen.* Du. *Schobben Espannen.* Da. *Sjubskind.* Sw. *Sjuppenskinn.* Fr. *Ratons ou Marmottes.* Sp. *Mapaches,*) are taken from an animal of the bear genus, which inhabits the northern parts of America. It is also found in some of the West India islands. The colour of this animal is grey; the face white; and each of the eyes imbedded in a large patch of black, which forms a kind of band across the forehead, and is crossed by a dusky stripe running down the nose. The fur of the rackoon is principally consumed by hatters, and is considered as next in merit, for their purposes, to beaver.

RAFT, a sort of float, formed by an assemblage of various planks or pieces of timber fastened together side by side, so as to be conveyed more commodiously to any short distance in a harbour or road than if they were separate. The timber and plank with which merchant ships are laden, in the different parts of the Baltic Sea, are attached together in this manner, in order to float them off to the shipping.

RAFTERS, in building, are pieces of timber, which standing by pairs on the raising piece, meet in an angle at the top, and form the roof of a building. It is a rule in building, that no rafters should stand farther than 12 inches from one another: and as to their sizes or scantlings, it is provided by act of parliament, that principal rafters, from 12 feet six inches to 14 feet six inches long, shall be five inches broad at the top, and eight at the bottom, and six inches thick. Those from 14 feet six inches to 18 feet six inches long, to be nine inches broad at the foot, seven inches at the top, and seven inches thick; and those from 18 feet six inches to 21 feet six inches long, to be ten inches broad at the foot, eight at the top, and eight thick. Single rafters, eight feet in length, must have four inches and a half, and three inches three quarters, in their square. Those of nine feet long, must be five and four inches square.

Principal rafters should be nearly as thick at the bottom as the beam, and should diminish in their length one-fifth, or one-sixth, of their breadth; the king-posts should be as thick as the principal rafters; and their breadth according to the size of those that are intended to be let into them; the middle part being left somewhat broader than the thickness. *See* BUILDINGS.

RAGS, (Ger. *Lumpen.* Du. *Lompen, Vodden.* Da. *Klude.* Sw. *Lumpor.* Fr. *Chiffes, Chiffons, Drapeaux, Drilles.* It. *Stracci, Strazze.* Sp. *Trapos, Harapos.* Port. *Farrapos, Trapos.* Rus. *Trepje.* Pol. *Platki,*) which constitute the basis of that most useful article — paper, are a very important commodity throughout Europe. Great Britain itself furnishes the paper-makers with immense quantities of rags; and mean as the business may appear to common observers, it is most certain that some dealers in rags employ several thousand pounds in it. The rag-men buy linen rags of the gatherers, and moreover import the article from abroad. *See* PAPER-MAKING.

Old rags may be imported duty free; and old rags, old ropes, or junk, or old fishing-nets, for making paper or pasteboard, not regularly entered and landed, are forfeited. 11 Geo. 2. c. 7. s. 10.

RAGSTONE, a genus of siliceous fossils, discovered in various parts of Great Britain. It is of a greyish colour, contains a large portion of *talc*, and splits easily into thin scales.

This mineral is used by artificers for the purpose of giving a fine edge to knives, chisels, and other tools which have previously been sharpened upon stones of a coarser texture.

In its appearance it resembles the pumice-stone, in every respect except density, in which this greatly exceeds.

RAGWORT, *the common groundsel, seggram, or St. James's wort*, a native perennial plant growing in meadows, pastures, and road-sides, and flowering from July to August.

If gathered before the flowers expand, and employed in a fresh state, the ragwort imparts to wool a fine green, though not a permanent colour. But if woollen-cloth be previously boiled in alum-water, and afterwards in a decoction of these flowers, a beautful deep yellow shade will be produced.

It is said, that by a decoction of the flowers and stalks, while in blossom, the wool, previously steeped in a solution of bismuth, acquires a very permanent olive-colour, displaying a beautiful golden shade.

RAISINS, (Ger. *Rosinen.* Du. *Rozynen.* Da. *Rosiner.* Sw. *Russin.* Fr. *Raisins secs, ou passés.* It. *Uve passe.* Sp. *Pasas.* Port. *Passas, Passa de uvas.* Rus. *Issum.* Pol. *Rozynki.* Lat. *Uvæ passæ,*) grapes prepared by suffering them to remain on the vine till they are perfectly ripe, and then drying them in the sun, or by the heat of an oven. The difference between raisins dried by these two methods, is very obvious: the former are sweet and pleasant; but the latter have a latent acidity with the sweetness, that renders them much less agreeable. The common way of drying grapes for raisins is to tie two or three bunches of them together while yet on the vine, and dip them into a hot lixivium of wood-ashes, with a little of the oil of olives in it. This disposes them to shrink and wrinkle, after which

they are left on the vine three or four days, separated on sticks in a horizontal situation, and then dried in the sun at leisure, after being taken from the tree. The finest and best raisins are those called, in some places, Damascus, and Jube, raisins; which are distinguished from the others by their size and figure. These are flat and wrinkled on the surface, soft and juicy within, and near an inch long; and when fresh and growing on the bunch, are of the size and shape of a large olive. The raisins of the sun, and jar-raisins, are all dried by the heat of the sun, and these are the sorts used in medicine. The names by which raisins are distinguished among traders, are the following; and the order in which they are placed denotes their relative value, the first being the most esteemed; viz. Muscatels, sun or solis, bloom or jar, Belvedere, Denia or Malaga, Sultana, Lipari, and Smyrna black, and red. The best of these kinds are imported in boxes and jars, and the most inferior in mats. Spain is the country which supplies us with the greatest quantities of this article. Valencia, and Grenada, are the parts of Spain in which raisins are principally prepared, and Malaga is the port whence they are exported in the greatest abundance. Grenada is supposed to produce the best of any part of Spain. Italy, Sicily, and several islands of the Archipelago, and the Mediterranean sea, furnish abundance. Calabria is said to produce the finest of any part of Italy. These are called by the Italians *pansa zebibo, regin seno*, &c. They are remarkably large, and are prepared by dipping them three or four times in a hot lixivium, which, without any further attention, indurates and preserves them. They have generally an extremely saline flavour, which is derived from the ashes of the lixivium, and causes thirst in such as eat many of them. These raisins constitute a considerable branch of Neapolitan commerce, abundance of them being sent into France, and other parts of Europe. Those of the Lipari isles are small; such as are called *passolini* by the Italians are the dearest. The raisins of Lipari give rise to a large share of the trade of Sicily, whence they are principally procured. The southern provinces of France, especially Provence, furnish excellent raisins, not very dissimilar to those of Spain. Portugal furnishes raisins of inferior quality. Anatolia and some other parts of Asiatic Turkey produce abundance of excellent raisins, which, for the most part, are sold to the Egyptians. Some of the African islands, particularly that of Glabis, yield raisins of inferior quality, which are generally sent to Alexandria.

Besides their employment for culinary purposes, raisins have several medicinal properties; they are nutritive, balsamic, attenuant, and of considerable service in nephritic disorders.

RAISINS OF THE SUN. (Ger. *Zibeben.* Du. *Cibeben.* Da. and Sw. *Cibeber.* Fr. *Raisins au soliel, Raisins au jubis.* It. *Zibibbi.* Sp. *Pasas de sol.* Port. *Passas de sol.*) *See* RAISINS.

RAKE, a well-known agricultural implement, consisting of a long handle, and a head set with teeth. These teeth are made either of iron or of wood: the iron-teethed rake is used for dividing ground, and smoothing gravel-walks, &c.: the wood-teethed rake is almost exclusively employed in hay-making. Recently, indeed, iron rakes, with teeth at least a foot in length, and set in frames, have been introduced for making hay.

RAKE *of a Ship*, is all that part of her hull, which hangs over both ends of her keel. That which is before is called the *fore-rake*, or *rake-forward*; and that part which is at the setting on of the stern-post, is called the *rake-aft*, or *afterward*.

RAM'S HEAD, in a ship, is a great block belonging to the fore and main halyards. It has three shivers in it, into which the halyards are put, and in a hole at the end of it are reeved the ties.

RANGE, among furnishing ironmongers, is used to signify a kitchen-grate, with all its appurtenances complete.

RANGES, in a ship, two pieces of timber that go across from side to side; the one on the forecastle, a little abaft the foremast; and the other in the beak-head, before the wouldings of the bowsprit.

RANGOES. *See* ARRANGOES.

RANSOM, signifies properly the sum that is paid for redeeming one that is taken prisoner in war.

The statutes prohibiting ransoms are remedial acts, and are to be construed liberally. It is not necessary that a hostage should be given, in order to constitute a ransom.

In case of a ransom bill, the owners are not liable beyond the value of ship and cargo. *Helly v. Grant*, 1 *T. R.* 76.

But a promise by a captain of a ship, on behalf of his owners, when ship taken, to a sailor to pay him monthly wages, in order to induce him to become a hostage, is binding on such owners, though they abandon ship and cargo. *Yates v. Hall*, 1 *T. R.* 73.

A sentence of condemnation of a British ship, (which had been captured by a French privateer, and carried into Bergen, in Norway,) by the French consul at Bergen, is illegal; and if, after such a sentence, the owner re-purchase his ship at a public auction at Bergen, he cannot recover the money so paid from the underwriter. For such a contract is *a ransom*, and illegal under statutes 22 Geo. 3. c. 25. and 35 G. 3. c. 66., which expressly prohibit the ransom of the ships of his majesty's subjects taken by an enemy. *Havelock v. Northwood*, 8 *T. R.* 268.

RAPE-SEED, (Ger. *Rübsaamen, Rüb-*

sen. Du. *Raapzaad.* Da. *Roefrö.* Sw. *Roffrö.* Fr. *Graine de navette, ou ravette.* It. *Ravizzone.* Sp. *Nabina.* Port. *Semente de nabos, Nabiça.* Rus. *Räpnoe semja.* Pol. *Rzepnica,*) is the seed of the *napus stativa,* or long-rooted, narrow-leaved *rapa,* called in English navew, and reckoned by Linnæus among the *brassicas* or cabbage-kind. This plant is cultivated in many parts of England to great advantage, particularly in Lincolnshire and Cambridgeshire, on account of the rape-oil expresed from its seeds. The cultivation of it was first introduced by those Germans and Dutch, who drained the fens of Lincolnshire; and hence the notion has erroneously prevailed, that it will only thrive in marshy soil. It is to be sown about midsummer. In the months of January, February, and March, it affords very good food for cattle, and will sprout again when cut; after which it is excellent nourishment for sheep, and after all, if not too closely fed, will bear seed against July. Large quantities of rape-seed were imported annually, from Flanders, Holland, and Germany; also from Champagne and Normandy, for the purpose of extracting rape-oil.

RAPE-OIL, (Ger. *Rübol.* Du. *Raapöli.* Da. *Roeolje.* Sw. *Rofolja.* Fr. *Huile de navette.* It. *Olio di ravizzone.* Sp. *Aceite de nabina.* Port. *Oleo de nabiça.* Rus. *Räpnoe masslo,*) is expressed from the rape-seed: it is used in the manufacture of wool, for burning in lamps, and to serve instead of train-oil, when there is a scarcity of the latter. Its good qualities are, a gold colour, an agreeable smell, and a sweet taste. It is sometimes mixed witn linseed oil; but this adulteration is discoverable by its bitterness, and a less agreeable smell. The seeds from which rape-oil has been extracted are usually made up in lumps, and constitute what is called rape-seed cake. This, like linseed-cake, is esteemed good fodder for cattle, but it generally gives their flesh a rancid, oily flavour, and their fat a disagreeable gold colour.

RAPE, denotes the stalks of a vine-tree. They are used in making vinegar, being first put into a place to sour, before they are cast into the vinegar vessel. The only way of keeping rape is to fill the vessel wherein it is contained with wine, or vinegar.

RAPEN, a Swiss copper coin, equivalent to one twenty-fourth of a penny sterling.

RASPS, (Ger. *Raspeln.* Du. *Raspen.* Da. and Sw. *Rasper.* Fr. *Rapes.* It. *Raspe.* Sp. *Raspas, Raspadores.* Port. *Raspadores.* Rus. *Terpugü.* Pol. *Rasply,*) large rough files, of various forms, according to the different uses to which they are put. They are generally constructed with wooden handles, and are manufactured, for the most part, at Sheffield, Birmingham, and Wolverhampton. Bakers, farriers, and carpenters, are those who principally employ rasps.

RASURE, or Erasure *of a deed,* so as to alter it in a material part, without the consent of the party bound by it, &c. will make the same void; and if it be erased in the date after the delivery, it will make the whole void.

RATAFIA, a fine spiritous liquor, prepared from kernels, &c. of several kinds of fruit, particularly cherries, and apricots, with an addition of spice and brandy. Ratafia is chiefly prepared by the French, with whom it makes an article of commerce. It is sold in chests of six or eight bottles, with other liqueurs.

RATCH, or Rash, in clock-making, a sort of wheel having twelve fangs, which serve to lift up the detents every hour, and make the clock strike.

RATCHES, in a watch, are the small teeth at the bottom of the fusee, or barrel, which stop it in winding up.

RATE, a standard or proportion, by which either the quantity or value of a thing is adjusted.

RATE, a valuation of every man's estate; or the appointing and setting down how much every one shall pay, or be charged with any tax. 53 Edw. 2.

Thus, a church-rate, a poor-rate, or a highway-rate, are the proportions which each person comprehended in it is respectively required to pay, for the particular object of it, with reference, in some way or other, to his local property.

RATE *of a Ship of War,* is its order, degree, or distinction, as to magnitude, burthen, &c.; and this is usually accounted by the length, and breadth, of the gun-decks, the number of guns they contain, and the number of men the ship carries.

The following are the descriptions of the different vessels of war, as rated in the British navy.

	Length of gun-decks.	Breadth of gun-decks.	Number of tons.	Number of men.	Number of guns.
First rate	159 to 174 ft.	14 to 50 ft.	1714 to 1920	750 to 850	96 to 120
Second ditto	153 to 165	41 to 46	1200 to 1600	660 to 750	84 to 90
Third ditto	142 to 158	37 to 42	1100 to 1224	410 to 480	64 to 80
Fourth ditto	118 to 146	29 to 38	711 to 1068	340 to 400	48 to 60
Fifth ditto	100 to 120	29 to 31	550 to 678	210 to 250	26 to 44
Sixth ditto	87 to 95	22 to 25	216 to 430	120 to 150	16 to 24

RATEEN, or RATTEN, (GER. *Ratin.* DU. *Ratyn.* DA. and SW. *Ratin.* FR. *Ratine.* IT. *Ratino.* SP. and PORT. *Ratina,*) a thick woollen stuff, quilled and woven on a loom with four treddles, similar to serges and other stuffs, which have the whale on quilling.

Some rateens are dressed and prepared like cloths; others are left simply in the hair, and there are others where the hair or knap is friezed.

Rateens are principally manufactured in France, Holland, and Italy, and are mostly used in linings. The frieze is a species of coarse rateen, and the drugget a rateen half linen, and half woollen.

RATEL, or RATTEL, a Persian weight, six of which make a batman. The ratel is a trifle less than the Parisian pound. *See* BATMAN.

RATIS, a weight used for diamonds, at the mine of Soumelpour, in the kingdom of Bengal; and in all the late empire of the Grand Mogul, for diamonds, or pearls. It is seven-eighths of a carat, or three grains and a half.

RAT-LINES, or, as the seamen call them, RATLINS, are those lines which make the ladder-steps to get up the shrouds and futtock, hence called the ratlins of the shrouds.

RAT'S BANE. *See* ARSENIC.

RATTANS, or RATANS, (GER. *Rottings.* DU. *Rottingen.* DA. *Rottinge.* SW. *Rottingar.* FR. *Rotins, Ratans.* IT. *Canne, e cannette di India.* SP. *Bejuquillos.* PORT. *Caniços de India,*) are the small shoots or branches of the sugar-cane, brought to us from the East, and West Indies. When polished and mounted, they are used as walking sticks. *See* BAMBOO.

RAZORS, (GER. *Rasiermesser, Scheermesser.* DU. *Scheermessen.* DA. *Rageknive.* SW. *Rakknifvar.* FR. *Rasoirs.* IT. *Rasci.* SP. *Navajas de afeitar.* PORT. *Navalhas.* RUS. *Britwii.* POL. *Brzytwy,*) instruments too generally known to need any particular description. The best razors are those manufactured at London, and Sheffield; the razors of Birmingham being of a very inferior sort. We export razors to most parts of the European continent, as well as to Asia, and America, and, in very small quantities, to Africa. Old razor-blades are usually made into pen-knives, which are in great request.

REACH, in the sea-language, signifies the distance between any two points of land, lying nearly in a right line.

REAL, a Spanish money of account; it is also a money of account at Leghorn, and in the Ionian islands.

REALGAR, or ROSALGAR, (GER. *Rauschgelb.* DU. *and* DA. *Rusgeel.* SW. *Rauschgelb.* FR. *Réalgar, Réagal.* IT. *Risigallo.* SP. *Rejalgar.* PORT. *Rosalgar.* RUS. *Krasnoi arsenik.* POL. *Sandaraka.* LAT. *Risigallum,*) generally called *redorpiment,* is of two kinds, native and factitious. The native is dug out of the same mines with orpiment, being of a cinnabar-colour, and smelling like sulphur and garlic, when burned, and made up in solid brittle globes. The factitious kind is made of orpiment melted and boiled for some time in subliming vessels, by which the yellow flowers are raised to the upper part of the vessels, and the mass remaining at the bottom, being condensed by cold, becomes of a red colour like cinnabar; which, if exposed to a free air for a long time, becomes covered with a soluble efflorescence. This realgar is not to be confounded with the factitious red arsenic. *See* ARSENIC.

REAM. The ream of writing-paper consists of twenty quires; but the ream of printing-paper, or, as it is sometimes called, the *printer's ream,* extends to 21½ quires, or 516 sheets. Two reams of paper make a *bundle.*

RE-ASSURANCE. Re-assurance may be said to be a contract, which the first assurer enters into, in order to relieve himself from those risks which he has incautiously undertaken, by throwing them upon other underwriters, who are called re-assurers.

The re-assurer is wholly unconnected with the original owner of the property assured; and as there is no obligation between them originally, so none is raised by the subsequent act of the first underwriter. The risks of the assurer from the object of the re-assurance, which is a new independent contract, not at all concerning the assured; who consequently can assume no power or authority with respect to it. — *Pothier, tit. Assurance, No.* 96.

Although such a contract seems perfectly fair and reasonable in itself, and might be productive of beneficial consequences to those concerned; yet, it was so much abused and turned to purposes so pernicious, that the legislature was obliged to interpose, and by a positive law to cut off all opportunity of practising those frauds in future, which were become enormous.

Accordingly, by the fourth section of the 19 *Geo.* 2. *c.* 37., it is enacted, "that it should not be lawful to make *re-assurance,* unless the assurer should be insolvent, become a bankrupt, or die; in either of which cases, such assurer, his executors, administrators, or assigns, might make re-assurance, to the amount before by him assured, provided it should be expressed in the policy to be re-assurance."

This act is worded in express terms, excluding every species of re-assurance, except in the three instances. But as it was held, that the first clause of the statute, prohibiting assurances, *interest or no interest,* did not extend to foreign ships; so it was argued, that re-assurances made here on *the ships of foreigners* did not fall within the act, This point came on to be considered in the court of King's Bench, in the year 1787, in the

form of a special case, stating that a re-assurance was made by the defendant on a *French vessel*, first assured by a *French underwriter* at Marseilles, who was living, and who, at the time of subscribing the second policy, was solvent.

The court (Ashurst, Buller, and Grose, justices) were unanimously of opinion, that this policy of re-assurance was void; and that every re-assurance in this country, either by British subjects or foreigners, on British or foreign ships, is void by the statute, *unless the first assurer be insolvent, become a bankrupt, or die.*—*Andrée* v. *Fletcher*, 2 *Term Rep.* 161. But if an underwriter transfer by parol to another, at a higher premium, his subscription to a policy, it is not such a re-assurance as is prohibited by the statute. — *Delver* v. *Barnes*, 1 *Taunt.* 48.

In France, as in other countries, it was formerly allowed to the insured to insure the solvency of the underwriter; but this practice is not allowed in England; and though no express notice is taken of it in the above statute, it seems that such policy would be looked upon as a wager-policy, and treated accordingly.

REBATE, is an allowance in the purchase of goods, for prompt payment.

RECAPTION. Where one has deprived another of his property, the owner may lawfully claim and retake it wherever he happens to find it, so that it shall be not in a riotous manner, or attended with any breach of the peace.

RECAPTURE. *See* SALVAGE.

Before the statute 19 *Geo.* 2. *c.* 37., which abolished wager-policies, the recapture had a considerable effect upon the contract of insurance, (2 Burr. 695. 1 Wils. 191. 2 Stra. 1250. Park, 73. 77.) and several cases were determined on that question. But now the contract is not at all altered between the underwriter and the insured by such an event. (2 Burr. 694.)

RECEIPTS, are acknowledgments in writing, of having received a sum of money or other value. A receipt is either a voucher for an obligation discharged, or one incurred.

By 35 Geo. 3. c. 55., every note, memorandum, or writing whatever, given to any person on the payment of money, acknowledging such payment, on whatever account it be; and whether signed or not, shall be considered a receipt, and liable to a stamp duty.

And every person who shall write, or cause to be written, any receipt for money on unstamped paper, (except in certain excepted cases hereafter enumerated,) or on a lower stamp than the proper one, shall forfeit 10*l.* if for a sum under 100*l.*; if above, 20*l.*

Giving receipts for less than actually paid, writing off sums, or other fraudulent contrivances whatsoever, 50*l.* 35 Geo. 3. c. 55.

(But, by the same act, s. 11., receipts may be stamped if brought *within fourteen days after date*, on payment of a penalty of 5*l.* over and above the duty; and if brought within one *calendar month*, on payment of a penalty of 10*l.* and the duty.)

To be recovered before one justice, on the oath of one witness, or confession, within three months of the offence, or the offender to be committed to gaol for three calendar months; mitigable to half the penalty, beside costs, with appeal to the Sessions.

Witnesses refusing to attend or give evidence, to forfeit 40s. to be levied as other penalties.

By 44. Geo. 3. c. 98., prosecutions must be with the leave, and in the name of the attorney-general, or the solicitor or other officers of the stamp duties, who are authorised to give a portion of the penalties to the informers.

The commissioners of stamps may authorise unstamped books to be used in any *public* office, or the office of any corporation or company, on condition that the same are first signed by the commissioners; and the duties paid from time to time for all receipts written therein.

The duty shall be payable by every person *required* to give such receipt; and the person from whom any money shall be due, may provide the stamp, and require from the person entitled to such money, or any agent to whom the same shall be paid, a receipt for such money, and also the amount of the duty: and if any person to whom such money shall be paid, shall refuse to give such receipt upon demand, or pay the amount thereof, he shall forfeit 10*l.* 43 Geo. 3. c. 126.

And no receipt shall be good, useful, or available in law or equity, unless stamped with a stamp to denote the rate of the duty, or some higher rate of duty.

(By 53 Geo. 3. c. 108., the stamps are as follow:—

Receipt or Discharge, given for or upon the payment of money, amounting to 2*l.* and not 5*l.*	0	0	2
Amounting to 5*l.* and not 10*l.*	0	0	3
Amounting to 10*l.* and not 20*l.*	0	0	6
Amounting to 20*l.* and not 50*l.*	0	1	0
Amounting to 50*l.* and not 100*l.*	0	1	6
Amounting to 100*l.* and not 200*l.*	0	2	6
Amounting to 200*l.* and not 300*l.*	0	4	0
Amounting to 300*l.* and not 500*l.*	0	5	0
Amounting to 500*l.* and not 1000*l.*	0	7	6
Amounting to 1000*l.* or upwards	0	10	0
And where any sum shall be therein expressed to be received in full of all demands	0	10	0)

And any note, memorandum, or writing whatsoever, given to any person, for or upon the payment of money, whereby any sum of money, debt, or demand, or any part of any debt or demand, therein specified, and amounting to two pounds or upwards, shall be expressed or acknowledged to have been paid, settled, balanced, or otherwise dis-

charged or satisfied, or which shall import or signify any such acknowledgment, and whether the same shall, or shall not, be signed with the name of any person, shall be deemed and taken to be a receipt for a sum of money, of equal amount with the sum, debt, or demand, so expressed or acknowledged to have been paid, settled, balanced, or otherwise discharged or satisfied, within the intent and meaning of the act, and shall be charged with a duty accordingly.

And any receipt or discharge, note, memorandum, or writing whatever, given to any person for, or upon the payment of, money, which shall contain, import, or signify any general acknowledgment of any debt, account, claim, or demand, debts, accounts, claims, or demands, whereof the amount shall not be therein specified, having been paid, settled, balanced, or otherwise discharged or satisfied, or whereby any sum of money therein mentioned shall be acknowledged to be received, in full, or in discharge or satisfaction of any such debt, account, claim, or demand, debts, accounts, claims, or demands, and whether the same shall or shall not be signed with the name of any person, shall be deemed and taken to be a receipt for the sum of 500*l.* or upwards, within the intent and meaning of this schedule and of the foregoing act; and shall be charged with the duty of five shillings accordingly.

And all receipts, discharges, and acknowledgments of the description aforesaid, which shall be given for or upon payments made by or with any bills of exchange, drafts, promissory notes, or other securities for money, shall be deemed and taken to be receipts given upon the payment of money, within the intent and meaning of the act.

Exemptions from the preceding Duties on Receipts.

Receipts exempted from stamp duty by any act relating to the assessed taxes:

Receipts or discharges given by the treasurer of the navy, for the service of the navy:

Receipts or discharges given by any agent, on account of the pay of the army or ordnance:

Receipts or discharges given by any officer, seaman, marine, or soldier, or their representatives respectively, for or on account of any wages, pay, or pension, due from the navy office, army pay office, or ordnance office:

Receipts or discharges given for the consideration money, for the purchase of any share in any of the government parliamentary stocks or funds; or in the stocks and funds of the governor and company of the bank of England, or of the East-India company, or South-Sea company, and for any dividend paid on any share of the said stocks or funds respectively:

Receipts given for money, deposited in the bank of England, or in the bank of Scotland, or the royal bank of Scotland, or in the bank of the British linen company in Scotland, or in the hands of any banker or bankers, to be accounted for on demand; provided the same be not expressed to be received of, or by the hands of any other than the person or persons to whom the same is to be accounted for, — and not with interest.

Receipts or discharges, written on promissory notes, bills of exchange, drafts, or orders for the payment of money, duly stamped, according to the laws in force at the date thereof; or upon bills of exchange drawn out of, but payable in Great Britain:

Receipts or discharges, given upon bills or notes of the governor and company of the bank of England:

Letters by the general post, acknowledging the safe arrival of any bills of exchange, promissory notes, or other securities for money:

Receipts or discharges, endorsed or otherwise written upon, or contained in, any bond, mortgage, or other security, or any conveyance, deed, or instrument whatever, duly stamped, according to the laws in force at the date thereof, acknowledging the receipt of the consideration money therein expressed, or the receipt of any principal money, interest, or annuity, thereby secured:

Releases or discharges for money, by deeds duly stamped according to the laws in force at the date thereof:

Receipts or discharges given for drawbacks or bounties, upon the exportation of any goods or merchandize from Great Britain:

Receipts or discharges for the return of any duties of customs, upon certificates of over entry:

Receipts, or acknowledgments of payment, indorsed upon any bills, orders, remittance-bills, or remittance-certificates, drawn by commissioned officers, masters, and surgeons in the navy, or by any commissioner or commissioners of the navy, under the authority of an act passed in the 35th year of his majesty.

Receipts, or acknowledgments of payment, indorsed upon any bills, drawn pursuant to any former act or acts of parliament, by the commissioners of the navy, of the transport service, of the sick and wounded, and payable by the treasurer of the navy.

RECEIVER. Receiving stolen goods, knowing them to be stolen, is a high misdemeanor at the common law; and by several statutes is made felony, and liable to transportation.

Thus by 5 Ann. c. 31., although the principal in a felony cannot be taken, yet the receiver of the stolen property may be convicted and punished by fine and imprisonment. And by 22 Geo. 2. c. 58., the former statute was extended to all cases whatever; and it has been determined, under this latter statute, that even the principal may be a witness against the receiver, and such is the constant practice.

By 29 Geo. 2. c. 30., amended by 21 Geo. 3.

c. 69., and further extended by 22 Geo. 3. c. 58. receivers of lead, iron, copper, brass, bell-metal, and solder, stolen from houses, shops, warehouses, mills, ships, and other vessels, wharfs, quays, &c. are subject to transportation.

By 3 Geo. 4. c. 24. these acts are extended to receivers of stolen bonds, bank-notes, and other securities for money.

And by s. 3. of the same act, offenders against these statutes may be convicted, whether before or after the conviction of the principal offender.

RECKONING, or a ship's reckoning, in navigation, is that account by which at any time it may be known where the ship is, and on what course or courses she is to steer in order to gain her port; and that account taken from the log-board, is called the dead reckoning.

RECOGNIZANCE. A bond or obligation of record, acknowledged before a proper authority to the use of the king. These records testify that the obligor owes a certain sum of money inserted therein, if some certain act therein mentioned shall not be performed; viz. if some person shall not appear in some court of justice at a particular time; if he shall not keep the peace for a certain period; or if he shall not pay a certain debt, and the like. 2 *Black. Com.* 341.

RECORD, is an authentic testimony of any thing reduced into writing on parchment, and preserved in some court or public office for the reception of such instruments. There are reckoned three descriptions of records — judicial, ministerial, and by consent and conveyance. Hence the term *recorder*, which signifies that person who is appointed to assist the principal (under whatever title such principal be recognized) of a corporate body, which has by its charter of institution a court of record appertaining to it.

Debts of record are such as appear to be due by the record of a court. Thus recognizances, together with statutes *merchant*, and statutes *staple*, if forfeited by non-performance of the condition, are debts *of record*. — 2 *Black. Com.* 160.

RECOVERY. In its legal and mercantile application generally signifies the actual re-possession of something taken away, or the acquisition of the value thereof, through the medium of some legal proceeding. But it also signifies technically a process of law in the court of common pleas, whereby a man may, under certain circumstances, destroy entails of estates, and bar those in remainder and reversion from inheriting. — 2 *Black. Com.* 116.

RECTIFIED SPIRITS are such spirituous liquors as have undergone the process of rectification, or are freed from their phlegm. *See* DISTILLATION.

RECTIFIER, in navigation, an instrument consisting of two parts, which are two circles, either laid one upon, or let into the other, and so fastened together in their centres, that they represent two compasses, the one fixed, the other moveable; each of them divided into the thirty-two points of the compass, and three hundred and sixty degrees, and numbered both ways, both from the north and the south, ending at the east and west in ninety degrees. The fixed compass represents the horizon, in which the north and all the other points of the compass are immoveable. The moveable compass represents the mariner's compass, in which all the points are liable to variation. In the centre of the moveable compass is fastened a silken string, long enough to reach the outside of the fixed compass. But if the instrument be made of wood, there is an index in lieu of the thread. Its use is to find the variation of the compass, and to rectify the course at sea, having the amplitude of azimuth given.

RED, in dyeing, is one of the five simple, or mother colours. *See* DYEING.

RED, among painters, one of the primary colours. *See* COLOUR and PAINTING.

REDDLE, an ore of iron in the state of red oxide, commonly used as a pigment. Red lead pencils, as they are vulgarly called, are made of this substance, which is likewise much used in marking sheep, and other coarse purposes.

RED-EARTH, (Ger. *Rothe Erde*. Du. *Roodaarde*. Da. and Sw. *Rödjord*. Fr. *Terre rouge*. It. *Terra rossa*. Sp. *Tierra roja*. Port. *Terra roxa*. Rus. *Krasnoi zwet*,) a reddish soil approaching to a brown colour, found in many parts of Great Britain, and in great abundance in France. It is used as a pigment.

RED-HERRINGS. (Ger. *Bücklinge*. Du. *Bokkingen*. Da. *Bökling*. Sw. *Bökling*, *Rokt sill*. Fr. *Hareng sor*, *Hareng enfumé*, *Hareng rouge salé*. It. *Aringa secca*, *infumata*, *passa*. Sp. *Arenque secado*, *ahumado*. Port. *Arenque secco*, *curado*. Rus. *Koptschenaja seld*. Pol. *Sledz wedzony*.) In curing red herrings, they lay them in brine, as the pickled or white herring: only they let them lie therein double the time (24 or 30 hours), because they are now to take all their salt, whereas the other kind takes half its salt in the barrel. When taken out of the brine, they string them by the head on little wooden spits, and thus hang them in a kind of chimney, made for the purpose, exposing them to the smoke of brushwood, until sufficiently smoked and dried, which commonly takes 24 hours. The goodness of red-herrings consists in their being large, fresh, fat, oily, soft, and pliable; their outside of a yellow gold colour; their roes or milts within them, and their being well salted, smoked, and barrelled. *See* FISHERY and HERRINGS.

RED LEAD, *See* MINIUM and LEAD.

RED OCHRE, Brown Red, or Spanish Red, (Ger. *Braunroth*. Du. *Bruinrood*. Da. *Bruunrödt*. Sw. *Brunröd*. Fr.

Brun rouge, Rouge brun. It. *Rosso bruno.* Sp. *Almagre colorado, Almazarron.* Port. *Almagre, Almagra,*) is produced by subjecting the species of earth called yellow ochre, to the action of fire, till it becomes perfectly red or nearly brown. Red ochre is much used by painters, and is esteemed a good standing colour: England and Italy are the parts of Europe most noted for the exportation of red ochre.

RED ORPIMENT. *See* REALGAR.

RED SAUNDERS, *See* SAUNDERS.

REDUCTION, in arithmetic, the method of converting numbers from one name or denomination, to another series. It is divided into *Reduction Descending, and Reduction Ascending.* — *See Joyce's Arithmetic.*

REE, Rei, Reiz, or Rez, a small Portuguese copper coin, equivalent to 1-24th of a penny sterling.

REED. (Ger. *Rohr.* Du. *Riet.* Da. and Sw. *Rör.* Fr. *Roseau.* It. *Canna.* Sp. *Cana.* Port. *Cana.* Rus. *Trost.* Pol. *Troina.* Lat. *Arundo.*) The chief species of reeds, of any importance in a commercial point of view, are the following: 1. The *arundo donax,* or cultivated reed, a native of warm countries, yet it will bear the cold of our winters in the open air. The stalks of this are brought from Spain and Portugal, and are used by weavers, and also for making fishing-rods. 2. The *arundo orientalis,* or oriental reed, which the Turks use as writing-pens; it grows in a valley near Mount Athos, as also on the banks of the river Jordan. 3. *Arundo versicolor,* or Indian variegated reed; supposed to be a variety of the *donax,* differing from it only in having variegated leaves. The Bamboo (which *see*) is likewise a species of reed.

REEF, a term in navigation. When there is a great gale of wind, they commonly roll up part of the sail below, that by this means it may become the narrower, and not draw so much wind; which contracting or taking up the sail, they call a *reef,* or *reefing* the sail. So also when a top-mast is sprung, that is, when it is cracked, or almost broken in the cap, they cut off the lower piece that was nearly broken off, and setting the other part, now much shorter, in the step again, they call it a *reefed top-mast.*

REEL, (*Reels.* Ger. *Haspeln.* Du. *Haspels.* Da. *Hasper.* Sw. *Hasplar, Här-flar.* Fr. *Dévidoirs.* It. *Naspi, Naspoli, Aspi.* Sp. *Argadillos.* Port. *Devanaderas.* Rus. *Motowila.* Pol. *Motowidla,*) in the manufactories. There are various kinds of reels, some very simple, others as complex. Of the former kinds, those most in use are: 1. A reel held in the hand, consisting of three pieces of wood, the biggest and longest whereof, (which does not exceed a foot and a half in length, and a quarter of an inch in diameter) is traversed by two other pieces disposed different ways. 2. The common reel, or windlass, which turns upon a pivot, and has four flights traversed by long pins or sticks, whereon the skein to be reeled is put, and which are drawn closer, or opened wider, according to the skein.

REEVING, in the sea language, the putting a rope through a block; hence to pull a rope out of a block is called *unreeving.*

RE-EXCHANGE, or Re-change, a second payment of the price of exchange, or rather, the price of a new exchange, due upon a bill of exchange that comes to be protested, and must be refunded to the bearer by the drawer or endorser. The occasion of re-exchange is when the bearer of a bill of exchange, after protesting it, for want either of acceptance or payment, borrows money on his own bond, promise, or the like; or draws a bill of exchange in the place where the payment was to be made, on the person who furnished the first; for which he pays a second exchange, which being added to the first already paid, the drawer of the first bill makes two exchanges, properly called exchange, and re-exchange. The bearer of a protested bill has a right to recover both the one and the other on the drawer; yet the simple protestation the bearer makes in the act of protest, that he will take up a like sum at re-exchange, for want of his bill being accepted or paid, is not sufficient to entitle him to demand the reimbursement of his re-exchange, unless he make it appear he has actually taken up money in the place whereon the bill was drawn, otherwise the re-exchange will amount to the restitution of the first exchange, with interest, the expenses of protesting, and of the journey, if there have been any. If a bill of exchange, payable to the bearer, or order, come to be protested, the re-exchange is only due upon the drawer for the place where the remittance was made; not for those places where it may have been negotiated; at least the drawer has a right to be refunded his re-exchange, for those places by the indorser. Indeed the re-exchange is due from the drawer, upon all places, where a power of negotiation is given by the bill, and upon all others, if the power of negotiation be indefinite. Lastly, the interest of the re-exchange of the expenses of the protest, and the journey, are only due from the day of the demand. *See* BILLS OF EXCHANGE.

REFE, a long measure used at Madagascar, being nearly equal to what is called the *brasse* in Europe. They also use the demi-refe, or span.

REFINING, in general, is the art of purifying a thing, including not only the assaying or refining of metals, but likewise the depuration or clarification of *oils,* &c. Gold and silver may be refined by several methods, which are all founded on the essential pro-

perties of these metals, and acquire different names according to their kinds. Thus, for instance, gold having the property which no other metal, not even silver, has, of resisting the action of sulphur, of antimony, of nitrous acid, of marine acid, may be purified by these agents from all other metallic substances, and consequently may be refined. These operations are distinguished by proper names, as purification of gold by antimony, parting, concentrated parting, dry parting. In a similar manner, as silver has the property (which the imperfect metals have not) of resisting the action of nitre, it may be refined by this salt; but the term refining is chiefly applied to the purification of gold, and silver, by lead, in the cupel. This is performed by the destruction, vitrification, and scorification, of all the extraneous and destructible metallic substances with which they are allayed.

As none but the perfect metals can resist the combined action of air and fire, without losing their inflammable principle, and being changed into earthly or vitreous matters, incapable of remaining any longer united with substances in a metallic state, there is then a possibility of purifying gold, and silver, from all allay of imperfect metals, merely by the action of fire, and air, only by keeping them fused till all the allay is destroyed; but this purification being too expensive, and tedious, a much shorter, and more advantageous, method has been discovered. This consists in adding to the allayed gold, and silver, a certain quantity of lead, and exposing afterwards this mixture to the action of the fire. Lead is one of the metals which loses most quickly, and easily, a sufficient quantity of its inflammable principle to cease to be in a metallic state; but, at the same time, this metal has the remarkable property of retaining, notwithstanding the action of the fire, enough of this same inflammable principle, to be very easily melted into a vitrified, and powerfully vitrifying, matter, called litharge.

The lead, then, which is to be added to the gold, and silver, to be refined, or which happens naturally to be mixed with these metals, produces, in their refining, the following advantages: 1. By increasing the proportion of imperfect metals, it prevents them from being so well covered and protected by the perfect metals. 2. By uniting with these imperfect metals, it communicates to them a property it has of losing very easily a great part of its inflammable principle. 3. By its vitrifying and fusing property, which it exercises with all its force upon the calcined, and naturally refractory, parts of the other metals, it facilitates and accelerates the fusion, the scorification, and the separation of these metals.

The lead, which in this operation is scorified, and scorifies along with it the imperfect metals, separates from the metallic mass, with which it is then incapable of remaining united, and floats upon the surface of the melted mass, and lastly it vitrifies.

The removal of this vitrified matter, is effected either by the nature of the vessel, in which the melted matter is contained, and which, being porous, absorbs and imbibes the scorified matter as fast as it is formed; or by a channel cut in the edge of the vessel, through which the matter flows out.

The vessel, in which the refining is performed, is flat and shallow, that the matter which it contains may present to the air the greatest surface possible. The furnace ought to be vaulted, that the heat may be applied upon the surface of the metal during the whole time of the operation. In the instant when all the imperfect metal is destroyed, and consequently the scorification ceases, the surface of the perfect metals is seen, and appears clean and brilliant. This forms a kind of fulguration or coruscation: by this mark the metal is known to be refined. If the operation be so conducted, that the metal sustains only the precise degree of heat necessary to keep it fused before it is perfectly refined, we may observe that it fixes or becomes solid all at once in the very instant of the coruscation; because a greater heat is required to keep silver, or gold, in fusion when they are pure, than when allayed with lead.

The operation of refining may be performed in small, or in large, quantities, upon the same principles, but only with some differences in the management. As the refining of small quantities of perfect metals is performed in the same manner as these metals are assayed, the assay being only a very accurate refining, we refer to the article ASSAYING.

As we have already observed, the term *refining* is not confined to the purifying of metals alone, but extends to the depuration of liquors.

Whites of eggs, and isinglass, are the articles chiefly used for this purpose. When the whites of eggs are made use of, it is necessary to be particularly careful in using the freshest eggs only; and in examining them, great caution is to be observed, since it has often happened, that *a single egg, however slightly tainted, has given a disagreeable flavour to a whole pipe of wine.* It is best to employ such eggs only as are laid by hens which do not associate with cocks, because the intercourse of the male renders the eggs more liable to putrescence, and gives them a very bad taste. Isinglass does not alter the true colour of the wine, or communicate a disagreeable flavour to it, and is therefore best.

Experience has proved, that white wines in particular, which have been clarified through the medium of isinglass, are more transparent, and preserve their limpidness much longer, than those to which the whites

of eggs have been applied; the latter being invariably injured by a contact with the atmospheric air. As to red wines, a very small portion of isinglass will clear them perfectly.

It was suggested by Parmentier, a French chemist, that, in many cases, a sort of jelly, prepared from the raspings of bones, might be substituted for isinglass; and some persons have thought, that a gelatinous substance, both wholesome, and pleasing to the smell and taste, might be prepared for the purpose already mentioned, from fresh-water fish, as those kind which are nearly without scales are known to abound in this matter, and thus the importation of isinglass might be superseded.

REFUNDING, is the paying back of money given, as a consideration for any contract that has not been fulfilled. If a person take an apprentice, and receive a premium, and die before the end of the term, his executors are bound to pay back a proportionate part of the premium, after deducting for the maintenance of the apprentice.

A, an attorney, lying ill of the sickness of which he afterwards died, takes B for his clerk, and receives one hundred and twenty pounds, and by articles agrees with the father of B to return sixty pounds of the money, if he died within a year. A died within three weeks. The executor of A was decreed to pay back *one hundred guineas.* —*Ver.* 466. *pl.* 436. *Trin.* 1687. *Newton* v. *Rowse.*

A was indebted to B in four hundred pounds, by mortgage. B died, and C his executor, (on a bill in chancery, for the payment of debts of A, out of lands, charged with the same,) received, in virtue of the master's report, the sum of seven hundred pounds. It afterwards appeared that three hundred and odd pounds had been paid to B in his life-time; and, on a new application to the court, the executor C was obliged to refund this sum to the rightful heir of A. — *Wms.'s Rep.* 355. *Trin.* 1717. *Foley* v. *Ray.*

Mich. 30 Car. 2. Master had received with apprentice 250*l.* died in two years, the apprentice during that time not having learned his trade. Decreed that executor should return the premium, deducting 20*l.* per ann. for board. *See Dick. Pract. Expos.* 95., *and Chitty on App.* 73.

If an executor pays a debt on a simple contract, there shall be no refunding to a creditor of a higher nature.—2 *Vent.* 360. *Pasch.* 35 *Car.* 2. *Hodges* v. *Waddington.*

REFUSAL, is where a person hath, by law, a right and power of having or doing something of advantage to him, which is refused. An executor may refuse an executorship; but the refusal ought to be before the ordinary. If an executor be summoned to accept or refuse the executorship, and he doth not appear upon the summons, and prove the will, the court may grant administration, &c., which shall be good in law till such executor hath proved the will; but no man can be compelled to take upon him the executorship, unless he hath meddled with the estate.

REGISTER SHIPS, are such vessels as the government, on certain conditions hereafter specified, admits to all the rights enjoyed by British-built ships, thereby permitting them to trade to, and from, the ports in amity with, or appertaining to, Great Britain, and granting them those immunities extended to the British flag, with protection in the aforesaid ports, as well as at sea, when circumstances allow of its being afforded.

The following is an abstract of the statute 26 Geo. 3. c. 60., which contains the regulations now in force with respect to register ships, but so far extended by 27 Geo. 3. c. 19., that by sect. 12. it is declared that "all vessels which by such act of 26th are declared not to be entitled to any of the advantages of a British-built ship, or of a ship owned by British subjects, and all ships not registered according to the said act, shall, although such ships may be owned by his majesty's subjects, be deemed as alien ships, and be in all cases liable to the same penalties.

And by 54 Geo. 3. c. 59., all vessels, whether British or foreign, which shall become forfeited under any act for the abolition of the slave-trade, and be condemned, shall from such condemnation be entitled to a certificate of registry as a British-built ship, and enjoy all privileges as such, in like manner as vessels taken by his majesty's ships of war, and condemned as lawful prize; provided they shall be subject to the same conditions, and forfeitures, and be owned and navigated in like manner, as such prizes are required to be.

Every ship or vessel having a deck, or being of the burthen of fifteen tons, and belonging to a subject in Great Britain, Guernsey, Jersey, the Isle of Man, or any colony, plantation, island, or territory, belonging to the king, is to be registered by the person claiming a property therein, who is to obtain a certificate of such registry in the form given in the act, from the collector and comptroller, if in Great Britain or the Isle of Man, or from the governor, lieutenant-governor, or commander in chief, and the principal officers of the customs, if in Guernsey, &c.

Such certificate is not to be granted but in the port to which the ship properly belongs, except prize-ships condemned in Guernsey, Jersey, or Man, which are to be registered in a particular manner; and except cases where the officers are specially authorised by the commissioners of the customs.

The port to which a ship shall be deemed to belong, is the port from, and to, which she

usually trades, or, being a new ship, shall intend to trade, and at or near which the husband, or acting and managing owner, usually resides.

No ship, the property of the king or royal family, nor any lighters, barges, boats, or vessels, of any build or description whatever, used solely in rivers or inland navigation, need be registered.

No ship built in the United States of America, or owned by the people thereof, during the time the prohibitory acts are in force, and not before registered, is entitled to be registered, unless it has been condemned as a prize, or stranded and built, or rebuilt.

No subject, whose usual residence is out of the king's dominions, shall, during such residence, be entitled to be owner, in whole or in part, of a British ship to be registered under this act, unless he is a member of some British factory, or agent for, or partner in, any house or co-partnership, actually carrying on trade in Great Britain or Ireland.

The oath (*given at the foot of this article*) is to be taken by the owner, and if there are two joint-owners, by both, if they live within twenty miles of the port, otherwise by one: if more than two, then by the greater part not exceeding three, if so many are resident within twenty miles of the port; if not, by one.

That the proper officers may be ascertained of the ships registered, one or more persons are to be appointed by the commissioners of customs, in England and Scotland, and by the governors in the plantations, &c. for examining and admeasuring ships, as to the particulars contained in the certificate; and he is to deliver an account thereof to the person who is to make the registry, and grant the certificate. Some person attending on the owner's part is also to sign his name to the certificate of such surveying officer, if he agrees to the contents of the account.

If such officer gives false descriptions, or any person makes a false register, or grants a false certificate, he is to forfeit 100*l.*

A bond is entered into by the master and owners, at the time of obtaining the certificate, that the said certificate shall not be sold, lent, or otherwise disposed of; and that in case the ship be lost, taken, or the like, the certificate, if preserved, shall be returned, within one month after the master's arrival in the king's dominions, to the collector or comptroller of some port of Great Britain, or the Isle of Man, or of the plantations, &c.; and that if any foreigner shall become entitled to the whole or any share in the interest in the ship, the certificate shall be delivered up within seven days after such transfer of property, if it shall be within the limits of the king's dominions; and, if any foreign port, to the British consul resident there; and if at sea, to the consul or British officer at the first port where the ship shall arrive, immediately after arrival: or if the port at which it arrives is in Great Britain, &c. then within fourteen days after arrival.

If any alteration of property takes place, in the same port in which the ship was originally registered, such alteration to be acknowledged by indorsement on the certificate, before two witnesses, together with the town, place, or parish, where the person resides to whom the transfer is made; or if he lives in some British factory, the name thereof; if in some foreign town, and he is not a member of a British factory, the name of the town, and also the name of the house or co-partnership in Great Britain or Ireland, whose agent or partner he is; and the person to whom the transfer is made, is to deliver a copy of such indorsement to the person authorised, to make registry, and grant certificates, who is to cause an entry thereof to be indorsed on the oath upon which the original certificate of registry was obtained, to make a memorandum of it in the Book of Registers, and give notice thereof to the commissioners of customs in England or Scotland under whom they act.

So often as the property of a ship is transferred from one British subject to another, in the whole, or in part, the certificate of the registry is to be recited in the bill of sale, which is otherwise void. So often as the master is changed, the certificate is to be delivered by the master or owner, at the port where the change is made, to the person authorized there to grant certificates, who is to indorse and subscribe a memorandum of such change, &c.

Owners not to change the name by which a ship was first registered; and they are within a month after the first registering to paint on some conspicuous part of the stern, in letters four inches long, the name of the ship; and any owner or master, obliterating or concealing the name so painted (unless in square-rigged vessels in time of war), or in any paper describing a ship by any other name than that she was registered by, or verbally so describing her to the officer of the customs, forfeits 100*l.*

Persons applying for registry for any ship built after 1st August, 1786, are to produce a true account under the builder's hand, of the time and place of building, tonnage, and the name of the first purchaser, and make oath that the ship in question is the same.

If a certificate be lost or mislaid, a registry or certificate *de novo* may be granted, according to the regulations of stat. 15 G. 2. c. 31. provided the above-required security be given; and the oath prescribed by this act be taken, instead of that prescribed by act of 15 Geo. 2.

If a ship, after registering, shall be altered in form, or burthen, she must be registered *de novo*, as soon as she returns to the port to

which she belongs, or to any other port where she may be legally registered.

The owners of prize-ships, before registering, to produce a certificate of the condemnation, under the hand and seal of the judge, and also an account of the particulars contained in the before-mentioned certificate, to be made and subscribed by persons appointed to survey the ship. *See* PRIZE-SHIPS.

Certificates to distinguish ships in two ways, either by being intituled, "Certificate of British Plantation Registry;" or "Certificate of Foreign Ships' Registry for the European Trade, British Property."

No ship to be allowed to clear out as a British ship, or to be entitled in any wise to the privileges of a British ship, unless the owner had obtained a certificate.

The masters of ships are, on demand, to produce their certificates to the principal officer in any port of his majesty's dominions; or to the British consul or chief officer in any foreign port, under a penalty of 100*l.*

The fees of registry are specially limited by the act. *See sec.* 37.

Lastly, all former acts made for the registry of ships, shall be taken to extend to ships required by this act to be registered.

The other acts which relate to the registering of ships, are the 7 & 8 Will. 3. and the 15 Geo. 2. such of their contents as are now in force are contained in our brief abstract of the latest act passed upon this important article of maritime law. We have therefore only to add a mere note or two, from modern cases, which apply to the general principles contained in these statutes.

The ship register statutes do not apply to a transfer of property by operation of law, such as from the commissioners to the assignees of a bankrupt. *Bloxham* v. *Hubbard. 5 E. R.* 407.

Under the ship-register acts, in order to make a title to a ship sold at sea, whether in whole or in part, such sale must be acknowledged by proper indorsement of her certificate of registry; and a copy of such indorsement must be delivered by the vendee to the persons authorised to make registry; and it is not sufficient for such vendee to register such ship *de novo*, in another port where he resides, though he remove the ship there, and she do never more return to her original port after the sale. *Ibid.*

A foreign-built ship, British owned, is not required to be registered. *Long* v. *Duff. 2 B. & P.* 209.

Form of the Oath to be taken (as directed by Stat. 26 Geo. 3. c. 60.) in order to making a Registry, and granting a Certificate thereof.

I, A. B. of (place of residence and occupation), do make oath that the ship or vessel (name), of (port or place), whereof (master's name) is at present master, being (kind of build, burthen, &c. as described in the surveying officer's certificate) was (when and where built, or if prize, capture and condemnation); and that I, the said A. B. (and the owner's names and occupations, and where they respectively reside, viz. town, place, or parish, and county; or if member thereof, and resident in, any factory in foreign parts, or in any foreign town or city, being an agent for, or partner in, any house or co-partnership actually carrying on trade in Great Britain or Ireland, the name of such factory, foreign town, or city; and the names of such house or co-partnership), am (or are) sole owner (or owners) of the said vessel; and that no other person or persons whatever hath or have any right, title, interest, share, or property, therein or thereto; and that I, the said A. B. (and the said other owners, if any) am (or are) truly and *bonâ fide* a subject (or subjects) of Great Britain: and that I, the said A. B. have not (nor have any other of the owners, to the best of my knowledge and belief) taken the oath of allegiance to any foreign state whatever, (except under the terms of some capitulation, describing the particulars thereof,) or that since my taking (or his or their taking) the oath of allegiance, (naming the foreign states respectively to which he or any of the said owners shall have taken the same,) and prior to the passing of an act in the twenty-sixth year of the reign of king George the Third, (intituled "An Act for the further Increase and Encouragement of Shipping and Navigation;") I have (or he or they hath or have) become a subject (or subjects) of Great Britain, (either by his majesty's letters patent, as a denizen or denizens, or naturalized by act of parliament, as the case may be, naming the dates of the letters of denization, or the act or acts of parliament for naturalization respectively,) or (as the case may be) I have (or he or they hath or have) become a denizen (or denizens, or naturalized subject or subjects, as the case may be) of Great Britain, by his majesty's letters patent, or by an act of parliament, passed since the first day of January, one thousand seven hundred and eighty-six, (naming the times when such letters of denization have been granted respectively, or the year or years in which such act or acts for naturalization have passed, respectively,) and that no foreigner, directly or indirectly, hath any share, or part, or interest in the said ship or vessel.

Form of a Certificate of Registry, directed to be granted by Stat. 26 Geo. 3. c. 60.

In pursuance of an act passed in the twenty-sixth year of the reign of king George the Third, intituled, "An Act"—(here insert the title of the act, the names, occupation, and residence of the subscribing owners,) having taken and subscribed the oath required by this act, and having sworn that he (or they) together with (names, oc-

cupation, and residence of non-subscribing owners), is (or are) sole owner (or owners) of the ship or vessel called (name of ship), (of place to which the vessel belongs), whereof (master's name) is at present master, and that the said ship or vessel was (when and where built, or captured, and date of condemnation;) and (name and employment of surveying officer) having certified to us that the said ship or vessel is (whether British, foreign, or British-plantation-built), has (number of decks) decks, and (number of masts) masts, that her length, from the fore-part of the main stem, to the after-part of the stern-post aloft, is (number of feet and inches); her breadth, at the broadest part, whether above or below the the main-wales (number of feet and inches); her height between decks (number of feet and inches, if more than one deck, and if not, then) the depth of the hold, (number of feet and inches); and admeasures (burthen) tons, that she is (kind of vessel, and how built), has (whether any or no gallery), and (kind of head, if any) head; and the said subscribing owners having consented and agreed to the above description and admeasurement, and having caused sufficient security to be given, as is required by the said act, the said (kind and name of the vessel) has been duly registered at the port of (name of the port).

Given under our hands and seals of office, at the custom-house in the said port of (name), this (date) day of (month,) in the year (words at length.)

REGISTER-SHIPS, in the Spanish trade, are vessels which obtain a permission from the king of Spain, or the council of the Indies, to traffic in the ports of the Spanish West Indies, which are thus called from their being registered before they set sail from Cadiz.

REGISTER, in printing, is disposing the forms on the press so that the lines and pages printed on one side of the sheet fall exactly on those of the other.

REGISTER, among letter-founders, is one of the inner parts of the mould in which the printing-types are cast. Its use is to direct the joining the mould justly together again, after opening it to take out the new-cast letter.

REGLETS, or Riglets, in printing, are thin slips of wood, exactly planed to the size of the body of the letter. The smaller sorts are placed between the lines of poetry; and both those and the larger are used in filling up short pages, in forming the whites or distances between the lines of titles, and in adjusting the distances of the pages in the chase so as to form register.

REGRATOR, or Regrater, in law, formerly signified one who bought wholesale, or by the great, and sold again by retail; but the term is now used for one who buys any wares or victuals, and sells them again in the same market or fair, or within five miles round it. *See* FORESTALLING.

Regrator, is also used for one who furbishes up old moveables to make them pass for new. And masons who take off the outward surface of hewn stone, in order to whiten it, or make it look fresh again, are said to *regrate*.

REGULATOR *of a Watch*, the small spring belonging to the balance: serving to adjust its motions, and make it go faster or slower.

REGULUS. The name regulus was given by chemists to metallic matters when separated from other substances by fusion. This name was introduced by alchemists, who, expecting always to find gold in the metal collected at the bottom of their crucibles after fusion, called this metal, thus collected, regulus, as containing gold, the king of metals. It was afterwards applied to the metal extracted from the ores of the semi-metals, which formerly bore the name that is now given to the semi-metals themselves. Thus we had regulus of antimony, regulus of arsenic, and regulus of cobalt.

RELEASE, is the relinquishment or discharge of any right of action, which a man hath, or may claim, against any other. Releases are of two kinds, viz. as to lands, goods, and chattels; and as to actions real, personal, or mixed. Every release must be of the same nature with the thing or obligation released; thus, if an agreement be in writing, the release also must be in writing.

If two persons are jointly and severally bound, a release to one of the parties will discharge the other.

The most effectual release that can be given, is a release of all demands, which will fully discharge all sorts of actions, rights, and titles, rents, covenants, annuities, contracts, recognizances, &c.

General Release.

Know all men by these presents, That I, A. B. of the Strand, in the county of Middlesex, grocer, have remised, released, and for ever quitted claim; and by these presents do, for me, my heirs, executors, and administrators, remise, release, and for ever quit claim unto C. D. of Bishopsgate-street, in the city of London, oilman, his heirs, executors, and administrators, and every of them, of and from all, and all manner of actions, cause and causes of actions, suits, bills, bonds, writings, debts, dues, accompts, sum and sums of money, judgments, executions, extents, quarrels, controversies, trespasses, damages, and demands whatsoever, both in law and equity, or otherwise howsoever, which against the said C. D. I ever had, now have, or which my heirs, executors, or administrators, shall or may hereafter have, claim, challenge, or demand, for or by reason, or by means of any matter, cause, or thing whatsoever, from the beginning of the world unto the day of the date

hereof: In witness whereof, I have hereunto set my hand and seal, this first day of September, in the year of our Lord one thousand eight hundred and nine.

A. B. (L. S.)

Sealed and delivered, being first duly stamped, in the presence of } E. F. G. H.

Release from Creditors to a Debtor upon Compounding his Debts.

To all, &c. We, who have hereunto set our hands and seals, creditors of A. B. of, &c. send greeting: Whereas, the said A. B. oweth, and is indebted to us, his said creditors, in several sums of money, which he is not able fully to satisfy, we therefore have agreed, and do hereby agree, to accept the sum of £.——, of lawful money of Great Britain, in full satisfaction of all the debts owing to us respectively, at the sealing hereof, by and from the said A. B. which said sum of £.——, was this day paid to C. D. one of the creditors of the said A. B. for the use, and to the intent, that the same may be shared and divided amongst us, his said creditors, according to the debts to us severally due and owing: Now therefore know ye, That for the consideration aforesaid, each of us, the said creditors, who have hereunto set our hands and seals, for him and herself, his and her heirs, executors, and administrators, doth, by these presents, remise, release, and for ever discharge the said A. B. his heirs, executors, and administrators, of and from all, and all manner of action and actions, &c. (*as in the first release*) which against the said A. B. each and every of us, his said creditors, now hath, or which each and every of our heirs, executors, or administrators, respectively hereafter, may, can, or ought to have, claim, or demand, for, upon, or by reason of any other matter, cause, or thing whatsoever, from the begining of the world unto the day of the date hereof: In witness, &c.

REMIT. To remit a sum of money, bill, or the like, is to send the sum of money, &c. Remittances are frequently made through the medium of bankers, and the money paid them in these cases for their trouble, &c. is termed commission.

RENEWAL OF LEASES. To ascertain what fine should be given for the renewal of any number of years lapsed in a lease originally granted for twenty-one years, the following table will furnish the necessary means.

TABLE.

Years.	3 per cent.	4 per cent.	5 per cent.	6 per cent.	8 per cent.	11, 56*l.* per cent
1	.538	.439	.359	.294	.199	.100
2	1.091	.895	.736	.606	.413	.212
3	1.661	1.370	1.132	.936	.645	.338
4	2.249	1.863	1.547	1.287	.895	.477
5	2.854	2.377	1.983	1.658	1.165	.633
6	3.477	2.911	2.441	2.052	1.457	.806
7	4.119	3.466	2.922	2.469	1.773	1.000
8	4.780	4.043	3.428	2.911	2.113	1.216
9	5.461	4.644	3.958	3.380	2.481	1.457
10	6.162	5.269	4.515	3.877	2.878	1.726
11	6.885	5.918	5.099	4.404	3.307	2.026
12	7.629	6.594	5.713	4.962	3.770	2.361
13	8.395	7.296	6.358	5.554	4.270	2.734
14	9.185	8.027	7.035	6.182	4.810	3.151
15	9.998	8.787	7.745	6.847	5.394	3.616
16	10.835	9.577	8.492	7.552	6.024	4.135
17	11.698	10.399	9.275	8.299	6.705	4.713
18	12.586	11.254	10.098	9.091	7.440	5.359
19	13.502	12.143	10.962	9.931	8.234	6.079
20	14.444	13.068	11.869	10.821	9.091	6.882
Total	15.415	14.029	12.821	11.764	10.017	7.779

Mode of working a question by the above Table.

What ought to be given as a fine for the renewal of fifteen years lapsed, or expired, in a lease for twenty-one years, allowing the tenant five per cent. interest, and estimating the clear and improved rent at sixty guineas per annum?

Against 15 in the table, and under 5 per cent. is 7.745, and this multiplied by 63*l.* gives 487.935=487*l.* 18*s.* 8¼*d.*

6.847 × 63=431*l.* 7*s.* 2*d.*

Or, 5.394 × 63=339*l.* 16*s.* 5*d.*

To ascertain the value of the fine which ought to be given for renewing a stated number of years in any lease, the rule is as follows:

The value for renewing an additional term, or for adding any number of years to the unexpired part of an old lease, is equal to the difference between the value of the lease for the whole term, and the value of the unexpired part.

Ex. What ought to be given for the addition of seven years to a lease, of which thirteen are unexpired; allowing six per cent. for money?

The whole term for which the new lease is to be granted is 20 years; therefore, by the table (inserted under LEASE, *which see*) we find that against 20 is 11.469, and
against 13 is 8.852;

leaving 2.617 for the number of years purchase which ought to be given for the renewal.

RENT, is a compensation or return in the nature of an acknowledgment for the use and occupation of some corporeal inheritance; or it may be defined to be a certain profit issuing yearly out of lands and tenements corporeal.

It is essential to rent, that it should be a profit, and that that profit should be certain, that it should issue out of the thing granted, and not be part of the land or thing itself; it must also issue yearly, because the profits arise, and are renewed, yearly; though it is not necessary that it should issue every successive year, but it may be reserved every second, third, or fourth year.

There are three descriptions of rent, viz. Rent Service, so called, because the pecuniary rent is connected with personal service. Rent Charge, because the land is liable to the distress, not of common right, but by virtue of a clause in the deed charging the land with a distress for the payment of it. Rent-seck, or barren-rent, which is nothing more than a rent reserved by deed, but without any clause of distress.

There are also some other species of rents, as Quit-Rents, so called, because thereby the tenant goes quit and free of all other services. Rack-Rents, which are rents of the full, or nearly the full value of the tenements; and Fee-farm Rent, which is reserved upon a grant in fee, and so called from the perpetuity of the rent or service.

Where a lessee covenants to pay rent and repair, with express exception of casualties by fire, he will be liable upon the covenant for rent, though the premises are burned down, and not rebuilt by the lessor, after notice; and if he covenants generally to repair, he is bound to rebuild the premises, if burned down by an accidental fire; but a clause is generally inserted, that if premises are not rebuilt within a certain time after notice, such rent shall, from that time, cease and determine.

RENTERING, (Rent-mending,) in manufactures, is the same with fine-drawing. It consists in sewing two pieces of cloth, or woven hose, edge to edge without doubling them, so that the seam scarcely appears; and hence it is denominated fine-drawing. It is a French word, meaning the same thing, and is derived from the Latin *retrahere*, or *re*, *in*, and *trahere*, to draw, because the seam is *drawn in* or covered. It is said, that in the East Indies, if a piece of fine muslin is torn, and afterwards mended by the fine-drawers, it will be impossible to discover where the rent was. In this country the dexterity of the fine-drawers is not so great, as that of those in the East; but it is still such as to enable them to defraud the revenue, by sewing a head or slip of English cloth on a piece of Dutch, Spanish, or other foreign cloth; or a slip of foreign cloth on a piece of English, so as to pass the whole as of a piece, and by that means avoid the duties, penalties, &c.

In Nottingham or Leicester it is sometimes done by way of experiment, to cut a stocking in two, the cross way of the leg, and give it to a fine-drawer, who mends it in such a manner, that the cut cannot be discovered.

RENTERING, in tapestry, is the working new warp into a piece of damaged tapestry, whether eaten by the rats, or otherwise destroyed, and on this warp to restore the ancient pattern or design. The warp is to be of woollen, not linen. Among the titles of the French tapestry-maker is included that of renterers.

REPEATER, a watch that strikes the hour by means of a spring connected with the shank or handle, which latter is moveable: the spring acts upon a bit of sonorous metal, and is put in motion by pressing the shank with the thumb till it appears to enter the body of the watch. The French were some years ago most celebrated for their dexterity in the formation of this kind of trinket; but of late this trade has been divided with England and other countries.

REPLEVIN, is the re-delivering to the owner, by the sheriff, his goods distrained upon any cause, upon surety that he will pursue the action against him who distrained; and if he pursue it not, or if it be adjudged against him, then he who took the distress may have it returned, or the value thereof, and all costs, charges, and expenses.

REPORTS, on a ship's arrival at the custom-house, are made in the following manner. After exactly copying the manifest (a transcript of which is given at the foot of this article) on two sheets of paper, you must go to the comptroller, or to the deputy comptroller in the long room, (accompanied by the master,) and read the two manifests over with him, of which he retains that written on the plain sheet, and the other with the printed oath you must return to the usher from whom you received it, who, after examining the master concerning the ship, and the latter swearing to the mani-

fest, directs you how, and to whom, you must pay for entering the ship. Your next business is to see whether those principally concerned in her cargo have made their entries, and if they have not, you may apply for their doing it, in order to set the ship to work, and begin her discharge. The person directed by the owners to take an account of every merchant's goods as they are delivered (called the ship's husband) having got the land-waiter's name appointed to the ship, applies to him for information of what merchants have made their entries, and for a copy of his warrant, which he signs, and sends aboard the ship to the officers there, that they may commence their work, which they soon after do, and send a hoy or lighter to the quays. And against the lighter's arrival, the ship's husband has prepared a book, ruled in the same manner as the waiter's; on one side of which he places the number, and quantity, of goods he judges the lighter may contain, and opposite thereto he sets down the marks, and numbers, of each parcel as it is landed; and as soon as the lighter is delivered, he takes a view, or gets the surveyor to give him an account of the damage (if any) upon the goods.

Form of a Manifest of Goods shipped on board the George, Thomas Smith, Master, from St. Petersburgh to London.

(A copy of which constitutes the Captain's Report at the Custom-house in England.)

123 bundles of rough hemp -	for Walkington and Co.
7 packs and 12 bobbins of flax	
8 hundred of ordinary deals -	
17 ordinary deals -	for the ship's use.
100 mats - -	
3 pounds of tea -	
2 dozen bottles of brandy -	

London, 10th of August, 1809. Thomas Smith.

Copy of a Manifest of Goods, on board the ship George, Thomas Smith, Master, bound to the Sound and St. Petersburgh.

N. B. This constitutes the Report necessary to be made at the Foreign Custom-houses.

		For the Sound.	
K. 11	-	1 bale for John Rose - -	6 rix dollars.
		For St. Petersburgh.	*Rubles.*
F. G. 3	-	1 cask for Van Troop - -	12
S. S. 1 to 7	-	7 cases Z. Levy - -	28
⋈ 27	-	1 bale R. Zantippe - -	28
P. Z.	-	1 cask of porter	
Directed	-	1 trunk -	Pope and Co. - 492
D. 1 to 100	-	100 hhds. of tobacco	
W. 1 to 29	-	29 hhds. of sugar	
T. D.	-	4 barrels -	
T. D.	-	1 cask of cheese	myself.
T. D.	-	1 box of cloth	
S. E.	-	1 bale E. Priestley - -	25
C. 50 to 57	-	7 barrels of rice, D. Hagen -	15
			600

REPRINT, among publishers, implies a new edition of a literary composition.

REPRISALS. Where the people of one nation have unlawfully seized, and detained, property belonging to the subjects of another state, the subjects of that state are authorised, in return, by the law of nations, to indemnify themselves, by seizing the property of the subjects of the state aggressing; this is termed making reprisals; and commissions are issued from the Admiralty, which are called letters of marque and reprisal, but which are often issued before hostilities are actually commenced. *See* LETTERS OF MARQUE.

REPRISE, or Reprize, at sea, is a merchant-ship, which, after its being taken by a corsair, privateer, or other enemy, is retaken by the opposite party.

If a vessel thus retaken has been 24 hours in the possession of the enemy, it is deemed a lawful prize; but if it is retaken within that time, it is to be restored to the proprietor, with every thing in it, upon his allowing one-third to the vessel which made the reprize. Also if the reprize has been abandoned by the enemy, either in a tempest or from any other cause, before it has been led into any port, it is to be restored to the proprietor. *See* PRIZE-SHIPS.

REQUEST NOTES, are certain written notes or requests from persons amenable to the excise laws, to obtain a permit for removing any exciseable articles from one place to another.

RESCOUNTER, a commercial term generally made use of in settling mercantile accounts in Holland, Germany, and other

northern countries on the continent of Europe. It proceeds upon the original first principle of commerce, barter, or exchange of commodities, without the intervention of money. It is best explained by example:

		£.	£.
1818.	J. Vanderberg, Rotterdam,		
Jan. 12.	Bought of James Wilson, 20 hogsheads of Lisbon wine at - -	15	- 300
May 3.	30 boxes of oranges at -	5	- 150
			£.450
Sept. 10.	Adjusted or settled this account per Rescounter.		

J. Vanderberg.

		£.	£.
1818.			
Feb. 9.	Sold to J. Wilson, 30 pieces of Holland linen, at	10	- 300
	25 barrels of pickled herrings at -	6	- 150
			£.450

But, if the unequal value of the commodities, or the amount between the articles bought and sold, leaves a balance unaccounted for by barter, such balance is stated to have been paid thus: *solvit per banco, solvit per cassa, solvit per wessel,* &c. denoting payments by assignment on the bank, in cash, or by bills of exchange, &c.

RESCOUNTERS. This word was adopted from the Dutch by the stock-brokers of London, in their transactions with each other in buying into, and selling out of the public funds, constituting the national debt, when bought, or sold, for a future time, subsequent to the date of the transaction. Nothing could be more just or equitable than the original design of these contracts, nor any thing more infamous than the abuse that has been made of it.

The original intention was, that a Dutchman, or any other foreigner, having occasion to buy into, or sell out of, our public funds, being informed by his correspondent at London, of an advantageous opportunity of doing either, might be enabled to embrace such an opportunity, by writing (let us suppose from Amsterdam) to a friend in London, to contract immediately for any quantity of stock against a limited future time; if to buy, when the price has fallen; if to sell, when it has risen three, four, or five per cent. on the days of making the agreement; in the expectation that before the expiration of the time granted, the foreigner would remit the sum required for the transfer, in the case of purchasing, or being a holder of the stock sold; a power of attorney to sell it; and in both cases, to secure a profit on the rise or fall. Whereas, without these credits for time, the opportunity of taking advantage of the temporary variations in the prices would be lost, for want of remittances, or the inability, or unwillingness of the London agent to advance the money on the day of making the contract: for, in the common course of dealings in the funds, the money to be paid or received must be ready at the same time as the transfer is made at the bank of England, or other public offices.

The four principal times for which bargains are usually made, are, February, May, August, and November; and on or about the last day of each month, such accounts are settled by the brokers with each other, and those settlings are called rescounters.

The abuse of these time-bargains constitutes stock-jobbing; for accounts to immense sums are raised and settled without any transfer being made, or any stock really bought or sold.

RESIDUARY PROPERTY, is that which remains in the hands of executors, after discharging the particular bequests of the testator. This residue is disposed of according to the direction of the testator.

RESIN, (Ger. *Harz, Harpüse.* Du. *Hars, Harst, Harpuis.* Da. *Harpix.* Sw. *Kŏda, Harpōs.* Fr. *Resine.* It. *Resina, Rasia.* Sp. and Port. *Resina.* Rus. *Smola, Harpius.* Pol. *Zywica.* Lat. *Resina,*) in a general sense, implies a viscid juice, oozing either spontaneously, or by incision, from several vegetable productions, as the pine, the fir, and various kinds of trees and plants; and hence not only the common rosin, but mastich, sandarach, elemi, tacamahac, animé, labdanum, balm of Gilead, capivi, dragon's blood, guaiacum, and copal, come under this appellation. It is not our design to treat of each of these species of resin under the present article: having already noticed them under the head GUM; by which term they are commonly designated.

This substance is obtained from different species of fir; as the *pinus abies, sylvestris, larix, balsamea.* It is well known, that a resinous juice exudes from the *pinus sylvestris,* or common Scotch fir, which hardens into tears. The same exudation appears in the *pinus abies,* or spruce fir. These tears constitute the substance called *thus,* or common frankincense. When a portion of bark is stripped off these trees, a liquid juice flows out, which gradually hardens. This juice has obtained different names, according to the plant from which it comes. The *pinus sylvestris* yields common turpentine; the *larix,* Venice turpentine; the *balsamea,* balsam of Canada, &c. All these juices, which are commonly distinguished by the name of turpentine, are composed of two ingredients; namely, oil of turpentine, and rosin. When the turpentine is distilled, the oil comes over, and the rosin remains behind. When the distillation is continued to dryness, the

residuum is known by the name of common rosin, or *colophonium*; but when water is mixed with it while yet fluid, and incorporated by violent agitation, the mass is called yellow rosin. During winter, the wounds made in the fir-trees become incrusted with a white brittle substance, called barras or gallipot, consisting of rosin united to a small portion of oil. The yellow rosin, made by melting and agitating this substance in water, is preferred for most purposes; because it is more ductile, owing, probably, to its still containing some oil.

Considerable quantities of common rosin are consumed by salt-boilers, in combination with wheaten flour, to render the grain of salt smaller; and likewise by musical instrument-makers and musicians, for effecting greater vibrations by the bows of violins. It has further been conjectured, that rosin might be so prepared, as to adapt it to the purpose of making candles: and it is also believed, that it is employed in great quantities in the making of glue.

RESPONDENTIA. When money is lent upon the goods and merchandise laden on a ship, which, from their nature, must be sold, or exchanged, in the course of the voyage, then the borrower only is personally bound to answer the contract; who, therefore, in this case, is said to take up money at *respondentia*. In this consists the difference between respondentia, and bottomry; that the former is a loan upon the goods, the other upon the ship and tackle: in the former, for the most part, recourse must be had to the person of the borrower; in the latter, the ship and tackle are liable, as well as the person of the borrower. *See* BOTTOMRY.

Upon respondentia, the lender must be paid his principal and interest, though the *ship* perish, provided the *goods* are safe. In all other respects the contract of bottomry, and respondentia are upon the same footing.

The lender at respondentia runs almost the same risks, with respect to the property, on which the loan is made, as the insurer does with respect to the effects insured. There are, however, some considerable distinctions; for instance, the lender supplies the borrower with money to purchase those effects upon which he is to run the risk: not so with the insurer. There are also various other distinctions.

The amount of loan at respondentia, in this country, is not restrained by any regulation whatever; although it is in many maritime states by express ordinances: the only restriction in the laws of England is with respect to money lent on goods going to the East Indies, which, by stat. 19 Geo. 2. c. 37. s. 50. must not exceed the value of the property on which the loan is made.

Lender is answerable for losses by capture.

But if a ship be taken and detained for a short time, and yet arrive at destined port within time limited, bond is not forfeited.

Lender is neither entitled to the benefit of salvage, nor liable to contribute in case of a general average.

But the stat. Geo. 2. c. 37. allows the benefit of salvage to lenders upon going to the East Indies.

In an action on a policy of insurance upon a respondentia bond, at and from B. to C. *Walpole* v. *Ewer. Sitt. aft. Trin.* 1789. The ship was Danish, and an average loss was sustained upon the goods to the amount of 6*l.* 15*s.* per cent. and the plaintiff, as holder of a respondentia bond, had been called upon to contribute; and now brought his action against the English underwriters, for the amount of that contribution; held that the plaintiff was entitled to recover, because by the law of Denmark, lenders upon respondentia are liable to average, and bound to contribute according to the amount of their interest;—the insurer must answer to them.

The obligee in any respondentia bond, made and entered into upon good and valuable consideration *bonâ fide*, shall be admitted to claim, and after the contingency shall have happened, to prove his or her debt or demands in respect of such bonds, in like manner as if the contingency had happened before the time of issuing the commission of bankruptcy against the obligor, and shall be entitled to receive a dividend of such bankrupt's estate in the same proportion to the other creditors.

FORM OF A RESPONDENTIA BOND.

Know, all men, by these presents, that held and firmly bound to in the sum or penalty of of good and lawful money of Great Britain, to be paid to the said or to certain attorney, executors, administrators, or assigns, to which payment well and truly to be heirs, executors, and administrators, firmly, by these presents, sealed, with seal, Dated this day of in the year of the reign of our sovereign lord by the grace of God, of the United Kingdom of Great Britain and Ireland, king, defender of the faith, and in the year of our Lord one thousand eight hundred and The condition of the above-written obligation is such, that whereas the above-named hath, on the day of the date above-written, lent unto the above-bound the sum of . upon the merchandise and effects to that value laden, or to be laden, on board the good ship or vessel, called the of the burthen of tons, or thereabout, now in the river Thames, whereof is commander: if the said vessel do, or shall, with all convenient speed, proceed and sail from and out of the said river of Thames, on a voyage to any ports or places in the East Indies, China, Persia, or elsewhere, beyond the Cape of

Good Hope, and thence do and shall sail and return into the said river of Thames, at or before the end and expiration of thirty-six calendar months, to be accounted from the day of the date above-written, and that without deviation, (the dangers and casualties of the seas excepted). And if the above bound heirs, executors, or administrators, do and shall, within days next, after the said ship or vessel shall be arrived in the said river of Thames, from the said voyage, or at the end and expiration of the said thirty-six calendar months, to be accounted as aforesaid, (which of the said time shall first and next happen,) well and truly pay, or cause to be paid, unto the above-named executors, administrators, and assigns, the sum of of lawful money of Great Britain, together with of like money, by the calendar month, and so proportionally for a greater or lesser time than a calendar month, for all such time, and so many calendar months as shall be elapsed, and run out of the said 36 calendar months, over and above 20 calendar months, to be accounted for from day of the date above-written; or, if in the said voyage, and within the said thirty-six calendar months, to be accounted as aforesaid, an utter loss of the said ship or vessel by fire, enemies, men of war, or any other casualties should unavoidably happen; and the above-bound heirs, executors, and administrators, do and shall, within six months next after the loss, pay and satisfy to the said executors, administrators, or assigns, a just and proportional average on all goods and effects, which the said carried from England, on board the said ship or vessel, and on all other the goods and effects of the said which shall acquire during the said voyage, and which shall not be unavoidably lost: then the above-written obligation is to be void, and of no effect, or else to stand in full force and virtue.

Sealed and delivered (being first duly stamped), in the presence of }

RESTITUTION is the yielding up or restoring any thing unlawfully taken from another.

The owner of goods stolen, who has prosecuted the thief to conviction, cannot recover the value of such goods from a person who has purchased, and sold them again, even with notice of the theft before conviction; but the plaintiff has a right to the restitution of the goods in specie; yet if it shall appear to the court, that the party has been guilty of a gross neglect in prosecuting, he will not be entitled to restitution.

If the owner takes his goods back again of the offender, in order to favour or maintain him, this will be unlawful and punishable by fine and imprisonment; but after the felon is actually convicted, the owner may take his goods again wherever he finds them.

RETAIL is a dealing in small quantities, in opposition to dealing by wholesale. Dealing, by retail, is what principally distinguishes the tradesman from the merchant, who imports and exports goods, and sells them by wholesale.

RETAINER OF DEBTS, is the power which a person has of giving himself a preference in payment of debts, for which he has the assets in his own hands; as an executor, among debts of equal degree, may pay himself first, by retaining in his own hands the amount of his debt, which he may do, although such retainer should swallow up the whole of the testator's personal property, and leave nothing for the rest of the creditors.

RETURN OF PREMIUM, *in the law of insurance.* In all countries in which insurances have been known, it has been a custom coëval with the contract itself, that where property has been insured to a larger amount than the real value, the insurer shall return the overplus premium. *Loccenius de Jure Marit.* 2. *c.*5. *s.* 8.

If the ship arrive before the policy is made, and the underwriter is acquainted with the arrival, but the insured is not, the premium is to be restored.

If both parties be ignorant of the arrival of the ship, the underwriter to retain.

The parties frequently insert clauses in the policy, stating, that upon the happening of a certain event, there shall be a return of premium; and these clauses are binding. *Dougl.* 268.

If goods are insured to come in certain ships from abroad, and not shipped, premium is to be returned. 1 *Mag.* 90.

If the ship or property insured was never brought within the terms of the written contract, so that the insurer has never run any risk, the premium must be returned. 1 *Vesey*, 319.—*Penson* v. *Lee*, 2 *B. & P.* 330.

Where a clause was inserted in policy that 8 per cent. of the premium should be returned if the ship sailed from the West India islands, with convoy for the voyage, *and arrives*, the court held, that the arrival of the ship, with, or without, convoy, entitled the party to a return of premium. *Symond and another*, v. *Boydell.* *Dougl.* 225.—*Aguilar* v. *Rogers*, 7 *T. R.* 421.

It is held, that whether the cause of the risk not being run is attributable to the fault, will, or pleasure, of the insured, the premium is to be returned. *Cowp.* 668.

But if the risk has once commenced, there shall be no appointment or return of premium afterwards. Therefore no return in deviations. *Hogg.* v. *Horner.* *Sittings after Mich.* 1797.—*Tait* v. *Levi*, 14 *E. R.* 481.

Where a policy is void, as a wager policy, premium cannot be recovered. *Lowry and another*, v. *Bourdieu.* *Dougl.* 458.

Nor in the case of re-assurance, void by stat. 19 Geo. 2. c. 37.

Nor where the policy is made to cover a trading with the enemy. *Vandyck* v. *Hewitt*. 1 *East*. 96. — *Potts* v. *Bell*, 8 *T. R.* 548.— *Shiffner* v. *Gordon*, 12 *E. R.* 296.

If there are two voyages in contemplation of the parties, or by the usage of trade, and only one made, the premium shall be returned on the other. *Stevenson* v. *Snow*, 3 *Burr*. 1257. 1 *Blac*. 318. *S. C.*—*Rothwell* v. *Cook*, 1 *B. & P.* 172.

Where the contract is entire, whether for a specified time or a voyage, there shall be no apportionment or return, if the risk has once commenced. Where the premium is entire in a policy on the voyage, when there is no contingency, at any period, out, or home, upon the happening of which the risk is to end, nor any usage established upon such voyage; though there be several distinct ports at which the ship is to stop, yet the voyage is one, and no part of the premium shall be returned. *Bermen* v. *Woodbridge*, *Dougl*. 781. — *Dalgleish* v. *Brook*, 15 *E. R.* 295.

If the insured have a contingent insurable interest in the thing insured, at the time when the policy is effected, and the risk once begun, there shall be no return, though it should eventually turn out that he had no title to the thing insured. *Boehm and others* v. *Bell*. 8 *T. R.* 154. *See* INSURANCE.

RETURNS, among merchants, a term expressive of the value, whether it consist of goods, or specie, returned by a consignee to the consigner of the whole, or part, of a cargo. Thus the returns sent us from the West Indies, in exchange for articles of British manufacture, &c. consist of sugar, coffee, cotton, &c.

RETORTS, (Ger. *Retorten*. Du. *Krombalsen*. Da. and Sw. *Retorter*, *Krumhals*. Fr. *Retortes*, *Cornues*. It. *Storte*. Sp. *Retortas*. Port. *Retortas*, *Cornutas*. Lat. *Retorta vasa*,) among chemists, are vessels employed for many distillations, and most frequently for those which require a degree of heat superior to that of boiling water. This vessel is a kind of bottle with a long neck, so bent, that it makes, with the belly of the retort, an angle of about sixty degrees. From this form they have probably been named retorts. The most capacious part of the retort is called its belly; its upper part is called the arch or roof of the retort, and the bent part is the neck.

Retorts differ in form and materials: their bellies are generally round: some of them are oblong, and shaped like a cucurbit: these are called English retorts. They are preferable for the distillation of matters which are subject to swell, and to pass into the receiver before they are decomposed.

A retort which has a little hole pierced in its roof is called a tubulated retort. This hole must be capable of being exactly closed with a stopper of proper materials. Retorts of this kind are employed in distillations, where some matter must be introduced into the retort after the receiver is joined to it.

If the retort be well made, the above-mentioned inclination of its neck must be most favourable to distillation. When the neck is too much inclined, the receiver cannot be conveniently luted to it, and is also by this form brought too near the furnace. If the neck be too little inclined, the vapours or liquors, which rise in distillation, can scarcely flow into the receiver, from want of sufficient descent, and only circulate in the belly of the retort. Retorts, when too narrow in their bending, are very faulty. This form must be an impediment to distillation: the passage therefore from the belly to the neck of the retort must be free and wide, and gradually diminishing to the extremity of the neck or the mouth of the retort.

Retorts of different materials are used in chemical operations; viz. common glass, crystal-glass, stone-ware, and iron. Retorts of glass are used for all operations which require a less heat than is sufficient for their fusion. Earthen retorts are necessary where great heat is requisite, as in the preparation of phosphorus. Iron retorts are not much used, as they can only serve for the distillation of substances which cannot act upon this metal; and as these substances are few in number, they can seldom be employed but for the distillation of mercury, and of animal matters.

REVENUE, from the French word *revenu*, signifies merely return, and is used to designate the produce arising from any possessions. Thus the public revenue of a kingdom is the produce of its imposts, in the shapes of rents, taxes, duties, &c. &c. After what has been already exhibited, under various titles, especially Customs, Excise, Exports, Funds, National Debt, and Post Office, comprising the principal items contributing to the aggregate national revenue of Great Britain, it would be entering upon too voluminous a detail, if we were either to mark distinctly the gradual augmentation of, or the occasional fluctuation incident to, the national revenue of this country from early times. A much more profitable application of our pages, if it were practicable, would be an investigation of the comparative revenue, and expenditure, of all the different kingdoms of the world at the present juncture; because by that we might be better able to estimate the strength of our own; which, it is to be apprehended, we have been in the habit of viewing through too favourable a medium. If the position, generally admitted, be true, that wealth is power, and that the only national wealth which can be available for the purposes of power, is the surplus of annual revenue over the annual expenditure, the comparison of

the two, at the present moment, presents an awful subject for contemplation.

Comparative Taxation of Great Britain and France.

Great Britain and Ireland.

Computed for 1823, *after deducting the taxes on salt, leather, and malt, lately reduced.*

Gross amount, including expence of collection.

Assessed taxes - -	£6,500,000
Customs - - -	11,000,000
Excise - - -	27,000,000
Stamps - - - -	6,800,000
Land-tax - - -	1,200,000
Post-office (nett amount) -	1,400,000
Crown lands - - -	200,000
All other government receipts	1,900,000
	56,000,000
Tithe - - -	4,000,000
Poor-rate -	5,000,000
Total	£65,000,000

France.

Gross amount, including expence of collection.

	Sterling.
Foncier, or land and house-tax	£9,000,000
Mobilier, a farther house-tax; the window-tax, and *patentes* or tax on professions - -	3,000,000
Customs - - - -	2,300,000
Excise; viz. duties on salt, tobacco, snuff, wine, &c., comprised under the name of *droits réunis* - -	9,000,000
Stamps; viz. *enregistrement, domaine et timbre* -	6,000,000
Post-office (nett receipt) -	600,000
Sale of wood from public forests	800,000
All other receipts, &c. including a large municipal revenue collected from *octrois*, &c.	6,300,000
	£37,000,000
Equal, adding 20 per cent. for greater value of money, to	£45,000,000

See further titles CUSTOMS, FUNDS, NATIONAL DEBT, and SINKING FUND.

REVERSION, in law, is defined to be returning of lands, &c. into the possession of the donor, or his heirs. Reversion, in the law of England, has two significations; the one of which is an estate left, which continues during a particular estate in being; and the other is the returning of the land, &c. after the particular estate is ended; and it is further said to be an interest in lands, when the possession of it fails; or where the estate, which was for a time parted with, returns to the grantors, or their heirs. But, according to the usual definition of a reversion, it is the residue of an estate left in the grantor, after a particular estate granted away ceases.

The difference between a remainder, and a reversion, consists in this: that the remainder may belong to any man except the grantor; whereas the reversion returns to him who conveyed the lands, &c.

In order to render the doctrine of reversion easy, see the following table; which shows the present value of one pound, to be received at the end of any number of years not exceeding forty; discounting at the rate of five, four, and three per cent. compound interest. *See* INTEREST.

Years.	Value at 5 per cent.	Value at 4 per cent.	Value at 3 per cent.
1	.9524	.9615	.9709
2	.9070	.9245	.9426
3	.8638	.8898	.9151
4	.8227	.8548	.8885
5	.7835	.8219	.8626
6	.7462	.7903	.8375
7	.7107	.7599	.8131
8	.6768	.7307	.7894
9	.6446	.7026	.7664
10	.6239	.6756	.7441
11	.5847	.6496	.7224
12	.5568	.6246	.7014
13	.5303	.6006	.6809
14	.5051	.5775	.6611
15	.4810	.5553	.6419
16	.4581	.5339	.6232
17	.4363	.5134	.6050
18	.4155	.4936	.5874
19	.3957	.4746	.5703
20	.3769	.4564	.5537
21	.3589	.4388	.5375
22	.3418	.4219	.5219
23	.3255	.4057	.5067
24	.3100	.3901	.4919
25	.2953	.3757	.4776
26	.2812	.3607	.4637
27	.2678	.3468	.4502
28	.2551	.3335	.4371
29	.2429	.3206	.4243
30	.2314	.3083	.4120
31	.2204	.2965	.4000
32	.2099	.2851	.3883
33	.1999	.2741	.3770
34	.1903	.2636	.3660
35	.1813	.2534	.3554
36	.1726	.2437	.3450
37	.1644	.2343	.3350
38	.1566	.2253	.3252
39	.1491	.2166	.3158
40	.1420	.2083	.3066

The use of the preceding table.—To find the present value of any sum to be received

at the end of a given term of years, discounting at the rate of three, four, or five per cent. compound interest. Find by the above table the present value of one pound, to be received at the end of the given term, which mlutiply by the number of pounds proposed (cutting off four figures from the product on account of the decimals), then the result will be the value sought. For example: the present value of 10,000*l.* to be received ten years hence, and the rate of interest five per cent. is equal to .6139 × 10,000 = 6139.0000, or 6139*l.* Again, the present value of 10,000*l.* due in ten years, the rate of interest being three per cent. is .7441 × 10,000 = 7441*l.*

REVISE, in printing, a second proof of a corrected sheet.

REYDER, a gold coin, current in Holland at 1*l.* 4*s.* 6*d.* There is also a gold coin, current in the same kingdom, called the half reyder; its value is conformable to its denomination (12*s.* 3*d.*).

RHAPONTIC, (Ger. *Rhapontik.* Du. Da. and Sw. *Rapontik.* Fr. *Rapontic du Levant.* It. and Sp. *Rapontico.* Port. *Ruiponto.* Rus. *Répontik.* Pol. *Rapontyk, Rum moskiewski.* Lat. *Rhaponticum,*) a medicinal root resembling rhubarb. It was called *rha-ponticum,* or root of Pontus. because chiefly produced in Pontus, in Asia, This root may be distinguished from rhubarb by leaving a mucous taste in the mouth, and by its appearing, when cut, as if regularly marbled, of a red, white, or yellow colour; these colours being disposed in a radiated manner. It is less purgative than rhubarb, requiring a double quantity to produce the same effect. It is a little astringent.

Rhapontic is common enough in the gardens of botanists, and flowers in May. It is principally cultivated in Asiatic Russia, and Persia, whence it is sent to Europe through the ports of Smyrna and Aleppo. The rhapontic thus imported is of a dusky colour on the surface, and of a loose spongy texture. The foot-stalks of the leaves, and their large rib-stalks, peeled, being of an acrid taste, make very good tarts.

RHINEHURST, white resin coming to us by way of Holland, and deriving its name from the Dutch *Rhynse harst.*

RHODIUM or Rose-wood, a wood or root brought from the Canary islands, and confounded with aspalathus, a simple of considerable esteem among the ancients, but which has not come to the knowledge of latter times.

The writers on botany and the materia medica are much divided about the lignum rhodium, not only with regard to the plant which affords it, but likewise in their accounts of the drug itself. This confusion seems to have arisen from an opinion, that the rhodium and *aspalathus* are the same.

As to *aspalathus,* the ancients themselves disagree; Dioscorides requiring by this appellation the wood of a certain shrub freed from the bark, and Galen the bark of a root. At present we have nothing under this name in the shops.

The *lignum rhodium* of the shops, is usually in long crooked pieces, full of knots, which, when cut, appear of a yellow colour like box, with a reddish cast: the largest, smoothest, most compact, and deepest-coloured pieces should be chosen; and the small, thin, or pale, ones rejected. The taste of this wood is lightly bitterish, and somewhat pungent; its smell very fragrant, resembling that of roses; when long kept, it seems to lose its smell; but on cutting or rubbing one piece against the other, it smells as well as at first. Distilled with water, it yields an odoriferous essential oil, in very small quantity. Rhodium is at present in esteem only upon account of its oil, which is employed as a high and agreeable perfume in scenting pomatums and the like. It is likewise said to be much employed by rat-catchers, either to entice the rats to the traps, or to cover the smell left by handling them. But if we may reason from analogy, this odoriferous simple might be advantageously applied to nobler purposes; a tincture of it in alcohol, which contains in small volume the virtue of a considerable quantity of the wood, bids fair to prove a serviceable-cordial, not inferior perhaps to any thing of this kind.

Jamaica affords a wood which the natives call rose-wood; and which, though not the genuine rhodium, has much of its smell.

For the foreign names of Rhodium, *see* ROSE-WOOD.

RHODIUM, a metal discovered by Dr. Wollaston, in the year 1804, in the ores of platina. He called it rhodium, from its salts generally forming rose-coloured solutions. Rhodium is a white metal, with a tint of yellow; it is as hard, and more brittle than iron; and very infusible. Its specific gravity is 10.649. It forms alloys with all the metals except mercury. Rhodium is capable of three states of oxidation, which are in colour black, light-brown, and dark-red.

RHUBARB. (Ger. and Du. *Rhabarber.* Da. and Sw. *Rabarber.* Fr. *Rhubarbe, Rubarbe.* It. *Rabarbaro, Reobarbaro.* Sp. and Port. *Ruibarbo.* Rus. *Rewen.* Pol. *Reubarbarum, Rum tureckie.* Lat. *Rhabarbarum, Reum palmatum.*) Of the *Rheum* or rhubarb-plant there are seven species, of which the following are the most noted: 1. the rhapontic, already described under its proper article; 2. the true Chinese rhubarb, with palmated leaves, a thick fleshy root, yellow within, and accounted to be the true foreign rhubarb, the purgative quality whereof is well known; 3. the Tartarian rhubarb, with a large, fleshy, branched root, yellow within, crowned by very large, heart-shaped, somewhat lobated, sharply indented, smooth leaves, an upright large stem, and supposed to be the true rhubarb, but, though of superior quality to some sorts, is inferior to

the true Chinese; 4. the undulated, or waved-leaved Chinese rhubarb, with a thick, branchy, deep-striking root, yellow within, crowned with large, oblong, undulate, somewhat hairy leaves, having equal foot-stalks, and an upright firm stem, terminated by long loose spikes of white flowers; 5. the currant rhubarb of Mount Libanus, with a thick, fleshy root, very broad leaves, full of granulated protuberances, with equal foot-stalks, upright firm stems, terminated by spikes of flowers, succeeded by berry-like seeds, surrounded by a purple pulp.

All these plants are perennial in root, and the leaves and stalks are annual. The roots being thick, fleshy, generally divided, strike deep into the ground; of a brownish colour without, and yellow within; the leaves rise in the spring, generally come up in a large head folded together, gradually expanding themselves, having thick foot-stalks; and grow from one to two feet high, or more, in length and breadth, spreading all round: amidst them rise the flower-stems, attaining their full height in June, when they flower, and are succeeded by large triangular seeds, ripening in August.

They are generally propagated by seeds sown in autumn soon after they are ripe, or early in the spring, in any open bed of light deep earth. They increase in size annually, and in the second or third year many of them will shoot up stalks, flower, and perfect seeds; and in three or four years the roots will be arrived to a large size, though older roots are generally preferable for medical use.

Two sorts of rhubarb are met with in the shops. The first is imported from Turkey and Russia, in roundish pieces freed from the bark, with a hole through the middle of each: they are externally of a yellowish colour, and on cutting appear variegated with lively reddish streaks. The other, which is less esteemed, comes immediately from the East Indies, in longish pieces, harder, heavier, and more compact than the foregoing. The first sort, unless kept very dry, is apt to grow mouldy and worm-eaten; the second is less subject to these inconveniences. Some of the more industrious artists are said to fill up the worm-holes with certain mixtures, and to colour the outside of the damaged pieces with powder of the finer sorts of rhubarb, and sometimes with cheaper materials: this is often so nicely done, as effectually to impose upon the buyer, unless he very carefully examines each piece. The marks of good rhubarb are, that it is firm and solid, but not flinty; that it is easily pulverised, and appears, when powdered, of a fine bright yellow colour; that, upon being chewed, it imparts to the spittle a saffron tinge, without proving slimy or mucilaginous in the mouth. Its taste is sub-acrid, bitterish, and somewhat astringent; with a smell lightly aromatic.

The mountains of Thibet abound with rhubarb; and it is produced in great plenty on the confines of China and Tartary, and in many parts of Tartary itself.

The Turkey rhubarb is, among us, universally preferred to the East India sort, though this last is, for some purposes at least, equal to the other; it is manifestly more astringent, but has somewhat less of an aromatic flavour. Tinctures drawn from both with rectified spirit have nearly the same taste: on distilling off the menstruum, the extract left from the tincture of the East India rhubarb proved considerably the strongest.

Rhubarb is a mild cathartic, which operates without violence or irritation. Besides its purgative quality, it is celebrated for an astringent one. Rhubarb in substance operates more powerfully as a cathartic than any of the preparations of it.

The yellow colour of the rhubarb is remarkably less destructible than any other vegetable yellows. Aquafortis and other acids, which destroy the colour of saffron, turmeric &c., make no change in that of rhubarb, or, at most, render it only turbid.

The method of curing the true rhubarb is as follows: Take the roots up when the stalks are withering or dying away, clean them from the earth with a dry brush, cut them in small pieces of about four or five inches in breadth, and about two in depth, taking away all the bark, and make a hole in the middle, and string them on packthread, keeping every piece apart; and every morning, if the weather is fine, place them in the open part of the garden on stages erected by placing small posts, about six feet high, in the ground, and six feet asunder, into which fix horizontal pegs, about a foot apart, beginning at the top; and the rhubarb being strung crosswise on small poles, place them on these pegs; so that if it should rain, you could easily remove each pole with the suspended pieces into any covered place. Never suffer them to be out at night, as the damps would be apt to mould them.

RHUMB, in navigation, a vertical circle of any given place, or the intersection of such a circle with the horizon; in which last sense rhumb is the same with a point of the compass.

RHUMB-LINE is also used for the line which a ship describes when sailing in the same collateral point of the compass, or oblique to the meridians.

RIAL, or REAL, a silver coin of Spain, current at Barcelona, Saragossa, and Valencia for $6\frac{3}{4}d.$ and at Madrid, Cadiz, and Seville for $5\frac{1}{8}d.$ sterling. This is called the *rial of plate*. The *rial of vellon*, or rial of exchange, is an imaginary money of account, equivalent to $\frac{7}{8}$ of a penny sterling. There are others of different values in different places of the same kingdom. *See* MONIES, *App.*

RIBS, *of a Ship*, those pieces of timber which strengthen the sides.

RIBBAND, or RIBBON, (GER. *Band, Seirdenband.* DU. *Lint.* DA. *Baand. Silkebaand.* SW. *Band, Sidenband.* FR. *Ruban*

de sote. It. *Nastro di seta.* Sp. *Cinta de seda.* Port. *Fita de seda.* Rus. *Lenta,*) a narrow sort of silk band, chiefly used for ornaments of dress, badges of chivalry, &c. Ribbon-weaving is a light, easy, trade. The silk for the warp, or long way of the ribbon, which is generally of the finest kind, is wound round a machine, called a warping frame, and then taken off on a wheel, which is fixed at the end of the loom, and kept at a proper breadth by what is called a *sley*, which is not very unlike a fine comb, the silk threads going out between the teeth. The weaver next winds a coarser kind of silk on little quills, which are put into the shuttle. Then some of the threads that are round the sley are, by means of a treadle, which consists of long pieces of wood fixed to the tackle of the loom, pulled lower than the rest, and the shuttle put through the vacancy. The weaver then, putting his foot on the other treadle, pulls down those treadles that were before uppermost, and returns the shuttle back with his other hand; and this is repeated with astonishing celerity. In this manner all the plain weaving is performed; the only difference being in the strength, and breadth, of the looms, and the labour required to throw the shuttle. The ribbon-weaver's shuttle is different from that of most other weavers, though it serves for the same purpose. It is made of box, and is six, or seven, inches long, shod with iron at both ends, which terminate in points that are crooked, one towards the right, the other the left. The chief seats of the ribbon manufacture are Spitalfields, and Coventry. The importation of them from abroad is prohibited by divers statutes; and there is a bounty on their exportation.

RICE, (Ger. *Reis, Reiss.* Du. *Ryst.* Da. *Riis.* Sw. *Ris.* Fr. *Ris, Riz, Ryz.* It. *Riso.* Sp. *Arroz.* Port. *Arroz, Arros.* Rus. *Pscheno sarazinskoe.* Pol. *Ryz.* Lat. *Oryza, Rizum,*) is a plant very much resembling wheat in shape, and colour, and in the figure and disposition of its leaves. The panicle which terminates the stem is composed of small flowers, distinct from each other, which have four unequal scales, six stamina, and one pistil, surrounded with two styles; this pistil becomes a white seed, extremely farinaceous, covered with two interior scales.

The cultivation of rice is most vigorous throughout Asia; and indeed this species of grain is the ordinary food of the inhabitants of China, India, Persia, Egypt, and almost the whole of the late territories of the Grand Signior. Rice is of two kinds, namely, the ordinary rice, and the fine rice. The first is that with which we are best acquainted, and it is usually grown in low marshy grounds. It is even customary in less swampy places, provided a river or stream be convenient, to inundate the rice by means of sluices, and completely to soak the herb so soon as it appears above the surface, as well as in its further progress towards maturity. The fibrous root of the rice plant puts forth stems, which generally grow to the height of four or five feet; these stems are chamfered thicker and firmer than those of wheat, and knotted with joints situated at equal distances: the leaves are long, fleshy, and somewhat similar to those of the leek; the flowers appear on the tops of the stalks or stems, are of a purple colour, and grow in clusters like the flowers of millet: to these succeed the seeds, which are of an oblong form, white, semi-transparent, and hard, and whereof each is inclosed in a yellowish, rough, chamfered, angulous, shaggy shell or rind, terminated by a point or spike, the whole being disposed alternately along the stems.

This is the species of rice that is generally brought from the Levant, and of which no inconsiderable quantities are grown in Piedmont in France. The latter is not so heavy or farinaceous as the other, and is, therefore, not so highly valued by commercial men.

There is another species of rice, called the dry rice, by reason of its being cultivated in India *without the aid of water.* It is grown on dry lands, principally on the mountains, and possesses a saccharine flavour not unlike that of the filbert. The best sort of this rice is produced at Mangalore, upon the coast of Malabar, on those mountains where the temperature of the atmosphere is from four to five degrees below that of the plains, where oranges and lemons are grown. The same kind of rice grows in Cochin China, where frost is entirely unknown, although the heat, during the summer, is not greater than in the southern provinces of France. It is invariably cultivated on the highest mountains, for it will not succeed in the plains. The mountaineers of Cochin China sow their rice in dry ground, as we sow our corn; and always perform this operation at the end of the rainy season, which answers to our February. It might perhaps be sown in Malta about the same time.

The fine rice of Mangalore is very differently treated. The seed is generally planted like pease.

If the plantation be situated in low ground, which receives the rain and absorbs the whole of it, the seed must be planted two feet asunder, with about four grains to every hole; but if the situation be a sloping one, or remarkably dry, the seed need only be eight or ten inches asunder, and planted about the depth of three inches from the surface, in furrows; the land may be afterwards strewn over with what seed remains. The fine rice usually appears above ground at the end of five or six days, provided the soil be fresh, but it remains much longer when the situation is dry; it ripens in about four or five months. One hundred pounds of rice in the husk, usually yield from 75 to 80 pounds of white rice. In India they cut the rice

very close to the ground; and, from the roots, exceedingly delicate blades soon spring up, which are esteemed good fodder for cattle.

Egypt first attended to the cultivation of rice, the pernicious effects of which rendered that country unhealthy. China, and the East Indies, must experience the same calamity, if art did not oppose preservatives to nature, whose benefits are sometimes accompanied with evils; or if the heat of the torrid zone did not quickly dispel the malignant vapours which are exhaled from the rice-grounds. It is a known fact, that in the rice-grounds of the Milanese, the cultivators are all livid and dropsical. The culture of rice is still very considerable about Damietta, Mansura, and other parts of Egypt. The port of Damietta alone is open for the exportation of rice.

Opinions differ about the manner in which rice has been naturalized in Carolina, in North America. But however the province may have acquired it, it is certain that the soil is favourable to it. This production grows, by the care of the negroes, in the morasses which are near the coasts. There is a wild kind of rice, growing in great plenty throughout the interior parts of North America, which supplies the inhabitants with food, without any further trouble than that of gathering it. It grows in the water, where it is about two feet deep, and where it finds a rich muddy soil. The stalks and the ears resemble those of cats, both in appearance and the manner of growing. The stalks are full of joints, and rise about eight feet from the water.

Besides the places already mentioned, the common rice thrives remarkably well in some parts of Europe, more especially in Spain, and Italy, and it is grown in Scotland; and has been sown, and succeeded, in several of the fenny and marshy grounds of England.

As an article of food, rice, when boiled, is considered extremely wholesome. When ground and mixed with flour of wheat, it affords excellent and nutritive bread. Rice is not comprehended under the general description, "corn," in a policy of insurance. *See titles*, INSURANCE and POLICY.

RICE FLOUR, (Ger. *Reisblumen, Reismehl.* Du. *Rystmeel.* Da. *Riismeel.* Sw. *Rismjöl.* Fr. *Farine ou fleur de ris.* It. *Farina o flor di riso.* Sp. *Harina ó flor de raroz.* Port. *Farinha ou flor de arroz,*) the grain of rice, freed from the husks, and reduced to flour by the action of a mill, or some other machine. It is used with wheaten flour in making bread. *See* RICE.

RIDDLE, a coarse or open sieve, composed of a circular wooden frame, and a bottom of strong iron-wire.

RIDE, in the sea language, is a term variously applied: thus, a ship is said to *ride*, when her anchors hold her fast, so that she does not drive by the force either of the wind or tide. A ship is said to *ride across*, when she rides with her fore, and main, yards hoisted up to the hounds, and both yards and arms topped alike. She is said to *ride well*, when she is built so, as not to overbeat herself in a head-sea, the waves over-raking her from stem to stern. To *ride athwart*, is to ride with her side to the tide. To *ride betwixt wind and tide*, is to ride so, that the wind has equal force over her one way, and the tide the contrary way. If the wind has more power over the ship than the tide, she is said to *ride wind-road*, or to *ride a great wind*.

RIDERS, in a ship, are large timbers, both in the hold, and aloft, bolted on to other timbers to strengthen them, when the ship is discovered to be too slightly built.

RIFLE, a fire-arm which has the inside of its barrel cut with from three, to nine, or ten, spiral grooves, so as to make it resemble a female screw, varying from a common screw only in this, that its grooves or rifles are less deflected, and approach more to a right line; it being now usual for the grooves, with which the best rifled barrels are cut, to take about one whole turn in a length of thirty inches. The number of these grooves differs according to the size of the barrel, and fancy of the workman; and their depth, and width, are not regulated by any invariable rule.

RIGGING, in a ship, is all the cordage and ropes, belonging to her masts, yards, &c. *See* SHIP-BUILDING.

RIM, the edge or border of the circumference or circular part of a wheel.

RINE-HEMP, (Ger. *Reinhanf.* Du. *Rynhennip.* Da. *Reenhamp.* Fr. *Chanvre net.* Port. *Linho canhamo da primeira sorte,*) so called from the German *Reinhanf*, is nothing more than the best sort of hemp, cleaned, or freed from every species of impurity, and from all foreign matter.

RINGS, (Ger. *Ringe.* Du. *Ringen.* Da. *Ringe.* Sw. *Ringar.* Fr. *Bagnes.* It. *Annelli.* Sp. *Sortijas.* Port. *Sortilhas.* Rus. *Kulzii. Perscenii.* Pol. *Kolce, Pierscinie,*) in jewellery, are ornaments usually worn on the fingers, and so universally known as to require no minute description. Rings are mostly formed of gold, and are frequently set with diamonds, rubies, sapphires, pearls, and other scarce and valuable gems. Wedding-rings are entirely made of plain gold, without any peculiar embellishment. Mourning-rings are usually set wtth jet or some other black substance, whereon is engraven either a suitable axiom or poesy, or the name, condition, &c. of the person in memory of whom the ring is worn. Paris was long the chief seat of the manufacture of all articles of jewellery; but now London disputes the palm with the French capital.

RIVERS, it is almost unnecessary to observe, are always broadest at the mouth, and narrower towards their source; they run in a

more direct channel as they immediately leave their sources, and their sinuosities become more numerous as they proceed. We were taught by the savages of North America, that we are near the sea, when we find the rivers winding, and every now and then changing their direction. And this is now become the common indication to the Europeans themselves. As those sinuosities, therefore, increase as a river approaches the sea, it is not to be wondered at, that they sometimes divide, and thus disembogue by different channels. The Danube disembogues into the Euxine by seven mouths; the Nile by the same number; and the Wolga by seventy.

The largest rivers of *Europe* are, first, the *Wolga*, which is about six hundred and fifty leagues in length, extending from Reschow to Astrachan. The next in order is the *Danube*. The course of this is about four hundred and fifty leagues, from the mountains of Switzerland to the Black Sea. The *Don*, or *Tanais*, which is four hundred leagues from the source of that branch of it called the Softna, to its mouth in the Euxine Sea. The *Nieper*, or *Borysthenes*, which rises in the middle of Muscovy, and runs the course of three hundred and fifty leagues to empty itself into the Black Sea. The *Dwina*, which takes its rise in a province of the same name in Russia, that runs a course of three hundred leagues, and disembogues into the White Sea, a little below Archangel.

The largest rivers of *Asia* are, the *Hoang-ho* in China, which is eight hundred and fifty leagues in length, computed from its source at Raja Ribron, to its mouth in the Gulf of Changi. The *Jenisca* of Tartary, about eight hundred leagues in length, from the lake Selinga to the Icy Sea. The *Oby*, of five hundred leagues, running from the lake of Kila into the Northern Sea. The *Amour*, in Eastern Tartary, whose course is about five hundred and seventy-five leagues, from its source to its entrance into the sea of Kamtschatka. The *Kiang-keou*, in China, five hundred and fifty leagues in length. The *Ganges*, one of the most noted rivers in the world, and about as long as the former. It rises in the mountains which separate India from Tartary; and discharges itself by several mouths into the bay of Bengal. Next to this may be reckoned the still more celebrated river *Euphrates*. This rises from two sources, northward of the city Erzerum, in Turcomania; and unites about three days' journey below the same, whence, after performing a course of five hundred leagues, it falls into the Gulf of Persia, fifty miles below the city of Bassura, in Arabia. The river *Indus* is extended, from its source to its discharge into the Arabian sea, four hundred leagues.

The largest rivers of *Africa* are: the *Gambia*, the *Senegal*, which runs a course of not less than eleven hundred leagues, and the *Niger*, whose extent is not yet ascertained. The Senegal is well known to be navigable for more than three hundred leagues up the country; and how much higher it may reach is not yet discovered. The celebrated river *Nile* is said to be nine hundred and seventy leagues, from its source among the mountains of the Moon, in Upper Ethiopia, to its opening into the Mediterranean Sea. Besides the Nile in Africa, we may reckon *Zara*, and the *Coanza*, from the greatness of whose openings into the sea, and the rapidity of whose streams, we form an estimate of the great distance whence they come.

But of all parts of the world, *America*, as it exhibits the most lofty mountains, so also it supplies the largest rivers. The principal of these is the great river *Amazon*, which from its source in the lake of Lauricocha, to its discharge into the Western Ocean, performs a course of more than twelve hundred leagues. The breadth and depth of this river is answerable to its vast length; and, where its width is most contracted, its depth is augmented in proportion. So great is the body of its waters, that other rivers, though before the objects of admiration, are lost in its bosom. Another river, that may almost rival the former, is the *St. Lawrence*, in Canada, which rising in the lake Assiniboils, passes from one lake to another, from Christinaux to Alempigo; and thence to lake Superior; thence to the lake Hurons; to lake Erie; to lake Ontario; and, at last, after a course of nine hundred leagues, pours their collected waters into the Atlantic Ocean. The river *Mississippi* is more than seven hundred leagues in length, beginning at its source near the lake Assiniboils, and ending at its opening into the Gulf of Mexico. The river *Plata* runs a length of more than eight hundred leagues from its source in the river Parana, to its mouth. The river *Oroonoko* is seven hundred and fifty leagues in length, from its source near Pasto, to its discharge into the Atlantic Ocean.

Most of the rivers of Great Britain have been rendered navigable, and are protected by, divers *local* statutes, too numerous to be even referred to here. Besides these, however, there are very many statutes of a *general* and comprehensive nature, especially as they relate to the mouths of the larger and more important rivers of the kingdom, connected with its harbours, its arsenals, &c., which do claim some especial notice. These are chiefly, 10 Ann. c. 17. — 19 Geo. 2. c. 22. — 9 Geo. 3. c. 30. — 51 Geo. 3. c. 73. and 54 Geo. 3. c. 159.

The last-mentioned of these partially repeals the provisions of the former statutes, and lays down general regulations which are too numerous and too important to be epitomised. *See* 3 *Dick. Pract. Expos.* 655, and *ante, title* HARBOUR.

RIVET, a fastening pin, generally made of iron, clenched at both ends.

RIVETTER OF SADDLES, is a kind of smith, and is employed by the saddler in putting on the iron-plates for securing and strengthening the tree, and the stays for the stirrups, &c.

RIX-DOLLAR, is the name of an imaginary specie-money, as well as of a silver coin, in use and current in several parts of the world. In Holland the silver rix-dollar passes for 4*s.* $4\frac{1}{10}$*d.*; in Poland and Prussia, the imaginary rix-dollar is equivalent to 3*s.* 6*d.*; at Bazil, Zurich, and Zug, in Switzerland, the silver rix-dollar is current for 4*s.* 6*d.*; and at St. Gall, Appensel, &c. for 4*s.* 3*d.* only; the imaginary rix-dollar of Germany is reckoned at 3*s.* 6*d.* and the silver one at 4*s.* 6*d.*; in Sweden, the silver rix-dollar is current at 4*s.* 8*d.*; in Denmark and Norway, at 3*s.* $11\frac{1}{4}$*d.*; in Livonia, the imaginary rix-dollar is estimated at 3*s.* 6*d.*; and finally, in China, the silver rix-dollar, is current at 4*s.* $4\frac{1}{2}$*d.* sterling.

RIX MARE, a copper coin of Denmark and Norway, current at $\frac{3}{4}$ of a penny, English.

RIX-ORT, a money of account used in Denmark and Norway, and estimated at $4\frac{1}{2}$*d.* of our currency.

RIZE, a name given to a sack containing fifteen thousand ducats, in the late territories of the Grand Signior.

ROBE-MAKER, a kind of tailor, who makes the canonical habits of the clergy, robes of office, and professional attire of the judges and barristers, gowns of the liverymen, coronation-robes, dresses for the different orders of knighthood, &c. &c. This is accounted a lucrative trade, and there are not many who follow it in London.

ROCH, or ROACH-ALUM. (GER. *Weisser alaun, Felsenalaun.* DU. *Witte aluin, Rotsaluin.* DA. *Hvid alun.* SW. *Hvit alun.* FR. *Alun blanc, Alun de roche.* IT. *Allume di rocca.* SP. *Alumbre de roca.* PORT. *Pedra-hume de rocha.* LAT. *Alumen vulgare album.*) One of the most ancient alum-works of which we have any account, was that of the Roccha, now Edessa, a city of Syria; and from this city was derived the appellation of *roch alum,* a designation so little understood by the generality of people, that it has been supposed to signify *rock-alum. See* ALUM.

ROCHELLE-SALT. By saturating the superfluous acid of the supertartrite of potash with soda, a triple salt is formed, which crystallises in large regular prisms of eight nearly equal sides, of a bitter taste, efflorescent, and soluble in about five parts of water. It consists, according to Vauquelin of 54 parts tartrite of potash, and 46 tartrite of soda, and is in much repute as a purgative, by the name of Rochelle-Salt.

ROCK-CRYSTAL, (GER. *Bergkrystall.* DU. *Bergglas.* DA. *Biergkristal, Klintkristal.* SW. *Bergkristall.* FR. *Cristal de roche.* IT. *Cristallo di rocca.* SP. *Cristal de montano ó de roca.* PORT. *Cristal de roca.* RUS. *Gorniii chrustal.* LAT. *Crystallus montana,*) is that supposed to be formed by a concretion of the lapidific fluid which trickles down in rocks and caverns. *See* CRYSTAL.

ROCK-MOSS. *See* ORCHILLA.

ROCK-OIL. *See* PETROL.

ROCK-SALT. *See* SALT.

ROCOU, ROUCOU, or ROCOE, are only other names for annotto or anata. *See* ANATA.

ROD, a land-measure of sixteen feet and a half; the same with the perch and pole.

ROE, of a fish, that part which contains the sperm or seed. The male fishes are usually distinguished by the name of soft roe or milt: the females, by hard roe or spawn. It is not unusual in some parts of Europe and America where extensive fisheries exist, to pickle the roes of various kinds of fish, and barrel them up for exportation: when thus prepared, they are considered a great delicacy. *See title* CAVIARE.

ROE-NENG, the largest measure for lengths and distances used in the kingdom of Siam, being the Siamese league, of nearly two thousand yards. There go to it twenty jods, four sens to the jod, twenty voua to the sen, and two ken to the voua. The ken is the Siamese ell.

ROLL, in manufactories, something wound and folded up in a cylindrical form.

Few stuffs are made up in rolls, except sattins, gauzes, and crapes, which are apt to break, and take plaits not easy to be got out, if folded otherwise. Ribbons, laces, galloons, and paduas of all kinds, are also thus rolled.

A roll of tobacco is tobacco in the leaf, twisted on the mill, and wound twist over twist, about a stick or roller. A great deal of tobacco is sold in America in rolls of various weights; and it is not till its arrival in England, Spain, France, and Holland, that it is cut. A roll of parchment properly denotes the quantity of sixty skins.

ROLLER, a piece of wood, iron, brass, &c. of a cylindrical form, used in the construction of several machines, and in various works and manufactures. The following is a brief description of the rolling-mill employed for flatting rods and bars of iron:

The rolling mill consists of two iron rollers, mounted in a strong frame of the same metal, which is composed of two distinct parts, both firmly fixed to an iron-floor; each part has a long mortice through it, in the bottom of which is a brass socket for the pivot of the lower roller, and in the upper part is the brass of the upper roller; this last brass is fixed to a piece of iron which slides up and down in the mortice, and is prevented from rising by the end of a strong screw, screwed through the upper part of the iron frame. The roller is prevented from falling in consequence of its own weight, by means of the brass in the under-

side of the pivot, which is attached by two screw-bolts to a collar fixed upon the screw that prevents the sliding piece of iron from rising, so that when the screws are turned by a handspike put between the teeth of a wheel which crowns that side of the frame wherein the pivots are deposited, the two rollers may be brought nearer together, or separated further asunder, as occasion requires. A stout iron bar, running parallel to the rollers, is fixed between the sides of the frame, by a wedge at each end, so that its upper surface is level with the top of the lower roller; at a small distance above this is another bar, fixed by two screws; between these are laid several blocks of iron, so as to fill up all the space, except a small opening, through which the bar to be flatted is introduced. At the top of the frame, running in a direct line between the two sides, is situated a narrow trough, bored full of holes, to which water is conveyed by a small pipe.

The upper roller is put in motion by a strong shaft, which, proceeding directly from the side of the frame opposite to that which sustains the pivots, turns another shaft, which like itself is provided with cogs, and is situated in a direct line with the axis of the lower roller. The machine is placed near to a furnace, where the iron bars to be rolled are heated to a welding heat; the mill is then put in motion, and the iron bars taken out of the furnace with a pair of pincers, and their heads put through the opening between the lateral bars already described, and thence between the rollers; which, as they turn round, squeeze the iron flat, and to the proper thickness throughout, while workmen behind the machine convey it away. The rolling mill is principally used for making hoops for barrels, and iron-plates. The water, brought by the small pipe to the trough, and thence let fall upon the roller, is to prevent the latter from being heated by the iron.

ROLLING-PRESS. *See* PRESS.

ROMAN VITRIOL, Blue Vitriol, or Vitriol of Copper. (Ger. *Blauer Vitriol, Kupfer Vitriol, Ränischer Vitriol.* Du. *Blaauw Vitriool, Kopervitriool, Roomsch Vitriool.* Da. *Blaa Vitriol, Kobber Vitriol, Blaat Kobbervand.* Sw. *Blå Vitriol, Koppar Vitriol.* Fr. *Vitriol bleu, Couperose bleue, Vitriol Romain, Vitriol de Chypere.* It. *Vitriuolo turchino di rame, ciprio.* Sp. *Vitriolo azul, de cobre, Romano, de Chipre.* Port. *Vitriolo de cobre.* Rus. *Sinei Kuperos.* Pol. *Koperwas cypryyski, modry.* Lat. *Vitriolum cæruleum, Cyprinum, Romanum, veneris.*) If pure oil of vitriol be boiled in copper filings, or small pieces of that metal, it dissolves them into liquor of a deep blue colour, which readily crystallizes. The crystals are of a beautiful blue colour, and are sold under the name of Roman Vitriol, &c. Where sulphur is found in great plenty, Roman vitriol is made by stratifying thin plates of copper with that mineral; and upon slow burning the latter, its acid corrodes the copper. The metal is then to be boiled in water, that the saline part may be dissolved. The operation is to be repeated till all the copper is dissolved, and all the saline liquors are to be evaporated together, to the crystallising point. By this method, however, a great part of the acid is lost; and in Britain, the pure acid must be preferable for those who prepare Roman Vitriol. It is used in dyeing, calico-printing, and paper-staining.

ROOD, a quantity of land equal to forty square perches, or the fourth part of an acre.

ROOTS of all kinds in the ground are specially protected by statute, either under their specific distinguishing appellations, or generally by their common denomination of *roots.* The 13 Geo. 3. c. 32. imposes a penalty of 10*s.* over and above the value of the things stolen, or commitment to hard labour for a month, upon the stealing and taking away, or the maliciously destroying, *turnips, potatoes, cabbages, parsnips, pease,* or *carrots,* growing or being in any garden, lands, or grounds open or inclosed.

The 6 Geo. 3. c. 48. imposes a penalty of 40*s.* over and above all costs, or similar commitment for a first offence, and additional punishments (even to transportation) for a repetition thereof, for plucking up, spoiling, destroying, taking, or carrying away, *any root,* shrub, or plant, out of any fields, nursery, garden, or other cultivated ground.

ROPE, hemp, hair, &c. spun into a thick yarn, and then several strings of this yarn twisted together by means of a wheel. When made very small it is called a cord, and when very thick, a cable. All the different kinds of this manufacture, from a fishing-line, or whip-cord, to the cable of a first-rate ship of war, go by the general name of cordage.

Ropes are made of every substance that is sufficiently fibrous, flexible, and tenacious, but chiefly of the inner barks of plants. The Chinese and other orientals even make them of the ligneous parts of several plants, such as certain bamboos and reeds, the stems of the aloes, the fibrous covering of the cocoa-nut, the filaments of the cotton pod, and the leaves of some grasses, such as the sparte. The aloe and the sparte exceed all others in strength. But the barks of plants are the most productive of fibrous matter fit for this manufacture. Those of the linden tree, of the willow, the bramble, the nettle, are frequently used; but hemp and flax are, on the whole, the best hitherto discovered for indiscriminate service; and of these the hemp is preferred, and employed in all cordage exceeding the size of a line, and even in many of this denomination. *See* CABLE, HEMP, and FLAX.

ROPE-MAKING, is an art of very great importance; and there are few which

better deserve attention. Hardly any art can be carried on without the assistance of the rope-maker. Cordage makes the very sinews and muscles of a ship; and every improvement which can be made in its preparation, either in respect to strength or pliableness, must be of immense service to the commerce and the defence of nations.

The aim of the rope-maker is to unite the strength of a great number of fibres. This would be done in the completest manner by laying the fibres parallel to each other, and fastening the whole at the two ends; but this is impracticable, because the fibres are short, not exceeding three feet and a half on an average. They must therefore be commixed, so that the strength of a fibre shall not be able to draw it out from among the rest of the bundle. This is done by twisting or twining them together, in such a manner, as to produce reciprocal compression. When the fibres are so disposed in a long skein, that their ends succeed each other along its length, without many of them meeting in one place, and this skein is twisted round, we may cause them to compress each other to any degree desired; but if there be any one part where many ends of fibres meet, the skein will break in that part.

It is obvious that we can twist a skein of fibres so very hard, that it will break with any attempt to twist it harder. In this state all the fibres are already strained to the utmost. Such a skein of fibres can have no strength. It cannot carry a weight, because each fibre is already strained in the same manner, as if loaded with as much weight, as it is able to bear. What we have said of this extreme case is true in a certain extent of every degree of twist that we give the fibres. Whatever force is actually exerted by a twisted fibre, in order that it may sufficiently compress the rest to hinder them from being drawn out, must be considered as a weight hanging on that fibre, and must be deducted from its absolute strength of cohesion, before we can estimate the strength of the skein. The strength of the skein is the remainder of the absolute strength of the fibres, after we have deduced the force employed in twisting them together. From this observation may be established a fundamental principle in rope-making, that all twisting, beyond what is necessary for preventing the fibres from being drawn out without breaking, diminishes the strength of the cordage, and should be avoided.

It is necessary then to twist the fibres of hemp together, in order to make a rope; but we should make a very bad rope if we contented ourselves with twisting together a bunch of hemp sufficiently large to withstand the strains to which the rope is to be exposed. As soon as we let it go out of our hands, it would untwist itself, and be again a loose bundle of hemp; for the fibres are strained, and they are in a considerable degree elastic; they contract again, and thus untwist the rope or skein. It is necessary to contrive the twist in such a manner, that the tendency to untwist in one part, may act against the same tendency in another, and balance it. The process, therefore, of rope-making is more complicated.

The first part of this process is spinning of rope-yarn, that is, twisting the hemp in the first instance. This is done in various ways, and with different machinery, according to the nature of the intended cordage. We shall confine our description to the manufacture of the larger kinds, such as are used for the standing, and running, rigging of ships.

An alley or walk is inclosed for the purpose, about two hundred fathoms long, and of a breadth suited to the extent of the manufacture. It is sometimes covered above. At the upper end of this rope-walk is set up the spinning-wheel. The band of this wheel goes over several rollers called whirls, turning on pivots in brass holes. The pivots at one end come through the frame, and terminate in little hooks. The wheel being turned by a winch, gives motion in one direction to all those whirls. The spinner has a bundle of dressed hemp round his waist, with the two ends meeting before him. The hemp is laid in this bundle, in the same way that women spread the flax on the distaff. There is great variety in this; but the general aim is to lay the fibres in such a manner, that so long as the bundle lasts, there may be an equal number of the ends at the extremity, and that a fibre may never offer itself double or in a bight. The spinner draws out a proper number of fibres, twists them with his fingers, and having got a sufficient length detached, he fixes it to the hook of a whirl. The wheel is now turned, and the skein is twisted, becoming what is called a rope-yarn, and the spinner walks backwards down the rope-walk. The part already twisted draws along with it more fibres out of the bundle. The spinner aids this with his fingers, supplying hemp, in due proportion, as he walks away from the wheel, and taking care that the fibres come in equally from both sides of his bundle, and that they enter always with their ends, and not by the middle, which would double them. He should also endeavour to enter every fibre at the heart of the yarn. This will cause all the fibres to mix equally in making it up, and will make the work smooth, because one end of each fibre is by these means buried among the rest, and the other end only lies outward; and this, in passing through the grasp of the spinner, who presses it tight with his thumb and palm, is also made to lie smooth. The greatest fault that can be committed in spinning, is to allow a small thread to be twisted off from one side of the hemp, and then to cover this with hemp supplied from the other side; for it is evident, that

the fibres of the central thread make very long spirals, and the skin of fibres which covers them must be much more oblique. This covering has but little connection with what is below it, and will easily be detached. But even while it remains, the yarn cannot be strong, for on pulling it, the middle part, which lies the straightest, must bear all the strain, while the outer fibres that are lying obliquely, are only drawn a little more parallel to the axis. This defect will always happen when the hemp is supplied in a considerable body to a yarn that is then spinning small. Into whatever part of the yarn it is made to enter, it becomes a sort of loosely connected wrapper. A good spinner therefore endeavours always to supply the hemp, in the form of a thin flat skein, with his left hand, while his right is employed in grasping firmly the yarn that is twining off, and in holding it tight from the whirl, that it may not run into loops or kinks.

It is evident, that both the arrangement of the fibres, and the degree of twisting, depend on the skill and dexterity of the spinner, and that he must be instructed, not by a book, but by a master. The degree of twist depends on the rate of the wheel's motion, combined with the retrograde walk of the spinner.

We may suppose him arrived at the lower end of the walk, or as far as is necessary for the intended length of his yarn. He calls out, and another spinner immediately detaches the yarn from the hook of the whirl, gives it to another, who carries it aside to the reel; and this second spinner attaches his own hemp to the whirl-hook. In the mean time, the first spinner keeps fast hold of the end of his yarn; for the hemp, being dry, is very elastic, and if he were to let it go out of his hand, it would instantly untwist, and become little better than loose hemp. He waits, therefore, till he sees the reeler begin to turn the reel, and he goes slowly up the walk, keeping the yarn of an equal tightness all the way, till he arrives at the wheel, where he waits with his yarn in his hand till another spinner has finished his yarn. The first spinner takes it off the whirl-hook, joins it to his own, that it may follow it on the reel, and begins a new yarn.

Rope-yarns, for the greatest part of the large rigging, are, from a quarter of an inch to somewhat more than a third of an inch in circumference, or of such a size that 160 fathoms weigh from $3\frac{1}{2}$ to 4 pounds when white. The different sizes of yarns are named from the number of them contained in a strand of a rope of three inches in circumference. Few are so coarse that 16 will make a strand of British cordage; 18 is not unfrequent for cable yarns, or yarns spun from harsh and coarse hemp; 25 is, we believe, the finest size which is worked up for the rigging of a ship. Much finer are indeed spun for sounding-lines, fishing-lines, and many other marine uses, and for the other demands of society. Ten good spinners will work up above 600 weight of hemp in a day; but this depends on the weather. In very dry weather the hemp is very elastic, and requires great attention to make smooth work. In the warmer climates the spinner is permitted to moisten the rag, with which he grasps the yarn in his right hand, for each yarn. No work can be done in an open spinning-walk in rainy weather, because the yarns would not take on the tar, if immediately tarred, and would rot if kept on the reel for a long time.

The second part of the process is the conversion of the yarns into what may, with propriety, be called a rope, cord, or line. That we may have a clear conception of the principle which regulates this part of the process, we shall begin with the simplest possible case, the union of two yarns into one line. This is not a very usual fabric for rigging, but we select it for its simplicity.

When hemp has been split into very fine fibres by the hatchel, it becomes exceedingly soft and pliant, and after it has lain for some time in the form of fine yarn, it may be unreeled and thrown loose, without losing much of its twist. Two such yarns may be put on the whirl of a spinning-wheel, and thrown, like flaxen yarn, so as to make sewing thread. It is in this way, indeed, that the sail-maker's sewing thread is manufactured; and when it has been kept on the reel, or on balls or bobbins, for some time, it retains its twist, as well as its uses require. But this is by no means the case with yarn spun for great cordage. The hemp is so elastic, the number of fibres twisted together is so great, and the diameter of the yarn (which is a sort of lever on which the elasticity of the fibre exerts itself) is so considerable, that no keeping will make the fibres retain this constrained position. The end of a rope yarn being thrown loose, it will immediately untwist, and this with considerable force and speed. It would, therefore, be a fruitless attempt to twist two such yarns together; yet ingenuity has contrived to make use of this very tendency to untwist not only to counteract itself, but even to produce another and a permanent twist, which requires force to undo it, and which will recover itself when this force is removed. Every person must recollect that when he has twisted a packthread very hard with his fingers between his two hands, if he slacken the thread by bringing his hands nearer together, the packthread will immediately curl up, running into loops or kinks, and will even twist itself into a neat and firm cord.

The component parts of a rope are called strands, and the operation of uniting them with a permanent twist is called laying or closing, the latter term being chiefly appropriated to cables and other very large cordage.

Lines and cordage less than 1½ incn circumference are laid at the spinning-wheel. The workman fastens the ends of each of two or three yarns to separate whirl-hooks. The remote ends are united in a knot. This is put on one of the hooks of a swivel called the loper, and care is taken that the yarns are of equal length, and twist. A piece of soft cord is put on the other hook of the loper; and, being put over a pulley several feet from the ground, a weight is hung on it, which stretches the yarn. When the workman sees that they are equally stretched, he orders the wheel to be turned in the same direction as when twining the yarns. This would twine them harder; but the swivel of the loper gives way to the strain, and the yarns immediately twist around each other, and form a line or cord. In doing this the yarns lose their twist. This is restored by the wheel. But this simple operation would make a very bad line, which would be slack, and not hold its twist; for, by the turning of the loper, the strands twist immediately together, to a great distance from the loper. By this turning of the loper the yarns are untwisted. The wheel restores their twist only to that part of the yarns that remains separate from the others, but cannot do it in that part where they are already twined round each other, because their mutual pressure prevents the twist from advancing. It is, therefore, necessary to retard this tendency to twine, by keeping the yarns apart. This is done by a little tool called the top.

It is a truncated cone, having three or more notches along its sides, and a handle called the staff. This is put between the strands, the small end next the loper, and it is pressed gently into the angle formed by the yarns which lie in the notches. The wheel being now turned, the yarns are more twisted, or hardened up, and their pressure on the top gives it a strong tendency to come out of the angle, and also to turn round. The workman does not allow this till he thinks the yarns sufficiently hardened. Then he yields to the pressure, and the top comes away from the swivel, which immediately turns round, and the line begins to lay. Gradually yielding to this pressure, the workman slowly comes up towards the wheel, and the laying goes on, till the top is at last close to the wheel, and the work is done. In the mean time, the yarns are shortened, both by the twining of each and the laying of the cord. The weight, therefore, gradually rises. The use of this weight is evidently to oblige the yarn to take a proper degree of twist, and not run into kinks.

A cord, or line, made in this way, has always some tendency to twist a little more. However little friction there may be in the loper, there is some, so that the turns which the cord has made in the laying, are not enough to balance completely the elasticity of the yarns; and the weight being appended, causes the strands to be more nearly in the direction of the axis, in the same manner as it would stretch and untwist a little any rope to which it is hung. On the whole, however, the twist of a laid line is permanent, and not like that upon thread doubled or thrown in a mill, which remains only in consequence of the great softness, and flexibility, of the yarn.

The process for laying or closing large cordage, is considerably different from this. The strands, of which the rope is composed, consist of many yarns, and require a considerable degree of hardening. This cannot be done by a whirl driven by a wheel-band; it requires the power of a crank turned by the hand. The strands, when properly hardened, become very stiff, and when bent round the top, are not able to transmit force enough for laying the heavy and unpliant rope which forms beyond it. The elastic twist of the hardened strands must, therefore, be assisted by an external force. All this requires a different machinery, and a different process.

At the upper end of the walk is fixed up the tackle-board. This consists of a strong oaken plank called a breast-board, having three or more holes in it, fitted with brass or iron plates. Into these are put iron cranks, called heavers, which have hooks or fore-locks, and keys, on the ends of their spindles. They are placed at such a distance from each other, that the workmen do not interfere, while turning them round. This breast-board is fixed to the top of strong posts, well secured by struts or braces facing the lower end of the walk. At the lower end is another breast-board fixed to the upright posts of a sledge, which may be loaded with stones or other weights. Similar cranks are placed in the holes of this breast-board. The whole goes by the name of the sledge. The top necessary for closing large cordage is too heavy to be held in the hand: it therefore has a long staff, which has a truck on the end. This rests on the ground; but even this is not enough in laying great cables. The top must be supported on a carriage, for the purpose, where it must lie very steady, and it needs attendance, because the master-workman has sufficient employment in attending to the manner in which the strands close behind the top, and in helping them by various methods. The top is, therefore, fixed to the carriage, by lashing its staff to the two upright posts. A piece of soft rope, or strap, is attached to the handle of the top by the middle, and its two ends are brought back and wrapped several times tight round the rope, in the direction of its twist, and bound down. This both keeps the top from flying too far from the point of union of the strands, and brings the strands more regularly into their places.

The first operation is warping the yarns. At each end of the walk are frames called warping-frames, which carry a great number of reels or winches filled with rope-yarn. The foreman of the walk takes off a yarn-end from each, till he has made up the number necessary for his rope, or strand, and bringing the ends together, he passes the whole through an iron ring fixed to the top of a stake driven into the ground, and draws them through: then a knot is tied on the end of the bundle, and a workman pulls it through this ring till the intended length is drawn off the reels. The end is made fast at the bottom of the walk, or at the sledge, and the foreman comes back along the skeins of yarn, to see that none are hanging slacker than the rest. He takes up in his hand such as are slack, and draws them tight, keeping them so till he reaches the upper end, where he cuts the yarns to a length, again adjusts their tightness, and joins them all together in a knot, to which he fixes the hook of a tackle, the other block of which is fixed to a firm post, called the warping-post. The skein is well stretched by this tackle, and then separated into its different strands. Each of these is knotted apart at both ends. The knots at their upper ends are made fast to the hooks of the cranks in the tackle-board: and those at the lower end are fastened to the cranks in the sledge. The sledge itself is kept in its place by a tackle, by which the strands are again stretched in their places, and every thing adjusted, so that the sledge stands square on the walk, and then a proper weight is laid on it. The tackle is now cast off, and the cranks are turned at both ends, in the contrary direction to the twist of the yarns. (In some kinds of cordage the cranks are turned the same way with the spinning twist.) By this the strands are twisted, and hardened up; and as they contract by this operation, the sledge is dragged up the walk. When the foreman thinks the strands sufficiently hardened, which he estimates by the motion of the sledge, he orders the heavers at the cranks to stop. The middle strand at the sledge is taken off from the crank. This crank is taken out, and a stronger one put in its place. The other strands are taken off from their cranks, and are all joined on the hook which is now in the middle hole. The top is then placed between the strands, and being pressed home to the point of their union, the carriage is placed under it, and it is firmly fixed down. Some weight is taken off the sledge. The heavers now begin to turn at both ends. Those at the tackle-board continue to turn as they did before; but the heavers at the sledge turn in the opposite direction to their former motion, so that the cranks at both ends are now turning one way. By the motion of the sledge-crank the top is forced away from the knot, and the rope begins to close. The heaving at the upper end restores to the strands the twist which they are constantly losing by the laying of the rope. The workmen judge of this by making a chalk mark on intermediate points of the strands, where they lie on the stakes which are set up along the walk for their support. If the twist of the strands is diminished by the motion of closing, they will lengthen, and the chalk mark will move away from the tackle-board; but if the twist increases by turning the cranks at the tackle-board, the strands will shorten, and the mark will of course approach nearer to it.

As the closing of the rope advances, the whole shortens, and the sledge is dragged up the walk. The top moves faster, and at last reaches the upper end of the walk, the rope being now laid. In the mean time, the sledge has moved several fathoms from the place where it was when the laying began.

These motions of the sledge, and top, must be exactly adjusted to each other. The rope must be of a certain length. Therefore the sledge must stop at a certain place. At that moment the rope should be laid: that is, the top should be at the tackle-board. In this consists the address of the foreman. He has his attention directed both ways. He looks at the strands, and when he sees any of them hanging slacker between the stakes than the others, he calls to the heavers at the tackle-board to heave more upon that strand. He finds it more difficult to regulate the motion of the top. It requires a considerable force to keep it in the angle of the strands, and it is always disposed to start forward. To prevent or check this, some straps of soft rope are brought round the staff of the top, and then wrapped several times round the rope behind the top, and kept down by a lanyard or bandage. This both holds back the top, and greatly assists the laying of the rope, causing the strands to fall into their places, and keep close to each other, which is sometimes very difficult, especially in ropes composed of more than three strands. It will greatly improve the laying the rope, if the top has a sharp, smooth, tapering pin of hard wood, pointed at the end, projecting so far from the middle of its smaller end, that it gets in between the strands which are closing. This supports them, and makes their closing more gradual and regular. The top, its notches, the pin, and the warp or strap, which is lapped round the rope, are all smeared with grease or soap to assist the closing. The foreman judges of the progress of closing chiefly by his acquaintance with the walk, knowing that when the sledge is abreast of a certain stake, the top should be abreast of a certain other stake. When he finds the top too far down the walk, he slackens the motion at the tackle-board, and makes the men turn briskly at the sledge. By this the top is forced up the

walk, and the laying of the rope accelerates, while the sledge remains in the same place, because the strands are loosing their twist, and are lengthening, while the closed rope is shortening. When, on the other hand, he thinks the top too far advanced, and fears that it will be at the head of the walk before the sledge has got to its proper place, he makes the men heave briskly on the strands, and the heavers at the sledge-crank work softly. This quickens the motion of the sledge by shortening the strands; and by thus compensating what has been overdone, the sledge, and top, come to their places at once, and the work appears to answer the intention.

When the top approaches the tackle-board, the heaving at the sledge could not cause the strands immediately behind the top to close well, without having previously produced an extravagant degree of twist in the intermediate rope. The effort of the crank must therefore be assisted by men stationed along the rope, each furnished with a tool called a woolder. This is a stout oak stick, about three feet long, having a strap of soft rope-yarn, or cordage, fastened on its middle or end. The strap is wrapped round the laid rope, and the workman works with the stick as a lever, twisting the rope round in the direction of the crank's motion. The woolders should keep their eye on the men at the crank, and make their motion correspond with his. Thus they send forward the twist produced by the crank, without either increasing, or diminishing it, in that part of the rope which lies between them and the sledge.

Such is the general and essential process of rope-making. The fibres of hemp are twisted into yarns, that they may make a line of any length, and stick among each other with a force equal to their own cohesion. The yarns are made into cords of permanent twist by laying them; and that we may have a rope of any degree of strength, many yarns are united in one strand, for the same reason that many fibres were united in one yarn; and in the course of this process, it is in our power to give the rope a solidity and hardness which make it less penetrable by water, which would rot it in a short while. Some of these purposes are inconsistent with others, and the skill of a rope-maker lies in making the best compensation, so that the rope may, on the whole, be the best in point of strength, pliancy, and duration, that the quantity of hemp in it can produce.

The following rule for judging of the weight which a rope will bear is not far from the truth. It supposes them rather too strong; but it is so easily remembered that it may be of use.

Multiply the circumference in inches by itself, and take the fifth part of the product, it will express the tons which the rope will carry. Thus, if the rope has 6 inches circumference, 6 times 6 is 36, the fifth of which is $7\frac{1}{5}$ tons; apply this to the rope of $3\frac{1}{5}$, on which Sir Charles Knowles made his experiments $3\frac{1}{5} \times 3\frac{1}{5} = 10.25$, $\frac{1}{5}$ of which is 2.05 tons, or 4592 pounds. It broke with 4550.

This may suffice for an account of the mechanical part of the manufacture, according to the old-established process. In the last year of the last century, a new invention for making ropes and cordage, twined and untwined, from the spinning of the yarn inclusive, to the finishing of the rope or cordage, by means of machinery, was rewarded by a patent granted to two persons of the name of Chapman, of Newcastle-on-Tyne. It must have been noticed, by the foregoing description, that, according to the old method, rope-yarn, whether spun by hand-labour, or by machinery, is afterwards to be made into cordage by laborious, and expensive, hand-labour, in an extensive rope-walk, and by a comparatively slow process. The specification of Chapman's patent promises, by an easy and simple contrivance of machinery, to accomplish three desirable objects; viz. the substitution of the labour of women and children for that of men, great saving in extent of room, and the formation of a rope, in which all the component fibres, external, and internal, shall be obnoxious to a more equable pressure.

We have hitherto confined our observations only to the manufacture of ropes themselves; we must now say a few words on the adventitious aid sought from tar, and other things, in order to augment the strength and durability of cordage. Tarring is the process to which we particularly allude.

It is evidently proper to tar in the state of twine or yarn, this being the only way that the hemp could be uniformly penetrated. The yarn is made to wind off one reel, and having passed through a vessel containing hot tar, it is wound up on another reel; and the superfluous tar is taken off, by passing through a hole surrounded with spongy oakum; or it is tarred in skeins or hauls, which are drawn by a capstern through the tar-kettle, and through a hole formed of two plates of metal, held together by a lever loaded with a weight.

It is established beyond a doubt, that a tarred cordage, when new, is weaker than white, and that the difference increases by keeping. The following experiments were made by Mr. Du Hamel, at Rochefort, on cordage of three inches (French) in circumference, made of the best Riga hemp.

	August 8. 1741.	
	White.	Tarred.
Broke with	4500 pounds.	3400 pounds.
	4900	3300
	4800	3250
	April 25. 1743.	
	4600	3500
	5000	3400
	5000	3400

Sept. 3. 1746.

3800	3000
4000	2700
4200	2800

A parcel of white and tarred cordage was taken out of a quantity which had been made Feb. 12, 1746. It was laid up in the magazines, and comparisons were made from time to time as follow:

	White bore.	Tarred bore.	Diff.
1746. April 14.	2645lbs.	2312lbs.	333
1747. May 18.	2762	2155	607
1747. Oct. 21.	2710	2050	660
1748. June 19.	2575	1752	823
1741. Oct. 2.	2425	1837	588
1749. Sept. 25.	2917	1865	1052

Mr. Du Hamel says, that it is decided by experience. 1. That white cordage in continual service is one-third more durable than tarred. 2. That it retains its force much longer while kept in store. 3. That it resists the ordinary injuries of the weather one-fourth longer.

We know this one remarkable fact: in 1758, the shrouds and stays of the sheer-hulk at Portsmouth dock-yard were overhauled, and when the worming and service were taken off, they were found to be of white cordage. On examining the store-keeper's books, they were found to have been formerly the shrouds and rigging of the Royal William, of 110 guns, built in 1715, and rigged in 1716. She was thought top-heavy, and unfit for sea, and unrigged, and her stores laid up. Some few years afterwards, her shrouds and stays were fitted on the sheer-hulk, where they remained in constant, and very hard, service for about 30 years, while every tarred rope about her had been repeatedly renewed.

Why then do we tar cordage? It is chiefly serviceable for cables and ground tackle, which must be continually wetted, and even soaked. The result of careful observation is, 1. That white cordage, exposed to be alternately very wet and dry, is weaker than tarred cordage. 2. That cordage which is superficially tarred, is constantly stronger than what is tarred throughout, and it resists better the alternatives of wet and dry. The shrouds of the sheer-hulk were well tarred and blacked, so that it was not known that they were of white cordage.

Attempts have been made to increase the strength of cordage by tanning. But although it remains a constant practice in the manufacture of nets, it does not appear that much addition, either of strength or durability, can be given to cordage by this process. The trial has been made with great care, and by persons fully able to conduct the experiment with propriety. But it is found, that the yarns take so long time in drying, and are so much hurt by drying slowly, that the room required for a considerable rope-work would be immense; and the improvement of the cordage is but trifling, and even equivocal.

There are numerous statutes relative to the cordage of the royal navy (see Dick. Pract. Expos. 2 and 3, *title* CORDAGE,) but only one which relates to the manufacturing of it, and to prevent the illicit importation of it from foreign countries, which is 25 Geo. 3. c. 5, 6.

CORDAGE-TABLE; showing how many Fathoms, Feet, and Inches, of a Rope of any size, not exceeding fourteen inches, make a Hundred Weight; with the use of the Table.

Inches.	Fath.	Feet.	Inches.	Inches.	Fath.	Feet.	Inches.	Inches.	Fath.	Feet.	Inches.	Inches.	Fath.	Feet.	Inches.
1	486	0	0	4¼	26	5	3	7½	8	4	0	10¾	4	1	8
1¼	313	3	0	4½	24	0	0	7¾	8	3	6	11	4	0	3
1½	216	3	0	4¾	21	3	0	8	7	3	6	11¼	3	5	7
1¾	159	3	0	5	19	3	0	8¼	7	0	8	11½	3	4	1
2	124	3	0	5¼	17	4	0	8½	6	4	3	11¾	3	3	3
2¼	96	2	0	5½	16	1	0	8¾	6	2	1	12	3	2	3
2	77	3	0	5¾	14	4	6	9	6	0	0	12¼	3	2	1
2¾	65	4	0	6	13	3	0	9¼	5	4	0	12½	3	2	0
3	54	0	0	6¼	12	2	0	9½	5	2	0	12¾	2	7	8
3¼	45	5	2	6½	11	3	0	9¾	5	0	6	13	2	5	3
3½	39	3	0	6¾	10	4	0	10	4	5	0	13¼	2	4	9
3¾	34	3	9	7	9	5	6	10¼	4	4	1	13½	2	4	0
4	30	1	6	7¼	9	1	6	10½	4	2	2	13¾	2	3	6
												14	2	2	1

At the top of the Table, marked inches, fathoms, feet, inches, the first column is the thick ness of a rope in inches and quarters; the other three the fathoms, feet, and inches, that make up a hundred weight of such a rope. One example will make it plain.

Suppose it is required how much of a 7-inch rope will make a hundred weight? Find 7, in the third column, under inches, or thickness of the rope, and against it, in the fourth column, you will find 9 5 6; which shows that, in a rope of seven inches, there will be 9 fathoms, 5 feet, 6 inches, required to make one hundred weight.

The Weight of any Cable, or Rope, of 120 fathoms in length, and for every half-inch, from 3 inches to 24 in circumference.

Inches.	Cwt.	Qrs.	Inches.	Cwt.	Qrs.	Inches.	Cwt.	Qrs.	Inches.	Cwt.	Qrs.	Inches.	Cwt.	Qrs.
3	2	1	7½	14	0	12	36	0	16½	68	0	21	110	1
3½	3	0	8	16	0	12½	39	0	17	72	1	21½	115	2
4	4	0	8½	18	0	13	42	1	17½	76	2	22	121	0
4½	5	0	9	20	1	13½	45	2	18	81	0	22½	126	2
5	6	1	9½	22	2	14	49	0	18½	85	2	23	132	1
5½	7	2	10	25	0	14½	52	2	19	90	1	23½	138	0
6	9	0	10½	27	2	15	56	1	19½	95	0	24	144	0
6½	10	2	11	30	1	15½	60	0	20	100	0			
7	12	2	11½	33	0	16	64	0	20½	105	0			

A Table of the number of Threads and Weight of Cables, of different Circumferences.

Inches in Circumference.	*No. of Threads.*	*Weight in lbs.*
9	393	1527
10	485	1940
11	598	2392
12	699	2796
13	821	3284
14	952	3808
15	1093	4372
16	1244	4976
17	1404	5616
18	1574	6296
19	1754	7016
20	1943	7772

By means of this table, the number of threads, &c. contained in cordage of whatever circumference, may be ascertained with facility. The examples which the above calculations afford, will serve as criterions for the working of all questions connected with the nature of the table.

ROSALGAR. *See* REALGAR.

ROSE, (Ger. *Rosen.* Du. *Roos.* Da. *Rose.* Sw. *Ros.* Fr. *Rose.* It. Sp. and Port. *Rosa.* Rus. *Rosa, Rosen.* Pol. *Rosa.* Lat. *Rosa,*) a well-known flower, produced from a shrub of the same name.

The name of this plant in every language, both ancient, and modern, has its primary root in a term signifying *redness.* Of the *genus,* there are varieties of *species* almost innumerable. Among flowers, the rose stands preeminent for beauty and ornament; but for utility, its sphere is extremely limited. It is, in most of its varieties, a mild astringent, and for some purposes of delicate application in the form of a conserve, or in that of a liquid, by a distillation of its flowers, it is in general use. As an article of commerce, it scarcely presents itself to our notice, further than as in distillation it is exported from Persia, in barter for the muslins of Hindostan, and is a perfume in great request throughout the East.

ROSE-NOBLE, an ancient English gold coin, first struck in the reign of Edward III. and then called the penny of gold, since called the rose-noble, because it was stamped with a rose: it was current at six shillings and eight-pence.

ROSE-WOOD. (Ger. *Rosenholz.* Du. *Rozenhout.* Da. *Rosentræe.* Sw. *Rosenträ.* Fr. *Bois du rose, de Rhode, de marbre.* It. *Legeo rodie.* Sp. *Leno de rosa.* Port. *Páo de rosado.* Lat. *Lignum roseum.*) *See* RHODIUM.

ROSIN. *See* RESIN.

ROTA-TENT. *See* TENT.

ROTHER-NAILS, among shipwrights, nails with very full heads, used for fastening the rudder-irons of ships. *See* NAILS.

ROTOLO, (in the plural Rotoli,) a weight used in Sicily, several parts of Italy, Portugal, Cairo, and other places in the Levant and Egypt, at Goa, &c. Its standard is widely different in most of these parts.

ROTTEN-STONE. *See* TRIPOLI.

ROUBLE, a silver coin of Russia, equivalent to 3*s.* 4*d.* sterling.

ROUGE, prepared from Carthamus, which *see.* For this purpose the red colour is extracted by a solution of sub-carbonate of soda, and precipitated by lemon-juice, previously depurated by standing. This precipitate is dried on earthen plates, mixed with talc, or French chalk, reduced to a powder by means of the leaves of shave grass, triturated with it till they are both very fine, and then sifted. The fineness of the powder, and proportion of the precipitate, constitute the difference between the finer and the cheaper rouge. It is likewise spread very thin on saucers, and sold in this state for dyeing.

ROUGE, *Polishing*. This is a powder employed by goldsmiths to give the last polish to their work, which they commonly call colouring it. The finest is of a high red colour, and very soft to the touch. It is said to be a very pure native red oxide of iron. Sometimes it is of a red inclining to purple, and has the appearance of a very fine *crocus martis*: but this is of inferior quality. If pieces of old hat, in the dyeing of which iron is used, be immersed a few minutes in sulphuric acid, the iron will pass to the state of red oxide, and they will become excellent polishers.

ROUPEE, or RUPEE, a gold, and silver, coin, current in the East Indies and China. The golden roupee passes at Goa, Malabar, &c. for 1*l.* 16*s.*; at Guzurat, Surat, &c. for 1*l.* 15*s.*; and at Bombay, &c. for 1*l.* 13*s.* The silver roupee passes at Bengal, &c. at 2*s.* 6*d.*; and at Bombay, &c. at 2*s.* 3*d.* In China, the silver roupee is current at 2*s.* 6*d.*

ROWEL, the points of a spur turning on an axis.

ROWLEY RAG. This stone, which is a species of basalt, is of a dusky or dark-grey colour, with numerous minute shining crystals, some of which appear to be feldtspar, the others hornblende. The town of Birmingham is paved with it.

Its texture is fine grained, and confusedly crystalized. By exposure to the air it acquires an ochrey crust.

RUBICELLE. This name has been applied to a red gem from Brazil, but authors do not agree in its characters. Some consider it as the Brazilian topaz, coloured red by the action of fire; while others say, that fire destroys the red colour.

RUBY, (GER. *Rubin.* DU. *Robyn.* DA. and SW. *Rubin.* FR. *Rubis.* IT. *Rubino.* SP. *Rubi.* PORT. *Rubim.* RUS. *Jachont tscherirtschatoi.* POL. *Rubin.* LAT. *Rubinus,*) a genus of precious stones of various colours; as, 1. Of a deep red colour, inclining a little to purple: the carbuncle of Pliny. 2. The spinell, of the colour of a bright corn poppy flower. 3. The balass, or pale red, inclining to violet. The ruby is said to crystalize into an octahedral form, as well as the diamond, from which it differs very little in hardness, and weight. The hard and brilliant rubies, named oriental, as well as the sapphires and topazes, are all the same, excepting only the circumstance of colour. Some are partly red, and partly blue, yellow, and some quite colourless. The spinell rubies are about half the value of diamonds of the same weight; the balass is valued at 30 shillings per carat. Mention is made by travellers, of rubies exceeding 200 carats in weight. According to Dutens, a perfect ruby, if it weighs more than $3\frac{1}{2}$ carats, is of greater value than a diamond of the same weight. If it weighs one carat, it is worth 10 guineas; if two carats, 40 guineas; three carats, 150 guineas; if six carats, upwards of 1000 guineas.

The ruby is usually found very small, equal to the head of the largest sort of pins; but sometimes of four, eight, and ten carats; and sometimes, though very rarely indeed, of twenty, thirty, and up to forty carats. It commonly is so naturally bright, that, when its figure will admit, it is set in its rough state.

The texture of the ruby is said to be foliated like that of diamonds, and fusible with borax in a strong, and long-continued, heat. It becomes electric, by being rubbed. Its specific gravity, according to Bergman, is from 3,180 to 4,240: but Brisson tells us, that it is 4,283. The specific gravity of the spinell is 3,760, of the Brazilian ruby, 3,531.

Rubies are met with in the Capelan mountains of Pegu, in the East Indies; and at Caas, Ava, Bisnagar, Calicut, Cananor, Ceylon, and Brazil. They are found in sands of rivers of a red colour, in an argillaceous earth of a hard texture, and greenish colour; sometimes they adhere to red rocks. The spinell rubies are met with in Hungary, Silesia, Bohemia, and Brazil. The balass comes principally from Brazil, though some are also brought from the East Indies.

The ruby seems to owe its colour to gold, it being possible to separate a small portion of that metal from the small native rubies, and also to give the true colour of these gems to a factitious paste, by means of gold.

RUDDER, in navigation, a piece of timber turning on hinges in the stern of the ship, and which, opposing sometimes one side of the water, and sometimes another, turns or directs the vessel this way or that. *See* SHIP-BUILDING.

The rudder of a ship is a piece of timber hung on the stern-posts by four or five iron hooks, called pintles, serving for the bridle of a ship to turn her about, at the pleasure of the steersman. The rudder being perpendicular, and withoutside the ship, another piece of timber is fitted to it at right angles, which comes into the ship, by which it is managed and directed. This latter property is called the helm or tiller; and sometimes, though improperly, the rudder itself. The power of the rudder is reducible to that of the lever. As to the angle the rudder should make with the keel, it is shewn, that the working of ships, in order to stay, or bear up, the soonest possible, the tiller of the rudder ought to make an angle of fifty-five degrees with the keel. A narrow rudder is best for a ship's sailing, provided she can feel it; that is, be guided and turned by it: for a broad rudder will hold much water when the helm is put over to any side; but if a ship has a fat quarter, so that the

water cannot come quick and strong to her rudder, she will require a broad rudder. The aft-most part of the rudder is called the rake of the rudder.

RUDDLE. *See* REDDLE.

RUE, *Meadow*. The root, branches, and leaves of this plant impart to wool a yellow colour: which, on adding sal-ammoniac, assumes a pale shade; and, on dropping oil of tartar into the decoction, acquires an orange shade: but, in order to give it lustre, the cloths should be immersed in alum-water, and the tint itself may be fixed by dissolving cream of tartar in the last liquor.

RUG, a sort of carpet in which the wool is thickly worked, and the fibres are permitted to stand erect so as to form a warm foot-cloth. Rugs are generally made to fit hearth-stones, over which they are laid during the winter season. Some of these articles are beautifully executed at Kidderminster; and are much in vogue.

RUG is also a coarse nappy coverlet, generally composed of yellow, and red, worsted, and used as a covering for inferior beds.

RULE, or RULER, an instrument of wood or metal, with several lines delineated on it, of great use in practical mensuration.

When a ruler has the lines of chords, tangents, sines, &c., it is called a plane scale.

The carpenter's joint-rule is an instrument usually of box, &c., twenty-four inches long, and one and a half broad; each inch being subdivided into eight parts. On the same side with these divisions, is usually added Gunter's line of numbers. On the other side are the lines of timber and board measure; the first beginning at 82, and continued to 36, near the other end: the latter is numbered from seven to 36, four inches from the other end.

Use of the carpenter's joint-rule. The application of the inches, in measuring lengths, breadths, &c., is obvious.

The use of the other side is all we need here to notice. 1. The breadth of any surface, as board, glass, &c., being given, to find how much in length makes a square foot. Find the number of inches the surface is broad, in the line of board measure, and immediately against it is the number of inches required. Thus, if the surface was eight inches broad, eighteen inches will be found to make a superficial foot. Or more readily thus: Apply the rule to the breadth of the board, or glass, that end marked 36 being equal with the edge, the other edge of the surface will shew the inches, and quarters of inches which go to a square foot. 2. Use of the table at the end of the board measure. If a surface be one inch broad, how many inches long will make a superficial foot? look in the upper row of figures for one inch, and under it, in the second row, is twelve inches, the answer to the question. 3. Use of the line of timber measure. This resembles the former; for having learned how much the piece is square, look for that number on the line of the timber measure; the space thence to the end of the rule is the length which, at that breadth, makes a foot of timber. Thus, if the piece be nine inches square, the length necessary to make a solid foot of timber is $21\frac{1}{3}$ inches. If the timber be small, and under nine inches square, seek the square in the upper rank of the table, and immediately under it are the feet, and inches, that make a solid foot. If the piece be not exactly square, but broader at one end than the other, the method is to add the two together, and take half the sum for the side of the square. For round timber the method is to girt it round with a string, and to allow the fourth part for the side of the square; but this method is erroneous, for hereby you lose nearly one-fifth of the true solidity; though this is the method commonly practised in buying, and selling, timber.

The mason's rule is twelve, or fifteen feet long, in order to be applied under the level to regulate the courses, and make the piedroits equal, &c.

RULE OF THREE, in arithmetic, is so called, because by *three* numbers being given, we find a fourth; and it is divided into the rule of three *direct*, *inverse*, and the *double rule of three*.

RUM, (GER. and DU. *Rum*. DA. *Rom*. SW. *Rom*. *Rum*. FR. and IT. *Rum*. SP. *Ron*, *Rom*. PORT. *Ron*. RUS. *Rom*.) a well known spirituous liquor made in the West Indies from the sugar-cane, &c. It is in general of a stronger body than brandy; that is, it contains a larger quantity of oil, and less phlegm and salt.

The method of making rum, as practised in the West Indies, is as follows: When a sufficient stock of the materials is got together, they add water to them, and ferment them in the common manner. When the wash is fully fermented, or to a due degree of acidity, the distillation is carried on in the common way, (*See* DISTILLATION.) and the spirit is made proof; though sometimes it is made up to a much greater strength, nearly approaching that of alcohol, and it is then called double distilled rum.

It would be easy to rectify the spirit, and bring it to a much greater purity than we usually find it to be; for it brings over in the distillation a very large quantity of the oil, and this is often so disagreeable, that the rum must be suffered to mellow by age, before it can be used; whereas, if well rectified, it would grow mellow much sooner, and would have a much less potent flavour. If the business of rectifying were more nicely attended to, it seems very practicable to throw out so much of the oil, as to have it in the fine light state of a spirit. The ingredients

used in the making of genuine rum, are the raw juice of the sugar-cane, and parts of the cane itself fermented in the liquor.

Rum is usually very much adulterated in England. Sometimes with malt spirit; but if done with molasses spirit, the tastes of both are so nearly allied, that the cheat is not easily discovered.

The rum, which is of a brownish, transparent colour, of a smooth oily taste, of a strong body and consistence, of a good age, and well kept, is the best. That of a clear, limpid colour, and hot pungent taste, is either too new, or dashed with other spirits.

The best state in which rum can be imported, or preserved, is that of rectified spirit, as it may thus be conveyed in one half of its usual compass, and afterwards reduced to the proper degree of proof strength, by means of spring water.

Jamaica rum is the first in point of quality, imported into this country; the Leeward Island rum, as it is called, being always inferior to it, both in flavour, strength, and value. The price of the latter is usually 20 per cent below that of the former. We import all our rum in puncheons, containing from 84 to 90 gallons, each.

It is customary in some of the West India islands, to put sliced pine apples in the puncheons of rum designed as presents for European friends; this gives the spirit a very agreeable flavour, and hence we have the designation of *pine-apple rum*. Rum being the staple produce of our West India islands, is the subject of divers statutes, as well protecting, as prohibitory. *See title* SHIPPING and TRADE.

RUNDLET, or Runlet, a small vessel containing an uncertain quantity of any liquor, from three, to twenty, gallons.

RUNNER, in the sea language, a rope belonging to the garnet, and to the two bolt-tackles. It is reeved in a single block, joined to the end of a pennant, and has at one end a hook to hitch into any thing, and at the other end a double block, into which is received the fall of the tackle, or the garnet, by which means it purchases more than the tackle would without it.

RUNNET, or Rennet, is the juice, or gastric fluid, found in the stomachs of sucking quadrupeds, which as yet have received no other nourishment than their mother's milk. It is used to curdle milk, by means of which process it is that cheese is made.

RUNNING OF GOODS, is a clandestine landing of goods, without paying the legal customs of duties for the same. *See* SMUGGLING.

RUNSTIC, a Swedish money of account, equivalent to 7-30*ths* of a penny, sterling.

RUPEE. *See* ROUPEE.

RUSH, (Ger. *Binsen*. Du. *Bies*. Da. *Siv*. Sw. *Säf*. Fr. *Jonc*. It. *Giinco*. Sp. *and* Port. *Junco*. Rus. *Ossethäg*. Pol. *Sitowie*, *Sit*. Lat. *Juncus*.) a well known vegetable production, usually found growing in marshy lands. The pith of two kinds of rushes, namely, those called round headed and soft rushes, is used for wicks to lamps and rushlights. The marine rush is planted with great care, on the banks of the sea, in Holland, in order to prevent the water from washing away the earth, which, if it were not for the roots of these plants, would be removed every tide. In the summer-time, when these rushes are fully grown, they are cut and tied up in bundles, which are dried, and afterwards carried into the larger towns and cities, where they are wrought into baskets and other useful things, which are frequently sent into England.

RUSSIA-COMPANY. *See* COMPANY.

RUSSIA LEATHER, (Ger. *Juften*. Du. *Jucht*, *Jugt*. Da. *Ruslæder*, *Ryslæder*, *Juchter*. Sw. *Jufter*, *Juchter*, *Ryska hudar*. Fr. *Cuir de Russie*, ou *de Roussi*. *Vache de Russie*. It. *Cuojo di Russia*, *Vacchalte di Moscovia*. Sp. and Port. *Moscovia*. Rus. *Juft*. *Youft*. Pol. *Juchta*.) is prepared from the hides of kine, and comes to us ready dressed from Russia. This is the leather which the Russians call *Youft* (in the plural *Youfti*), a word denoting that the Russian skins are usually assorted in couples. There are very few towns in Russia in which this species of leather is not prepared, but that which is manufactured at Jaroslau is accounted the best. In foreign countries, as well in Europe, as in Asia, the red leather is most esteemed, being admirably calculated for book-binding. In Russia, however, the black leather is in the greatest demand, vast quantities of it being employed in the formation of boots and shoes. It is probable that the Tartars were formerly masters of this branch of industry, and that from them the Russians have obtained the secret, whereby they are enabled to give their skins that lustre, softness, and strongly prominent grain, which other Europeans have vainly attempted to imitate.

The annual exportation of Russia leather, forms a considerable article in the revenues of the country.

Purchasers of Russia leather ought to pay particular regard to the weight of the bales; and especially, they ought to see that the bales have not been unpacked on the voyage. A bale containing 20 rolls, usually weighs 30 *pouds*, each roll consisting of from 3 to 5 skins, according to the quality of the article. The bales sent to Hamburg and Lubeck, are commonly of this weight. The bales exported to Italy contain the finer sorts of skins, of which 22 rolls go to a bale. Petersburg is the grand mart of the leather-trade; and the most favourable period for making purchases is about Novem-

ber, immediately after the arrival of the Archangel fleet.

RUST, the oxide of a metal. Iron, for instance, when exposed to the air, soon becomes tarnished, and gradually changed into a brown, or yellow, powder, well known by the name of rust. This change is occasioned by the gradual combination of the iron with the oxygen of the atmosphere, and according to the new chemistry, it is now denominated the oxide of iron.

Rust may be removed from iron by combining a certain proportion of quick-lime with mutton fat, and making it into balls, which must be rubbed upon the utensil till it has entirely obliterated the rust.

After this coating has remained for a few days on the metal, it is removed with coarse flannel or other rag, when another composition made of equal parts of charcoal, calx of vitriol, and drying oil, is applied by friction till the surface is restored to its former brightness.

RYAL. *See* RIAL.

RYDER. *See* REYDER.

RYE, (Ger. *Rogken, Rocken.* Du *Rog, Rogge.* Da. *Rug.* Sw. *Råg.* Fr. *Seigle.* It. *Segale, Segala.* Sp. *Centeno.* Port. *Senteio, Centeio.* Rus. *Rosch, Sel. Jar.* Pol. *Rez, Zito.* Lat. *Secale.*) The plant which produces this well known and useful species of grain is a native of the island of Candia, and was introduced into England, and the north of Europe, many years ago. There are two varieties, the winter, and spring-rye. The winter-rye, which is larger than the spring rye, is sown in autumn, at the same time with wheat. The spring-rye, which is sown along with the oats, usually ripens as soon as the winter-rye; but the grain produced being lighter, is seldom sown, except where the autumnal crop has failed. Rye is commonly used in making bread, either alone, or mixed with wheat. The consumption of this article is particularly great in the northern Counties. Rye is frequently imported into Great Britain from Russia.

Rye is subject to a disease, which the French call *ergot*, and the rye which has it, is called by the English *horned-rye.* This commonly arises from a hot summer succeeding a rainy spring. Horned-rye is such, as suffers an irregular vegetation, in the middle substance between the grain and the leaf, producing an exscrescence of a brownish colour, about an inch and a half long, and two-tenths of an inch broad. Bread made of this rye has an acrid nauseous taste, and is said to be unwholesome even to poultry. In modern husbandry, it is not unusual to sow rye for early spring herbage to be eaten green, and very prolific it is.

S, the eighteenth letter of the alphabet, as a numeral, formerly stood for seven. S. A. in medicinal prescriptions, is an abbreviation of *Secundem Artem*, "according to art;" chiefly used where uncommon care and dexterity are required. — S. S. S. *Stratum super Stratum*, or layer upon layer. — In navigation, S. stands for South, S. E. South-east; S. W. South-west; S. S. E. South-south-east; S. S. W. South-south-west, &c.

SABLE, (Ger. *Zobel.* Du. *Sabel.* Da. *Zobel.* Sw. *Sabel.* Fr. *Zibelline, Marte Zibelline.* It. *Zibellino.* Sp. *Cebellina, Marta, Cebellina.* Port. *Zebelina. Zibelina.* Rus. and Pol. *Sobol.* Lat. *Zibellina, Zobela.*) an animal chiefly esteemed on account of its fur, which bears the same name. It is the nature of this creature, at a certain time of the winter, to fall into an absolute state of torpitude; but it previously hides itself so securely, that it is very difficult to find it. When discovered, it is found wrapped up like a ball, and may be rolled and thrown about without being wakened. The sable lives upon mice, fish, cedar-kernels, and red-berries. When these last are most plenty, the animal is difficult to be found, and its fur is then worse than at any other time; because, feeding plentifully, it rests more than usual; and, on the contrary, if there be a scarcity of berries, it runs more about, is consequently caught with greater facility, and exercise improves the quality of its fur. The most beautiful sable-skins have generally the worst tails; and, *vice versâ*, the worst skins have the best tails. There are sables as white as snow, but they are met with very rarely. Upon the islands in the North-eastern Sea, beyond Kamtschatka in Russia, the sables are very indifferent; but then they have the tails a quarter of a Russian ell long, streaked red and black. Near Crasnoyahr, Abakan Kuanetsko, and some other places, you may buy a hundred of the best sable tails for about six or eight roubles; whereas they are worth from twenty-five, to thirty, at Tobolska, and will sell for one hundred at Moscow. The skins bear the same propor-

tion. They are oftentimes met with of a fine glossy black hue, and the fur of this kind is invariably looked upon as the most valuable.

Hudson's bay, and Canada, are the parts of North America which furnish us with sables, but those of the former are far superior to the latter. The colour of the North American skins is generally dark-flaxen. A *timber* of sables consists of 40 skins, or 20 coup.

SABRE, a short curved sword, with a convex edge, usually worn by officers of the light-infantry companies.

SACARE, a small weight used in Madagascar, for gold and silver, being equal to an European scruple.

SACBUT, a bass wind-instrument, resembling the trumpet, so contrived as to be capable of being drawn out to different lengths, according to the acuteness, or gravity, of the scale required. The sacbut is usually about eight feet long, and when extended to its full length, about fifteen. There are, however, sacbuts of different sizes to execute different parts; particularly a small one, called by the Italians *trombone picciolo*, and by the Germans *cleine alt possaune*, proper for the counter-tenor.

SACK *of Wool*, a quantity of wool, containing two weys, or twenty-six stone, every stone fourteen pounds. Twelve sacks make the *last*. In Scotland, a sack is twenty-four stone, each stone containing sixteen pounds.

SACK *of cotton Wool*, a quantity from one hundred and a half to four hundred weight.

SACK *of Coals*, is three pecks, or four bushels; twelve sacks making the chaldron. It is to be observed that, in the purchasing of coals, to a single chaldron there are twelve sacks only; but if five chaldrons be ordered at one time, the seller must send sixty-three sacks. 47 Geo. 3. c. 68.

SACK, or CANARY, a sort of sweet white wine, brought to us from the Canary Islands. This wine is chiefly produced in the island properly called Canary, and although it is not so full bodied as the wine called Vidonia, it is far more palatable. Tercera is also noted for producing excellent sack.

SACK-CLOTH, (GER. *Sacklinnen*. DU. *Zakdoek*. DA. *Sackelæred*. SW. *Blagarnsväf, Säckväf*. FR. *Toile à sac, Grosse toile*. IT. *Sacco*. SP. *Brea*. PORT. *Barras, Calhamace, Estopas, Grossarias*. RUS. *Chräschtsh*. POL. *Part, Plotno grubo*,) the coarse kind of hempen cloth used in the manufacture of sacking. A great part of the sackcloth consumed in Great Britain is imported from Germany, viâ Hamburgh. This cloth is principally manufactured in Hesse, and Hanover. Considerable quantities are also made in the northern, and midland, counties of England.

SADDLES, (GER. *Sattel*. DU. *Zadels*. DA. *Sadler*. SW. *Sadlar*. FR. *Selles*. IT. *Selle*. SP. *Selles*. PORT. *Sellas*. RUS. *Sädla*. POL. *Siodla*,) seats adapted to the horse's back, for the convenience of the rider. They consist of a wooden frame called the saddle-tree, on which is laid a quantity of horse-hair, wool, &c. this is covered over with tanned leather, which is fastened by nails to the tree. Cutting-knives, hammers, and pincers, are the chief implements of the sadler. To complete the article, the aid of many different artisans is required. The tree-maker furnishes the wooden part of the saddle; this is, however, a very important branch of the business, because upon its accuracy, the fitting of the saddle depends. The sadler's ironmonger furnishes him with the iron or steel stirrups, buckles of all kinds, bits for bridles, and other steel or brass furniture required for the harness of a horse, either for riding or drawing in a carriage. There is also a distinct trade called a horse's milliner, who makes roses for bridles, and other articles used in highly-ornamented caparisons. The sadler makes all sorts of bridles, coach and chaise harness, &c. A great number of saddles are exported to the countries of continental Europe, and to the East Indies, where English-made saddles are in great repute. There are many different kinds of saddle, as the hunting-saddle, the racing-saddle (which is generally very small), the ladies', or side-saddle, &c. The figures of these are so generally known as to demand no particular descriptions in this place.

SAFE CONDUCTS AND PASSPORTS. These are securities given by his majesty, under the great seal of England, to a stranger, for his safe coming into, and passing out of, the realm.

Passports, however, under the king's sign manual, or licenses from the ambassadors abroad, are not only more usual, but obtained with more facility.

It has been observed, by the enlightened author of "The Spirit of Laws," in compliment to the English government, that the protection of foreign merchants is a part of the British constitution, and that their security constituted a condition of *Magna Charta*, by an article of which, all merchants (unless publicly prohibited) shall have safe conduct to depart from, come into, tarry in, and go through, England, for the exercise of merchandise, without any unreasonable imposts, except in time of war.

Subjects of his majesty attempting to offend upon the sea, or in any part under the king's obedience, against any stranger in amity, or under safe conduct, but especially by attacking his person, or spoiling him, or robbing him of his goods, the Lord Chancellor, with any of the judges, may cause full restitution and amends to the party injured.

The above are the only regulations now remaining relative to this article.

SAFFLOWER, or Bastard Saffron, (Ger. *Safflor*. Du. *Saffloer, Floers, Basterd, Saffran*. Da. *Safflor, Uegte Saffran*. Sw. *Safflor, Oägt Saffran*. Fr. *Cartame, Saffran batard. Saffran d' Allemagne, Safranon*. It. *Zaffrone, Zafferano saracinesco*. Sicil. *Usfaru*. Sp. *Alazor, Azafran bastardo, Cartamo*. Port. *Açafroa, Azafroa, Cartamo, Fusaro*. Rus. *Polerroi, Prostoi schafran*. Pol. *Szafran polny, Krokos*. Lat. *Carthemus tinctorius, Saffranum,*) is the florets of the flower of the *carthamus tinctorius*, a plant originally growing in Egypt, and some of the warm parts of Europe, especially Spain; and also in the Levant, whence large quantities are annually imported into Great Britain. The good quality of this commodity is known by a bright colour of a saffron hue. If there happen to fall much rain during the time the plants are in flower, or if the flowers are gathered with any moisture adhering to them, they change to a dark dirty yellow.

Safflower was formerly cultivated in Thuringia and Alsatia; but the preference given to that of the Levant has occasioned its culture to be nearly abandoned in the more northern climates.

Safflower contains two kinds of colouring matter; the one yellow, the other red. The first alone is soluble in water: its solution is always turbid: with re-agents it exhibits the appearances commonly observed in yellow colouring matter: acids render it lighter; alkalis make it deeper, and more approaching to orange: both produce a small portion of fawn-coloured precipitate, by means of which it becomes clearer. Alum forms with it a deep yellow precipitate in small quantity; solution of tin, and other metallic solutions, precipitates which have nothing remarkable.

Alcohol requires but a slight tincture from the flowers, after all the yellow substance has been extracted by repeated washings. If these flowers be put into a solution of caustic alkali, they become yellow, and the liquor which is pressed out is of a deep yellow colour. On saturating the alkali with an acid, the liquor becomes turbid, reddish, and gradually deposits a very small quantity of a reddish yellow precipitate. With solutions of alum, zinc, and tin, a yellow precipitate is formed; and with solutions of iron and copper, a precipitate inclining to green. If instead of a solution of caustic alkali, a solution of mild alkali be used, acids produce with it a more copious precipitate, of a redder hue; but the redness differs according to the acid employed. Alum also produces with the latter alkaline solution, a red precipitate, which is so light, that it generally swims on the surface of the liquor. This colouring matter is so delicate, and so easily changed, that, if heat be employed to dissolve it, the precipitates produced by acids will not have so fine a colour.

If the safflower of the Levant, such as it is in commerce, be compared with that of Thuringia, the former will be found to be more pure, a little moist, and in compressed masses; the latter drier, and more elastic. These differences depend on the preparation. *See* DYEING.

SAFFRE. *See* ZAFFRE.

SAFFRON, (Ger. *Saffran*. Du. *Saffraan*. Da. and Sw. *Saffran*. Fr. *Safran*. It. *Zafferano*. Sp. *Azafran*. Port. *Açafrão*. Rus. *Schafran*. Pol. *Szafran*. Lat. *Crocus,*) a bulbous plant, of which there are two species, one blowing in spring, and the other in autumn. The former is merely esteemed on account of the beauty of its flowers; the latter is in blossom earlier than the green leaves appear, which remain during winter, and the flowers contain those small threads or filaments used for sundry purposes. There are three varieties of this species of saffron to be met with in the shops, two of which are brought from abroad, the other is the produce of our own country: this last is greatly superior to the former, from which it may be distinguished by its blades being rather broader. When in perfection, it is of a fiery orange red colour, and yields a deep yellowish tincture; it should be chosen fresh, not above a year old, in close cakes, neither dry, nor yet very moist, tough and firm in tearing, of the same colour within as without, and of a strong, acrid, diffusive smell.

It appears that the medicinal use of this plant always continued among the Orientals. The Europeans who adopted the medicine of the Greeks, sent to the Levant for saffron, until they learned the art of rearing it themselves; and employed it very much till they were made acquainted with more beneficial articles. Its introduction into England, we are assured, was from the Levant, in the reign of Edward III. A great part of the saffron consumed in this country is brought from France and Spain, but there is likewise abundance of the article cultivated in several parts of Britain, especially in Essex. One million eight hundred thousand pounds of saffron are annually prepared in Egypt; the greater part of which goes to Marseilles, and Italy, the rest to Syria, and Arabia. The best of the Egyptian saffron grows in the vicinity of Cairo, that of Upper Egypt is not reckoned so good. The best French saffron is that grown in Gatinais. Italy, Switzerland, Germany, and Ireland, produce excellent saffron.

Saffron is used in medicine. A strong infusion of it in water is used in colouring maps. It is also employed with success in dyeing, being esteemed a good yellow.

SAGATHEE, a slight woollen stuff, being a kind of serge, or ratteen; sometimes mixed with a little silk. It was originally manufactured at Amiens, in France, but

for several years past it has been wrought in England.

SAGO, (Ger. *Sago*. Du. *Sagoe*. Da. *Sago, Sagogryn*. Sw. *Sagogryn*. Fr. *Sagou*. It. Sp. and Port. *Sago*.) This is the produce of an oriental tree, the *cycas circinalis*, which has generally been considered as belonging to the palms, though some have classed it as a fern. According to Petit-Thouars, however, it forms a class distinct from both.

The pith of a tree of a middle age or growth, is beaten with water, and made into cakes, which are used by the Indians as bread. They likewise put the powder into a funnel, and wash it with water over a hair-sieve, which allows only the finer part to pass through the water. The water, on standing, deposits the fecula; which, being passed through perforated copper-plates, is formed into the grains called sago.

The sago-tree grows spontaneously and in great abundance in several parts of India, but particularly in the Molaccas, and on the coast of Malabar. It is a most valuable tree to the inhabitants of those parts.

Sago forms an agreeable jelly with water, milk, or broth, and is extremely palatable when mixed with a little port-wine. It is much used in phthisical, and convalescent, cases.

There is a sort of sago brought from the West Indies, but it is far inferior to that imported from the East. This is supposed to be made from the pith of the *æreca oleracea*.

SAIK, or Saique, a Turkish vessel very common in the Levant, used for the conveyance of merchandise.

SAIL, the expanded sheet which catches the wind, and carries the vessel on the water. The sails of a ship are of different forms, according to the uses for which they are intended; thus some are square, others cut in shoulder-of-mutton fashion, others in a triangular shape, &c. Every sail is named from the situation it occupies; as the main-sail, main-top-sail, fore-sail, &c. which *see* under their separate heads. *See* also SHIP-BUILDING.

SAIL is also a name applied to any vessel seen at a distance *under sail*.

To *set sail* is to unfurl and expand the sails.

To *make sail* is to spread an additional quantity of sail, so as to increase the ship's velocity.

To *shorten sail* is to reduce, or take in, part of the sails, so as to diminish the ship's velocity.

To *strike sail* is to lower the sail suddenly.

Every master of a vessel belonging to any of his majesty's subjects, navigated with, or having on board, any foreign-made sails, is, at the time of reporting his ship, to make an entry and report, on oath, of every such sail, and before the ship is cleared to pay duty for them, under penalty of forfeiture of sails, and a fine of 50*l*. for every offence, by the master; and such sails are to be stamped at the port of entry in the same manner as foreign sail-cloth.

But if the master, before the ship is cleared, declares his intention of not paying the duty, and delivers up the sails to the officers of the customs, the sails only are to be forfeited.

But if the ship come from the East Indies, the captain is not liable to the effects of the above regulations.

The sail-cloth of North America is considerably improved, by moistening the warp in the loom with a decoction of gelatinous substance prepared from the refuse of neat's-feet, (after the oil is expressed,) which is boiled in water till it is converted into a kind of glue: the weavers of this article in Britain employ a paste made of flour and water, which necessarily renders the cloth brittle; whereas, by using the animal preparation above-mentioned, the sail-cloth will not only be rendered more durable, but the expense be lessened, and an article, that is at present thrown away, may be usefully employed.

SAIL-MAKING consists in the several principal processes of cutting out, seaming, and sewing on, the bolt ropes; all of which are again sub-divisible into an innumerable quantity of rules of art. In order to encourage the use and consumption of the manufacture of British sail-cloth, many statutes have been passed. These are 7 & 8 Wm. 3. c. 10. — 9 & 10 Wm. 3. c. 41. — 9 Geo. 2. c. 37. — 19 Geo. 2. c. 27. — 33 Geo. 3. c. 49. and 1 Geo. 4. c. 25. which repeals so much of 9 Geo. 2. c. 37. sect. 6, 7, as relates to the materials used in the manufacture of sail-cloth.

British sail-cloth may be exported duty-free, and all new ships are to have a suit of sails of British cloth.

Every maker of British sail-cloth shall stamp his name and place of abode, in words at length, on every piece, on pain of forfeiting 10*l*.

SAILORS AND MARINERS. *See* SEAMEN.

SAIL-YARD. *See* YARD.

SAL-AMMONIAC. (Ger. *Salmiak*. Du. *Sal ammoniak*. Da. and Sw. *Salmiak*. Fr. *Sel ammoniac*. It. *Sale ammoniaco*. Sp. *Sal armoniaca*. Port. *Sal ammoniaco*. Rus. *Naschatür*. Pol. *Salmiak, Salmoniak*. Lat. *Sal ammoniacum*.) *See* AMMONIA.

SAL PRUNELLA. This name is given to a salt composed of nitric acid, and potash; it may be obtained from common nitre, by fusing it in a crucible, so as to deprive it of some of its water, and nitric acid.

It is sometimes employed as a cooling purgative medicine; but it is principally used in the salting animal provisions, to which it imparts a firmness, and bright-red colour.

SALE, is the transferring the property

of goods, from one person to another, for certain considerations.

If a man agree for the purchase of goods, he shall pay for them before he carries them away, unless a term of credit be expressly allowed by the seller; or if the goods sold to be paid for on delivery at the purchaser's house, should, by any connivance or fraud, be detained without payment, the purchaser may be proceeded against as a swindler.

In all cases, it was advisable, when goods are sold for cash on delivery, to insert the words in the invoice, or bill of parcel.

If a man, upon the sale of goods, warrant them to be good, the law annexes to this warranty a tacit contract, that if they be not so, he shall make compensation to the purchaser; but the warranty must be upon the sale, and not after it.

If one take up goods of a tradesman, without an express agreement for the price, the real value of the goods must be paid.

If two persons come to a shop, and one buy, and the other to procure him credit, promise the seller, "*If he does not pay you, I will*" this is a collateral undertaking, and void, without writing, by the statute of frauds; but, if he says, "*Let him have the goods, I will be your paymaster,*" this is an undertaking as for himself, and he shall be intended to be the real buyer.

By 29 C. 2. c. 3. Upon a contract for the sale of goods, of the price of 10*l.* and upwards, no action will lie, unless the buyer accept part of the goods sold, or give something in earnest to bind the bargain, or some note or memorandum, in writing, to be made and signed by the parties, to be charged with the contract, or their agents.

On sale of goods, if earnest be given to the seller, and part of them are taken away by the buyer, he must pay the residue of the money upon fetching away the rest, because another time is appointed; and the earnest given, binds the bargain, and gives the buyer a right to demand the goods; but a demand without paying the money is void. After earnest taken, the seller cannot dispose of the goods to another, unless there be some default in the bargain; therefore, if he do not take away the goods, and pay the money, the seller ought to require him so to do; and then, if he do not do it in convenient time, the bargain and sale are dissolved, and the seller may dispose of the goods to any other person. Earnest does not alter the property, but only binds the bargain, the property remaining in the vendor until payment of the money, or delivery of the goods.

If a man sell goods to be delivered at a certain day, and do not deliver them, an action may be brought against him, and damages recovered; so, if he deliver them in a bad and unmerchantable condition.

Where a person is entitled to a thing in gross, he is not obliged to accept it by parcels.

All sales and contracts of any thing vendible in fairs or market overt, shall not only be good between the parties, but also be binding on all those that have any right or property therein.

If goods are sold after a writ of execution delivered to the sheriff, the sale is considered as fraudulent, and the property of the goods is bound to answer the debt, from the time of the delivery of the writ. For foreign sales of merchandize. *See* ACCOUNT.

SALES BY AUCTION. A bidder at an auction, under the usual conditions, that the highest bidder shall be the purchaser, may retract his bidding any time before the hammer is down.

If the owners of any property put up for sale by auction employ puffers to bid for them without declaring it, and there is only one real bidder, who, by means of such puffers, is induced to purchase at a high price, such purchaser shall not be compelled to complete the contract.

If there be any concealment of the circumstances, which affects the title of any article purchased at an auction, and the vendee has paid the purchase-money, he may, nevertheless, wave the bargain, and recover back the money; but where the title is defective, the person who had become the purchaser can only recover back the deposit, with interest, and no further damages for the supposed loss of the bargain; but where the sale has not been completed, in consequence of misrepresentation of the title, the vendor will be liable to all expences incurred.

If a purchase be made at an auction, consisting of several lots, the seller must make a complete title to the whole, otherwise the bargain will be void.

No verbal declarations of the auctioneer, contrary to the printed conditions of sale, and catalogue, shall be admitted.

The auctioneer is a mere stakeholder to his principal, and is not to part with his deposit until the sale is finished; and it shall appear in whom the ultimate right is vested.

In case of non-performance of contract, and the auctioneer refuses to disclose his principal, an action should be brought against the auctioneer, otherwise against the principal.

The better opinion is, that goods sold at an auction are within the statute of frauds, and therefore a memorandum should be made and signed, &c. *See* FRAUDS.

But the auctioneer is agent for both parties, so as to comply with the statute by his signing. *Hinde* v. *Whitehouse*, 7 *East*, 558. *Senior* v. *Melivier*. *Wm. Black. Rep.* 599.

When a person advertises to sell to the best bidder, but with orders not to sell it under such a price, no action can be brought against the auctioneer for selling it under that price; but if such article had been sent with orders not to *put it up* under such a price, the auctioneer disobeying those instructions would have made himself responsible.

Where any deposit has been made, if the vendee refuses to complete the bargain, such deposit, and all claim to the thing intended to be purchased, will be forfeited.

An auctioneer who sells goods may maintain an action for them against the buyer, in his own name, although such goods were sold at the proprietor's own house. For auction-duties and exemptions of particular duties, *see* AUCTION.

SALES BY THE EAST-INDIA COMPANY. When goods are received in the private-trade warehouses, they are brought to sale with all possible dispatch. In these warehouses an even beam is never admitted; but in such cases, one pound weight is always added to the tare; and on all packages taring one quarter of a cwt. or upwards, one pound super tare is allowed.

In those goods which, for their better preservation, have an interior packing, as cassia lignea, cinnabar, aloes, &c. a proportionate allowance is always made.

Upon packages weighing one quarter of a cwt. gross, a two-ounce weight is placed in the scale by way of giving a turn in favour of the trade; one pound is also allowed for draught on goods of the above weight; and in case of an even beam, one pound is also deducted.

On all articles sold by the pound, there is a further allowance of tret, or four pounds for every 104, which consists chiefly in the following articles: viz. annatto, Carmenia-wool, cotton-wool, cotton-yarn, cardamoms, cloves, cubebs, cinnabar, cinnamon, indigo, mace, nutmegs, opium, quicksilver, rhubarb, senna, tortoise-shell, and white copper.

Weighable goods of a different description are sold by the cwt.

The following are the regulations in the Bengal Trade.

On all weighable goods, no weight is made use of less than a pound, a two-ounce weight excepted, which is always kept in the scale where the weight is placed.

On all weighable goods (raw silk excepted), one pound is allowed for draught on every package that weighs more than 28lbs. gross, and on every draught of goods, not in packages, exceeding 28lbs.

Weighable goods sold by the pound, except raw silk, have an allowance for tret, after the rate of four pounds for every 104.

Where some of the packages only of any parcel of goods are tared, if, on averaging the whole, there should be a fraction, it is made a pound by adding the fraction wanting.

On all weighable goods (tea and coffee excepted), one pound is allowed for super tare: on all packages that tare 28lbs. and upwards, and where the tare is taken on an average, and there should be a fraction, one pound and the fraction.

TEAS.

Quarter Chests.

If, on averaging those tared, they turn out even pounds, unless the chests weigh gross 84lbs. or upwards, no allowance is made; in which case, one pound super tare is allowed on each package.

Half Chests.

If, on averaging those tared, it turns out even, one pound only is allowed for super tare on each package; but where there is a fraction, one pound, and such fraction as above.

Whole Chests.

If the average of those tared should turn out even, two pounds are allowed on each package for super tare; but if there be a fraction, one pound, and the fraction as above.

Coffee.

If, on averaging the bales tared, it turns out even, two pounds are allowed on each for super tare; but if there is a fraction, two pounds and the fraction, as in the preceding articles.

The following Goods are sold by the East-India Company by the cwt.

Aloes	Hemp and Flax
Benjamin	Long Pepper
Borax	Mother-of-pearl Shells
Camphire	Munject
Cassia	Myrrh
China root	Olibanum
Cowries	Red-wood
Coffee	Rice
Cubebs	Saltpetre
Elephants' teeth	Sapan-wood
Fossil alkali	Sago
Galanga root	Sal-Ammoniac
Galls	Seedlac
Gamboge	Shellac
Ginger	Sticklac
Gum arabic	Turmeric
—— tragacanth	Vegetable alkali
—— unrated	Wax

Articles sold by the East-India Company, by the Pound.

Cardamoms	Mace
Carmenia-wool	Nutmegs
Cinnabar	Opium
Cinnamon	Pepper
Cloves	Quicksilver
Cotton-yarn	Raw-silk
——— thread	Rhubarb
——— wool	Tea
Indigo	

East-India Piece-Goods.

These consist of white calicoes; white, plain, checked, or flowered muslins, and white or yellow nankeen cloth: muslins, cossacs, and other sorts rated as muslins, receive 10*l.* per cent. drawback in full of every allowance.

Calicoes $\frac{3}{4}$ yard-wide, and up to $1\frac{1}{4}$, are entitled to 6*d.* per yard drawback, in manner following.

Each 10 yards is called a calico, and receives 5*s*. drawback.

Each ditto, from $1\frac{1}{2}$ yard-wide and upwards, upon each six yards (exclusive of $14\frac{1}{2}$ per cent. from the original price) 5*s*. ditto.

Diaper and dimity draws per yard, exclusive of 14 per cent. as above, 1*s*. 5*d*. ditto.

Broker's Charges.

Piece-goods, purchased of the East-India Company, $\frac{1}{4}$ to $\frac{1}{2}$ per cent. to be paid by the buyer.

Goods managed for proprietors in privileged private trade, &c. $\frac{1}{4}$ to $\frac{1}{2}$ per cent. to be paid by the employer.

For all piece-goods bought in other public sales, $\frac{1}{2}$ per cent. to be paid by the buyer.

Ditto by private contract, $\frac{1}{2}$ per cent. by the seller, unless otherwise agreed.

Valuation of piece-goods, $\frac{1}{4}$ per cent.

SALEP, the powder of the orchis roots. The farina of potatoes is said to be an excellent substitute for salep, and less liable to spoil by keeping. *See* STARCH.

SALESMAN, a dealer in ready-made clothes for men's wear.

SALESMASTER, one who sells sheep and black cattle at market for the graziers in the country, and has so much a score for selling them.

SALLAD-OIL, fine Italian or Florence oil. *See* OIL.

SALMON. (Ger. *Lachs, Salm.* Du. *Salm, Zalm.* Da. and Sw. *Lax.* Fr. *Saumon.* It. *Sermone, Salamone.* Sp. *Salmon.* Port. *Salmão.* Rus. *Lemga.* Pol. *Losos.* Lat. *Salmo.*) *For particulars of catching this fish, &c. see* FISHERY.

SALT, (Ger. *Salz.* Du. *Zout.* Da. and Sw. *Salt.* Fr. *Sel.* It. *Sale.* Sp. and Port. *Sal.* Rus. and Pol. *Sol.* Lat. *Sal,*) a mineral body, readily soluble in water, not inflammable, and tasting sharp or pungent upon the tongue. Alum, nitre, the different kinds of alkali, &c. are all salts, but we limit ourselves here to treat of alimentary salt, or *muriat of soda.*

Alimentary salt is found under a variety of forms in its different states; but is immediately distinguished by applying it to the tongue; and always assumes a cubic, pyramidal, or parallelopiped figure, after regular crystallisation. It is sustained in vast quantities, in a liquid form, in sea-water, and in salt springs; and is also found solid in the bowels of the earth.

Sea-salt. — The preparation of this kind of salt depends upon a well-known fact, that the salt contained in sea-water, or brine-springs, being a fixed body, will not rise with the vapour of the water. All, therefore, that is wanted, is to expose the water containing salt to evaporation. The salt commonly known by the name of *bay-salt,* is obtained from the water of the sea by evaporation. It had this name from being first made in the bay of St. Ubes, in Portugal. This evaporation is in some places performed by the heat of the sun, the water being let into shallow trenches, in order to expose as large a surface as possible. This method is practised in the southern provinces of France, and on a very large scale in Portugal. In the northern countries, where the heat of the sun is not sufficiently great, artificial fires are employed. In some salt-works these two methods are united; and in England, and countries where salt-rock is plentiful, that substance is dissolved in salt water, and then evaporated. In very cold countries another method is employed to separate the salt from sea-water. The water is exposed in trenches on the sea-shore, where it forms so thin a stratum, that the cold of the atmosphere acts powerfully in congealing it. As the frozen part consists of mere water, the fluid which remains is consequently more concentrated. The operation is then completed by means of artificial heat.

It is here to be observed that the sea-salt, which requires the heat of the sun to give it consistence, is that alone which, from its brown colour, is called *bay-salt;* for, that which receives its consistence from fire, is called *white-salt.* Low marshy grounds, disposed by nature for the reception of the sea-water, when the tide swells, and provided with banks and sluices to retain the same, are called salt-marshes. These salt-marshes, the bottoms whereof they ram with much care, are divided into several pits or basins, and into these basins, when the season is at hand, they let the sea-water. The salt season is from the middle of May to the end of August; in which time the days being long, and the rays of the sun strongest, the salt is raised and crystallised better than at any other period. The water is admitted to the height of about six inches, after first having let it rest, and warm, two or three days, in large reservoirs, without the works, that it may come in lukewarm. The water admitted, the sluices are closed, and the rest of the work left to the wind, and the sun. The surface of the water thickens at first imperceptibly, and becomes at length covered over with a slight crust, which hardening by the continuance of the heat, is wholly converted into salt. When its full crystallisation has been received, they break it with a pole, upon which it sinks to the bottom, whence being dragged out they leave it for some time, in little heaps, about the edge of the pit, to complete the drying; and at length in greater heaps, which they cover over with straw or rushes, to secure them from the rain. Eight, ten, or at most, fifteen days, having thus completed the process, they open the sluices, when the tide is rising, for a fresh stock of water, and continue thus to gather the salt till the season is over. Rainy weather is very pernicious to the work, for rain-water, mixing in any quantity with the sea-water, renders it use-

less. The salt is brown, green, or reddish, when taken out of the pits, on account of the mud-slime always mixed with it.

The chief coasts for bay-salt are those of Brittany, Saintonge, and the Pays d'Aunis, in France. Bay-salt is also made in Portugal, particularly at Setubal, or St. Ubes, the produce of which is reckoned so far preferable to all other kinds of bay-salt, for curing meat, that the Irish salters never fail to mix a considerable proportion of it with the other species of salt used by them in preserving the beef, pork, &c. destined for exportation. About four thousand tons of bay-salt are annually made at Porto Ferraio in Italy, and large quantities also at Trapani, in Sicily, and in various parts on the shores of the Mediterranean. They likewise prepare bay-salt in the Cape de Verd islands, particularly in the island of Tortuga, near the coast of Terra Firma, in America, which supplies the best part of North America.

White salt, as we have already observed, is produced by the action of fire. The most convenient works, for making white salt by boiling, are constructed in the following manner: The saltern, or boiling-house, is erected near the sea-shore, and is furnished with a furnace, and one or two large pans, which are commonly made of iron plates, joined together with nails, and the joints filled with a strong cement; and the bottom of the pans is prevented from bending down, by being supported by strong iron bars.

The salt-pan being filled with sea-water, a strong fire of pit-coal is lighted in the furnace; and then, for a pan which contains about 1400 gallons, the salt-boiler takes the whites of three eggs, and incorporates them all with two or three gallons of sea-water, which he pours into the salt-pan, while the water contained therein is only lukewarm, and mixes this with the rest by stirring it about with a rake. In many places they use, instead of eggs, the blood of sheep, or oxen, to clarify the sea-water: and in Scotland they do not give themselves the trouble to clarify it at all.

As the water heats, there arises a black frothy scum upon it, which is to be taken off with wooden skimmers. After this the water appears perfectly clear, and by boiling it briskly about four hours, a pan loaded in the common way, that is, about fifteen inches deep, will begin to form crystals upon its surface. The pan is then filled up a second time with fresh sea-water; and about the time when it is half filled, the scratch-pans are taken out and emptied of a white powder, seeming a kind of calcareous earth, which separates itself from the sea-water, during its boiling, before the salt begins to shoot. When these have been emptied, they are again put into their places, where they are afterwards filled again. This powder being violently agitated by the boiling liquor, does not subside till it comes to the corners of the pan, where the motion of the mass is smaller, and it there falls into these pans placed on purpose to receive it.

The second filling of the pan is boiled down after clarifying in the same manner as the first, and so a third, and a fourth: but in the evaporation of the fourth, where the crystals begin to form themselves, they slacken the fire, and only keep the liquor simmering. In this heat they keep it all the while that the salt is granulating, which is nine, or ten, hours. The granules, or crystals, all fall to the bottom of the pan; and when the water is almost all evaporated, and the salt lies nearly dry at the bottom, they rake it all together into a long heap on one side of the pan, and then it is put into barrows, and carried to the storehouse, and delivered into the custody of his majesty's officers. In this manner the whole process is usually performed in 24 hours, the salt being commonly drawn out every morning. This is the method in most of our salt-works; but in some they fill the pan seven times before they boil up the salt, and so take it out but once in two days, or five times in a fortnight. In the common way of four boilings, from a pan of the usual size, containing 1400 gallons, they draw from fifteen to twenty bushels of salt every day, each bushel weighing fifty-six pounds.

When the salt is carried into the storehouse, it is put into brabs, which are partitions, like stalls for horses, lined at three sides and the bottom with boards, and having a sliding-board on the foreside to draw up on occasion. The bottoms are made shelving, being highest at the back, and gradually inclining forward; by these means the brine remaining among the salt, easily separates and runs from it, and the salt in three, or four, days becomes sufficiently dry; in some places they use cribs and barrows, which are long, and conic, wicker-baskets, for this purpose; and in some places wooden troughs, with holes in the bottom. The saline liquor which remains from the making of salt is what is called bittern, from which Epsom salt, or muriat of magnesia, is often extracted.

The white salt of Normandy is made by refining the bay-salt, but has this colour naturally, when taken out of the pits. To make it, they gather a muddy sand on the flats of the shore, which the rising tide has covered, and impregnated with its waters, for seven days. This sand being removed into pits for the purpose, discharges itself by degrees of all the water, which filtrates through some straw, wherewith the bottom of the pit is filled, and trickles into vessels set on purpose to receive it, and of this water they make the salt.

The English, and Dutch, and in time of war the Danes, and Swedes, take most of the salts of Brittany. That of Guerande is

preferred by the English, and Irish, to all the rest, as the best and whitest. That of Borneuf, though browner and heavier, is most used in France and the Baltic.

Salt obtained from springs.—This is obtained much in the same manner as the white salt of the sea-water. A great quantity of rock-salt is used at Northwich, in order to strengthen their brine-springs: and a much greater quantity is sent coastwise to Liverpool, and other places, where it is either used for strengthening brine-springs or sea-water. The advantage of strengthening weak brine or sea-water by means of rock-salt is very obvious. Suppose that the sea-water, at Liverpool, where large quantities of rock-salt are refined, would yield one ton of salt from forty-eight tons of water; then must a quantity of fuel sufficient to evaporate forty-seven tons of water be used, in order to obtain one ton of salt. But if as much rock-salt is put into the forty-eight tons of sea-water as can be dissolved in it, then will the sea-water resemble a brine fully saturated; each sixteen tons of which will give four tons of salt, and the whole quantity yielded by the evaporation of forty-seven tons of water will be twelve tons of salt.

What is called basket-salt, is the fine white salt obtained from our salt-springs. It is usually the weakest of all salts.

Rock-salt.—The fossile or rock-salt makes a considerable article of commerce. The mines near Wieliczka, in Poland, and those near Eperies, in Hungary, are particularly famous. Their depth and capacity are surprising, and within them exists a kind of subterraneous republic. The rocks of salt are hewn in form of great cylinders; the workmen using hammers, pickaxes, and chisels, as in stone-quarries, to separate the several banks of stone. As soon as the massive pieces are got out of the quarry, they break them into fragments, fit to be thrown into the mill, where they are ground and reduced to coarse flour, which answers all the purposes of sea-salt. The rock-salt exported from Liverpool constitutes a considerable branch of commerce, and goes principally to the Baltic.

Refined rock-salt is that obtained by dissolving the article in its crude state, in salt or fresh water, and afterwards boiling the solution, and pursuing the process described in another part of this paper.

The neighbourhood of Northwich, in Cheshire, is extremely abundant in rock-salt. The Northwich rock-salt is never used at our tables in its crude state; and its application to the pickling or curing of flesh or fish, or preserving any provisions, without its being previously refined into white salt, that is, without its being dissolved in water, and boiled down in what is called white salt, is prohibited under a penalty of 40*s*. for every pound of rock-salt so applied. The pure, transparent masses, however, of rock-salt, might probably be used by us with our food, without any sort of danger or inconvenience; at least we know that rock-salt is so used, without being refined, both in Poland and Spain.

The quantity of rock-salt which may be dissolved in a definite quantity, suppose a pint of sixteen avoirdupois ounces of water, is differently estimated by different authors. It is not wholly improbable, that different sorts of rock-salt may differ somewhat with respect to their solubility in water.

The uses of salt.—Besides the ordinary domestic uses to which salt is applied, this mineral is extremely beneficial, as an article of food, to all graminivorous animals, especially sheep, which are uncommonly partial to it.

Hay, strongly impregnated with salt, is known now to be a complete preservative against the distemper called "the rot," in sheep. So ascertained is that fact, that by 58 Geo. 3. c. 77., the duties on rock-salt for the feeding of cattle, were diminished and regulated.

Salt was supposed by the ancients to be so detrimental to vegetation, that, when a field was condemned to sterility, it was customary to sow it with salt. Some modern agriculturists, however, consider it as a useful manure.

The only mines of rock-salt in England are those in the neighbourhood of Northwich, in Cheshire. These were discovered in 1670. The first stratum of salt occurs at the depth of about forty yards. The strata vary in thickness, are of a wavy structure, and alternate with strata of clay, under which they are found. The salt is in some places red, in others transparent. The ground over them consists of strata of red clay, coarse-grained sandstone, blue clay, sulphat of lime, and indurated clay. These mines are the most productive of any in the world. The salt is worked by running galleries into the strata, and leaving pillars of it to support the roof, symmetrically arranged, which gives the whole a beautiful appearance. It appears to be free from sulphat of lime.

The brine-springs of our country were known long before the rock-salt was found. When the miners, in searching for them, bore through the stratum of clay that lies over them, they spring up with great force.

At a place called Saltwater Haugh, near Butterfry, in the bishopric of Durham, and at Birtley, near the city of Durham, there is a multitude of salt-springs. Those of Butterfry rise in the river Weave, for the space of about forty yards in length, and ten in breadth; but particularly one, out of a rock, which is so strong, that in a hot summer, the surface will be covered with a pure white salt. Namptwich, on the river Weever, and Northwich, on the confluence of the Weever and Dan, in Cheshire, have very rich salt-

brines, the latter so much so, that they obtain six ounces of salt out of sixteen of water. That at Namptwich, according to the account of the people of the place, could be worked so as to yield a sufficiency of salt for the whole kingdom. In Lancashire, the spring at Barton is also very rich.

Respecting the most famous salt-mines and springs of other countries, we must refer the reader to books particularly dedicated to the subject of mineralogy; but we may, in general terms, observe here, that there are few countries in Europe without salt, and that it appears from all accounts, that the majority of brine springs, and mines of rock-salt, are found at the foot of high mountainous chains. The mines of Transylvania, Upper Hungary, Moldavia, and Poland, are proofs of this general principle. These mines, which are very numerous, and important with regard to their extent, the vast bodies of salt they contain, and their product, are found along the chain of the Carpathian mountains, and spread nearly in an equal degree on each side of the chain. They accompany these mountains to the extent of more than two hundred leagues, from Wieliczka in Poland, toward the north, to Fokszian, or Rymnick, in Moldavia, to the south.

The stripe of land that contains the salt-mines or brine-springs is near forty leagues broad in some parts. In it may be reckoned about sixteen mines, that are worked for salt; forty-three indications of mines, that have never been wrought; and four hundred and twenty, or four hundred and thirty brine-springs.

The Transylvanians and Moldavians extract salt from their brine-springs, by throwing the water on wood-fires, as the Gauls and Germans did in former days.

No salt-mine or brine-spring is known either in Sweden, or in Norway. But there are a great number of both, and particularly of salt lakes, in Russia. The latter is peculiar to this country, there being no salt lakes in any other part of Europe.

Among these is the salt lake of Tor, towards the northern extremity of Little Tartary.

There are similar salt lakes in the Crimea, which appear to belong to the same system; and at Balachna, on the banks of the Wolga, are some very rich brine-springs.

In Russia in Asia too we find brine-springs, of which there are a great number, at the foot of the mountains of Poyas.

In the government of Astrachan to the north of the Caspian sea, in the environs of Orenburg, and in the country of the Bashkirians, salt lakes are very common; and the water evaporating during the summer, the salt appears crystallised on their surface, and round their borders. When this water is highly concentrated, it has a deep red colour. The salt formed in them has often the same hue; and when this is the case it diffuses a very perceptible violet smell.

Near Astrachan too is the mine of Iletzki, celebrated for the quantity of salt it furnishes.

In Siberia there is a mine of rock-salt, on the right bank of the Kaptendoi; and on that of the Kawda are fourteen brine-springs. Others are found in the government of Kolivan, in the centre of Asiatic Russia. Lastly, the country near the Caspian sea is so impregnated with muriat of soda, that in the environs of Gourief, the fogs and dew that settle on people's clothes, and on plants, are saline.

Among the Mungal Tartars the soil is so thoroughly penetrated with muriat of soda, that the people lixiviate it, and evaporate the solution, to obtain the salt.

That part of China which borders on Tartary contains salt-mines, and the ground is strongly impregnated with salt.

Salt is found in the same manner throughout almost the whole table-land of Great Tartary, Tibet, Indostan, and particularly Persia, where very extensive plains are seen covered with saline efflorescences. This is evidently the case near Bender-Congo.

The isle of Ormus, at the mouth of the Persian Gulf, appears to be one large rock of salt.

This substance is likewise found in solid masses near Balach on the eastern frontier of Persia; in the environs of Ispahan, in Media; in the mountains that surround Komm, to the north of Ispahan, &c.

The salt-mines of America are less known, but they appear to be numerous in that quarter of the globe, and to exist under the same circumstances as in the old continent.

There are salt-mines or brine-springs in Kentucky, the western part of the United States, behind the Alleghany mountains.

In California salt is found in a very pure state, and in large solid masses.

The mountain of Xaragua in the island of Hispaniola, or Hayti, affords salt; and in the same island there is a very remarkable salt lake about twenty-two leagues in circumference, called Henriquelle.

Salt lakes occur in others of the West India islands.

In Peru there are several mines of sal gem in very hard masses. What is remarkable in their position is, that they are in the highest part of the country, as, for instance, in Potosi. The most usual colour of the salt is a jasper-violet.

There are likewise salt plains in South America. One of great extent is mentioned in the environs of Lepis, toward the northern extremity of Peru. Another in Chili, in the provinces which are nearest to Peru. And, lastly, in the southern extremity of America, near St. Julian's Bay, in Patagonia, there is a salt-marsh two miles long.

Salt of every description in these kingdoms,

is subject, in some shape or other, to the laws of customs or excise. The statutes are so voluminous, and their regulations so diversified and minute, that we can only refer the reader to those of them necessary for general information. 13 & 15 Car. 2. 26 Geo. 2. c. 3. 38 Geo. 3. c. 89. 45 Geo. 3. c. 14. 49 Geo. 3. c. 81. 51 Geo. 3. c. 82. and 57 Geo. 3. c. 49.

By the last-mentioned statute every dealer in, retailer, or seller of salt, shall make entry at the nearest office of excise of his warehouse, storehouse, cellar, shop, or other place, in which he shall keep such salt, and shall upon demand receive from the proper officer a book to be prepared with proper printed forms and titles for the purposes hereinafter mentioned, and kept by every such dealer in, retailer, and seller of salt, in some open part of his entered premises; and after the 10th of October, 1817, no salt exceeding two bushels at one time shall be sold, sent out, or delivered, by any such dealer in, retailer, or seller of salt, to any person, without a certerficate filled up and cut out progressively from the printed forms of such certificates contained in such book, signed by such dealer in, retailer, or seller of salt, or some person on his behalf, certifying the date, quantity, to whom sold, from whose stock delivered, and that the duty has been paid or secured to be paid, &c. &c.; and salt otherwise removed, &c. shall be forfeited, and all persons concerned in the removing shall be liable to a penalty of 50*l*.

By the same statute a provision is made for the delivery of coarse rock-salt for the purpose of feeding cattle at a diminished rate of duty, but by 58 Geo. 3. c. 77., these provisions are repealed, and others substituted, but with the same general views. See 59 Geo. 3. c. 57. and 3 Geo. 4. c. 82. which very greatly reduces the salt duties.

SALT, *Epsom*, the sulphat of magnesia. It is of an intensely bitter taste. Its crystals are tetrahedral prisms, with obliquely truncated ends. That usually sold in the shops is in minute crystals of a snowy appearance; and it is with a view to imitate this form, that the manufacturers of sulphat of soda endeavour to give this last salt the same appearance, in order that they may dispose of it under the name of Epsom salt. It is, however, easy to distinguish it from the genuine sulphat of magnesia, since it effloresces on exposure to a dry atmosphere, and does not yield magnesia.

There is also substituted in the shops for Epsom salt, a mixture of these two sulphats with several earthy muriats procured from the mother-waters of the salt-springs of Lorraine, and Franche Compté, and from the salt-marshes in the south of France.

Few waters contain sulphat of magnesia, but some mineral springs furnish it in such abundance as amply to compensate the trouble and expense of procuring it. It is particularly obtained, in a very pure state, from those of Epsom, Egra, Sedlitz, and Seydchutz: sea-water, and that of salt-pits, yield it in a greater or less quantity, but always mixed with sulphat of soda. *Chaptal.*

SALT, *Glauber's.* *See* GLAUBER'S SALT.

SALT, *Rochelle.* *See* ROCHELLE SALT.

SALT-CELLAR, a small stand or vessel for holding the salt which we use at meals. Salt-cellars are of different figures and sizes, according to the fancy of the workman, and are formed of various substances, such as gold, silver, pewter, glass, &c. The salt-cellars made of glass are those most used at present, and the pitch of perfection to which our glass-cutters have carried articles of this description, is truly surprising. London is the chief seat of this elegant branch of the glass-trade. Salt-cellars, if elegantly cut, meet with a rapid sale both in Ireland, and on the continent of Europe.

SALTPETRE, (Ger. Du. Da. and Sw. *Salpeter.* Fr. *Nitre, Salpetre.* It. *Nitro, Salnitro.* Sp. and Port. *Nitro, Salitre.* Rus. *Senitra.* Pol. *Saletro, Salnitra.* Lat. *Nitrum,*) or *nitrat of potass,* called also saltpetre. Roger Bacon mentions this salt so long back as the 13th century under the name of *nitre.* It is found abundantly on the surface of the earth in India, South America, and even in some parts of Spain. In Germany, and France, it is obtained by means of artificial nitre-beds. These consist of the refuse of animal, and vegetable, bodies undergoing putrefaction, mixed with calcareous and other earths.

At Padolia, in Poland, saltpetre is obtained from tumuli, or hillocks, which are the remains of former habitations. In America it has been found in limestone grounds, in the floors of pigeon-houses, tobacco-houses, or the ruins of old stables. In Hanover it is got by collecting the rakings of the streets, which are built of mud-walls; and the peasants are directed by law to build mud-walls with the dung and urine of animals, and some straw. After they have stood for some time, and the vegetable and animal substances are rotten, they afford a considerable quantity of nitre. With respect to Indian saltpetre, the general account is, that it is obtained from the soil of certain districts in the East Indies, which are called saltpetre-grounds, where the soil is very cold, barren, and unhealthy. To extract the salt, it is there only necessary to gather large quantities of the impregnated earth, and to put them into a cavity, through which a great quantity of water is poured, which dissolves the nitre; and the lixivium runs into an adjacent pit, out of which it is lifted in order to be evaporated, and obtained

in the form of crystals. In Germany and France it is not unusual with the saltpetre boilers to go about in search of the materials just mentioned; and when, on making a small essay, they find that they will turn to account, they put the earth into a large tub, pour water on it, and let it stand so for several days. A cock is placed at the bottom of the tub, and to its inside opening some straw is applied, so that when the cock is opened, the lixivium filters through the straw, and is received into another tub, and thence conveyed to a copper, wherein it is boiled to a proper consistence for crystallisation: the crystals are at first brown, and very impure, but by repeated dissolution and crystallisation, become white and pure.

It has been ascertained that if oxygen gas be presented to azote at the instant of its disengagement, nitric acid is formed. This seems to explain the origin of the acid in the nitre beds. The azote disengaged from these putrefying animal substances combines with the oxygen of the air. The potass is furnished, or partly at least, by the vegetables and the soil.

Saltpetre is of very extensive use in different arts, being the principal ingredient in gunpowder, and serving as an excellent flux to other matters; whence its use in glass-making. It is also possessed of considerable antiseptic power, whence its use in preserving meat, to which it communicates a red colour. In medicine it is employed as a diuretic, sedative, and cooler. Nitre is also used in the oil-of-vitriol manufactories.

SALTWORT, or GLASSWORT, *Salsola*, L. a genus of plants, of which two species, being indigenous, are used for making the salt, known under the name of *kali*, considerable quantities of which are employed in the manufacture of glass. The process is as follows: a trench being dug near the sea, laths are placed across it, on which the herb is laid in heaps; a fire is then kindled below, and the liquor extracted from the plants drops to the bottom, where it ultimately acquires a thick consistence, when it becomes *kali*, which is partly of a black, and partly of an ash-colour, very sharp and corrosive, being of a strong saline taste; when thoroughly hardened, it resembles solid stone, and in that state is fit for use.

SALVAGE. Salvage is an allowance made for saving a ship, or goods, or both, from the dangers of the seas, fire, pirates, or enemies. What that allowance is, may be collected from a review of the following acts of parliament.

It appears from the act of 12 Anne, st. 2. c. 18, that if a ship was in danger of being stranded, or being run ashore, the sheriffs, justices, mayors, constables, or officers of the customs, nearest the place of danger, should, upon application made to them, summon and call together as many men as should be thought necessary to the assistance, and for the preservation, of such ship in distress, and her cargo; and that if any ship, man of war, or merchantman, should be riding at anchor near the place of danger, the constables and officers of the customs might demand, of the superior officers of such ship, the assistance of his boats, and such hands as could be spared: and that, if the superior officer should refuse to grant such assistance, he should forfeit 100*l.*

But the master of a stranded vessel having, by recommendation of the pilot, sent to defendant on shore (a stranger) to send him assistance, which he did; and under his direction, but also under the inspection of custom-house officers attending, the goods were brought on shore, and housed, under the joint locks of himself and collector of customs, and he paid all the salvers: Held that this constituted him agent of the owners, and took the case out of the statute, which orders the quantum of salvage to be by the award of justices; for the statute only applies to cases where application is made by owners to certain officers. *Baring* v. *Day*, 8 *E. R.* 57.

Subsequent to this, other statutes were passed on the same subject, but the whole of their provisions are comprised in an amended form in stat. 49 Geo. 3. c. 122. altered by one of 53 Geo. 3. c. 87. By the authority of these, pilots and others taking possession of wrecked materials, shall send notice thereof to a deputy vice-admiral, within 48 hours, on pain of being considered as receivers of stolen goods. The salvage to be determined by two justices, with, or without, an umpire (according to circumstances,) as well as rewards for saving the lives of passengers, and paid out of the proceeds; and persons plundering wrecks, and not complying with the directions of the statute, to be guilty of a misdemeanor, and be subject to transportation for seven years. Perishable goods may be ordered to be sold by the justices; the proceeds to be placed in certain hands for a time, to answer the claims of all persons entitled.

Questions of salvage of wrecks *between high and low water mark*, reserved for determination in courts of Admiralty and of Westminster-hall; and all penalties and forfeitures above 20*l.* to be recovered also in the superior courts.

Beside these general statutes, the 48 Geo. 3. c. 130. was passed for the particular protection of wrecks, and the adjustment of salvage in the cinque ports.

These are regulations for salvage in case of wreck.

The salvage payable upon recapture, has, from time to time, been also regulated by acts of parliament. By 33 Geo. 3. c. 66. s. 42. it is enacted, that, "if any ship, vessel, or boat, taken as prize, or any goods therein, shall appear and be proved, in the court of Admiralty, to have belonged to any of his majesty's subjects of Great Britain, or Ire-

land, or any of the dominions and territories continuing under his majesty's protection and obedience, which were before taken by any of his majesty's enemies, and, *at any time afterwards*, retaken by any of his majesty's ships of war, or any private man of war, or other ship, vessel, or boat, under his majesty's protection or obedience, that then such ships, vessels, boats, and goods, and every such part and parts thereof as aforesaid, belonging to such his majesty's subjects, shall be adjudged to be restored, and shall be, by decree of the said court of Admiralty, accordingly restored to such former owner, or proprietor, or proprietors, he or they paying, for and in lieu of salvage, if retaken by any of his majesty's ships of war, *an eighth part of the true value of the ships, vessels, boats, and goods, respectively so to be restored*; which salvage shall be answered and paid to the captains, officers, and seamen, in the said men of war, to be divided as before in this act is directed: and, if retaken by any privateer, or other ship, vessel, or boat, *one-sixth part* of the true value of the said ships, vessels, boats, and goods; all which payments, to be made to any privateer, or other ship, vessel, or boat, shall be without any deductions. And, in case of recapture by the joint operations of any of his majesty's ships, and any private ship of war, then the judge of the court of Admiralty shall order such *salvage* to be paid to the recaptors, as he shall deem fit and reasonable, which salvage shall be paid to the agents of the recaptors, in such proportions as the said court shall adjudge. But if such ship, so retaken, shall appear to have been, after the taking by the enemy, by them set forth as a vessel of war, the same shall *not* be restored to the former owners, but shall be adjudged lawful prize for the benefit of the captors."

The wearing-apparel of the master and seamen are always excepted from the allowance of salvage. — *Lex Mercatoria*, 147.

The valuation of a ship, in order to ascertain the rate of salvage, may be determined by the policy of assurance, if there is no reason to suspect she is undervalued: and the same rule may be observed as to goods, where there are policies upon them. If that, however, should not be the case, the salvers may insist upon proof of the *real* value, which may be done by the merchant's invoices, and they must be paid for accordingly. — *Lex Mercatoria*, 147.

The assured may recover from the assurer the expenses of salvage; yet he cannot receive a double satisfaction for the same loss. Thus, if the assurer should have paid to the assured the expenses arising from salvage, and afterwards, on account of some particular circumstance, the loss should be repaired by some unexpected means, the assurer shall stand in the place of the assured, and receive the sum thus paid to atone for the loss. — *Randall* v. *Cockran*, 1 *Ves.* 98.

Cases frequently arise, in which the salvage is so high, the other expenses so great, and the object of the voyage so far defeated, that the assured is allowed to *abandon* his interest in the property saved to the assurer, and to call upon him to contribute, as if a total loss had actually happened. *See* ABANDONMENT.

By 29 Geo. 2. c. 34. the right of the original owner of ship, &c. in case of recapture, is preserved to him for ever, upon payment of certain salvage, from one-eighth to hal the value.

No passenger is entitled to make any claim for the ordinary assistance he may be enabled to afford to the vessel in distress; it being the duty, as well as the interest, of all persons on board, to contribute their aid on such an occasion.

But in the case of a ship bound to the West Indies, which struck upon the shoals off Chichester, in a gale of wind, and in that situation was deserted by the master, who took part of the crew with him, the plaintiff, who had commanded vessels in the same trade, and was then on board, *as a passenger*, took the command by the desire of his fellow-passengers, and with the consent of the mate, and the remainder of the crew, and carried the ship back in safety to Ramsgate harbour. The jury gave 400*l.* by their verdict to the plaintiff, and on application for a new trial, the court of common pleas refused to grant it. — *Newman* v. *Walters*, 3 *B. & P.* 612.

SAMIAN EARTH, *terra Samia*, a medicinal earth, or bole, found in the island whence it has its name, among beds of stone, not properly in the fissures of strata, for the stones it lies among do not form any; they are a kind of large and flat fragments of a soft stone, of a pale brown colour, and there are several ranges of them, between which this earth lies, in a kind of discontinuous horizontal stratum. This earth stands recommended as an excellent astringent, but it is so much inferior to any of the Oriental, and even to some of the European boles, that it would be idle to attempt the bringing it into use.

SAMPLE, a small quantity of an article exhibited at a public, or private, sale, as a specimen of the commodity. Sugars, wool, spirits, wine, coffee, and nearly every species of merchandise, is sold by sample. If an article is not, on an average, equal at least to the sample whereby it is sold, the buyer may recall his contract, and return the article upon the hands of the seller.

SAND is distinguishable into various species, by their different colours.

Sand is of great use in the glass manufacture; the white being employed for making of the white glass, and a coarse grey sand for the green glass.

In agriculture, it seems to be the office of sand to make unctuous earths fertile, and fit

to support vegetables, &c. For earth alone, we find, is liable to coalesce, and gather into a hard coherent mass. Common sand is, therefore, a very good addition, by way of manure, to all sorts of clay-lands; it warms them, and makes them more open and loose. The best sand for the farmer's use, is that which is washed by rains from roads or hills, or that which is taken from the beds of rivers; the common sand that is dug in pits never answers so well. However, if mixed with dung, it is much better than laid on alone; and a very fine manure is made by covering the bottom of sheep-folds with several loads of sand every week, which are to be taken away, and laid on cold stiff sands, impregnated as they are with the dung and urine of the sheep.

The sea-sand is much used as manure in different parts of the kingdom. It has also been tried in hot-houses, to supersede the use of bark, but with very indifferent success.

SANDAL. *See* SANDERS.

SANDARACH. *See* GUM SANDARACH.

SANDERS, or SAUNDERS, (GER. *Sandelholz.* DU. *Sandelhout.* DA. *Sandelholt.* SW. *Sandel.* FR. *Santal, Sandal.* IT. SP. and PORT. *Sandalo.* RUS. *Sandal.* POL. *Cyndal, Sandal.* LAT. *Santalum,*) a hard odoriferous wood, the produce of the *pterocarpus santalinus,* brought from the East Indies. Of this there are three sorts; the yellow, white, and red.

The *yellow*, or citrine sanders, is a beautiful wood, of the colour of lemon-peel, of a smell approaching to a mixture of musk and roses, and of a somewhat acrid taste, with a slight bitterness.

The *white* resembles the yellow, and is of the same fragant smell, and aromatic taste, but in a slighter degree. Both these sorts should be chosen in the block, (that is, not separated into chips, as they usually are,) sound, firm, heavy, and of a good smell when cut.

The *red* is of a dense and compact texture, remarkably heavy, and very hard. It is brought to us in logs of considerable length, the surface of which is of a dusky, and the inside of a blood-red. It has but little smell, or taste.

Brazil-wood is frequently sold for red-sanders; but the latter may be distinguished from the former, by its not giving any tinge to aqueous liquors, whereas Brazil-wood imparts its colour to water.

These three kinds of wood enter into the materia medica; they are also used by the turners, and cabinet-makers, and the red by the dyers.

SANDIVER, or GLASS-GALL, (GER. *Glasgalle.* DU. *Glasgal.* DA. *Glasgalde.* SW. *Glasgalle.* FR. *Fiel de verre.* IT. *Fiele de vitro.* SP. *Fliel ò Sal de vidrio.* PORT. *Fel de vidro.* LAT. *Fel s. Sal vitri,*) is a saline matter, which rises as a scum in the pots or crucibles in which glass is made.

This matter is chiefly composed of sulphat of soda, common salt, sulphat of potash, or other neutral salts, which cannot enter into vitrification, and which were originally contained in the ashes or alkalis employed in the composition of glass. Glass-gall is used to facilitate the fusion of certain ores, and in essays; but this matter must vary much, according to the kinds of alkali, or ashes, from which it is produced.

SAND-STONE, a genus of fossils found in various parts of Britain.

Sand-stones are of great utility for buildings designed to resist the combined effects of air, fire, and water; some of these fossils are soft while in the quarry, but become hard on being exposed to the air. Those of a friable nature are generally employed, being best adapted to this purpose, because the hard kinds are apt to burst in the fire; the latter, however, will admit of being polished, and may be advantageously used for whet-stones,

SANGUINING, is the art of imparting a bluish, purplish, or reddish hue to the steel-blades of swords, &c. The following receipt will serve to convey a just idea of the nature of this process. Take your iron, and after you have well polished it, and heated it a little, rub it over with some dragon's blood purified, and it will be of a fine transparent reddish colour. A blue colour may be brought upon iron or steel burnished, by laying it upon a clear charcoal fire, blowing lightly, until you perceive the blue colour upon your iron, and then taking it out in a little time; or, by heating your iron or steel first, and rubbing it over with a woollen cloth, dipt in indigo ground, and tempered with salad oil. This blue is fitter for large work, as muskets, pistols, &c. and the former for swords, daggers, scimitars, and other small work. If you would have it a black colour, first clean and polish it, then rub it over with a piece of woollen, dipped in a little salad oil.

The following mode of *making blue letters on sword-blades* may be, not improperly, introduced under this head.

Take the blade, hold it over a charcoal fire till it is blue; then, with oil colours, write what letters you will upon the blade, and let them dry; when dry, take good strong vinegar, make it warm, and pour it all over the blade; this will take off the blue colour; then wet your oil colour with fresh water, and it will come off easily, and the letters drawn therewith remain blue.

SANGUINE-STONE, *lapis sanguinalis*, a kind of jasper brought from Spain, of a dark brown colour, marked with blood-red spots.

SAPAN, (GER. *Sapanholz, Japanhobz.* DU. *Sapanhout.* DA. *Sapanholt.* SW. *Sapvan.* FR. *Bois de Sapan.* IT. *Legno di Sapan.* SP. and PORT. *Sapan.* LAT. *Lig-*

num Sappan,) a species of wood, similar in every respect to the Brazil-wood, and employed for the same purposes. The tree, which produces it, is found in South America, Japan, and Cochin-china. The Sapan, and the cypress-tree, are more commonly met with in Japan than any others, and are employed not only in the construction of edifices and ships, but in the formation of cabinets, chests, boxes, &c.

SAP-COLOURS, are of that nature, that they are capable of being entirely dissolved in water, but are by no means miscible with oils. They are transparent, and of a viscid nature; whence they stand in no need of any cementing substance, neither do they dry easily, for the same reason. All colouring juices and extracts inspissated by evaporation may be used with this intention: as for instance, a decoction of Brazil-wood prepared with alum, and inspissated, extract of saffron, refined Brunswick green, crystallized verdigris, an aqueous extract of litmus, with the addition of a little alkali, gamboge, sap-green, and the inspissated decoction of the green husks of walnuts. Of these, sap-green is prepared from the expressed juice of buckthorn-berries not perfectly ripe, (*Rhamnus catharticus*, Lin.) reduced by gentle evaporation to the consistence of honey. The sap must be well clarified before it is evaporated. When it is inspissated, as much alum, or, which is still better, sugar of lead, is to be mixed with it by little and little over the fire, as is requisite to produce the finest green colour. A redundancy of these additions is prejudicial. The complete exsiccation must be made with a gentle heat in saucers.

Ferber gives the following description of it: Archil (*Lichen rocella*) is to be mixed with urine, lime water, slaked lime, and some pot-ash, in several large cisterns, which must be kept under shelter, and suffered to stand for several weeks. By these means the mass is rendered soft, and passes over to a kind of fermentation or evolution of its particles, and of the colouring matter contained in them. Now and then it is stirred, and suffered to stand macerating, till the mass is become quite blue, and is converted into a muddy kind of pulp. Upon this the whole mixture is ground in a mill constructed for the purpose, and the pulpy magma dried in moulds. Hither also may be referred the fine sap-blue discovered by Struve.

In order to make this, a quarter of an oz. of indigo is to be reduced to powder, and triturated in a glass-mortar with two ounces of good oil of vitriol. After this, 4 oz. of alum are to be dissolved in warm water, to which must be added 2 oz. of a solution of tartar in water, or as much as is requisite for completing the precipitation. The precipitate is then to be edulcorated and filtered; and when it is almost dry, the above-mentioned solution of indigo is to be mixed with it. In this manner is obtained a fine blue colour, void of all acrimony, which may be mixed with water *ad libitum*; with which silk, leather, and bones, may be tinged of different shades; and which, with some gum, forms also a fine sap-colour.

SAP-GREEN. (Ger. *Saftgrün*. Du. *Sapgroen*. Da. and Sw. *Saftgrön*. Fr. *Verd de vessie*. It. *Verde vescica*. Sp. *Verde vejiga*. Port. *Verde-bexiga*.) *See* SAP-COLOURS.

SAPPHIRE, (Ger. *Sapphir*. Du. *Saffiersteen*. Da. Sw. and Fr. *Saphir*. It. *Zaffiro*. Sp. *Safiro, Safir*. Port. *Safira*. Rus. *Jachant*. Pol. *Szafir*. Lat. *Sapphirus*,) a genus of precious stones, of a blue colour, and the hardest of all, except the ruby and diamond. They are found in the same countries with the ruby; also in Bohemia, Alsace, Siberia, and Auvergne.

The blue fluor spars are frequently met with in collections under the name of sapphires; and it is certain from Pliny, b. 37. chap. 9., that the sapphire of the ancients was our lapis lazuli. They are seldom found of a deep-blue colour throughout, or free from parallel veins; and when they are but slightly tinged, they are named white sapphires. Some are found half green and half red, and are foliated like the ruby. The fine hard sapphires, called by the jewellers oriental, are of the same nature with the ruby and topaz, excepting the mere circumstance of colour. They are commonly in two oblong hexagon pyramids, joined at their base, and pointed at top; sometimes also in hexagonal columns. When powdered, these precious stones are fusible with borax or microcosmic salt, into a transparent glass; and the same thing happens on treating them with *magnesia alba*. They are said to lose their colour by fire, and to become so hard and transparent as sometimes to pass for diamonds; but this is not well ascertained of the genuine sapphire.

SARCENET, a kind of fine, thin woven, plain silk, usually employed in making the gowns, &c. of females.

SARCOCOLLA. *See* GUM SARCOCOLLA.

SARDINES, or Sardinias, (Ger. *Sardellen*. Du. *Sardynen*. Da. and Sw. *Sardeller*. Fr. *Sardines*. It. *Sardine*. Sp. *Sardinas*. Port. *Sardinhas*. Rus. *Sardelii*. Pol. *Sardely*. Lat. *Sardinæ*,) a species of fish of the herring tribe. These fish are round, scaly, and finned; the back is furnished with a softish fin, extending near half the length of the fish; under the belly, behind the anus, is another fin proceeding nearly to the commencement of the tail-fin; behind the gills are two smaller fins, and two more under the belly, formed rough, or denticulated, like those of the herring and the shad-fish. The largest sardines do not exceed, in size, herrings of middling dimensions. Like the herring, the sardine is

a fish of passage, appearing upon the French coasts, at certain seasons, in shoals; but it is never found, like the shad-fish, in any of the rivers. They are met with both in the Ocean, and Mediterranean, especially in the latter, in great abundance.

Sardines are taken in considerable quantities on our coasts, and are exceedingly plentiful on the coasts of Algarva in Portugal, Cadiz, and Grenada, in Spain, and along all the shores of Italy. The small sardines, caught on the coast of Provence, in France, are esteemed by epicures as being superior to all others of this species. From a thousand, to twelve hundred, fishing-smacks are engaged in catching these fish on the coast of Brittany, from the month of June to the middle of October. The French frequently cure their sardines in red brine, and when thus prepared, designate them *anchoisèes*, or *anchovied sardines*. These they pack in vessels previously employed for holding wine, and export them to the Levant, where they are re-packed in small casks, and sent to Bukharia. When perfectly fresh, sardines are accounted excellent fish, but if kept for any time, they entirely lose their flavour, and become quite insipid. Fresh sardines are conveyed on horseback, from the ports of France to the inland cities and towns of that country. Abundance of this fish is salted and pickled in several ports of England and France, Italy, Sardinia, Portugal, and Spain, and thence exported to different parts of the world.

SARDONYX, a precious stone, consisting of a mixture of the chalcedony, and cornelian, it is sometimes in strata, but at other times blended together. Two kinds are generally distinguished. 1. Striped with white and red strata, which may be cut in cameo as well as the onyx. 2. White with red dendritical figures, greatly resembling the mocha-stone; but with this difference, that the figures in the sardonyx are of a red colour, in the other black. There is no real difference, excepting in the circumstance of hardness, between the onyx, cornelian, chalcedony, sardonyx, and agate, notwithstanding the different names bestowed upon them.

SARPLAR, *of Wool*, otherwise called a packet, is half a sack; a sack eighty tod; a tod two stone; and a stone fourteen pounds. In Scotland it is termed *sarpliath*, and contains eighty stone.

SARSAPARILLA, (Ger. *Sarsaparille*. Du. *Sarzaparille*. Da. *Sarsaparille*. Sw. *Sarsaparilla*. Fr. *Salsepareille*. It. *Salsapariglia*. Sp. *Zarzaparilla*. Port. *Salsa parilha*. Lat. *Sarsaparilla*,) the root of the *smilax sarsaparilla*, a plant growing in America, and particularly, abundantly, in Jamaica, whence we receive it.

The flower is yellow, mixed with red. The fruit is a black berry, containing several brown seeds.

Sarsaparilla delights in low moist grounds, and near the banks of rivers. The roots run superficially under the surface of the ground. The gatherers have only to loosen the soil a little, and to draw out the long fibres with a wooden hook. In this manner they proceed till the whole root is got out. It is then cleared of the mud, dried, and made into bundles.

The sensible qualities of sarsaparilla are mucilaginous, and farinaceous, with a slight degree of acrimony.

The china, or oriental species of China root, has roundish, prickly stalks, and red berries, and is a native of China and Japan. The pseudo-china, or occidental species, has rounder smooth stalks and black berries, grows wild in Jamaica, and Virginia, and bears the colds of our own climate. At present the China root is very rarely made use of, having for some time given place to sarsaparilla, which is supposed to be more effectual.

Sarsaparilla is a sudorific, and an attenuant, and was much esteemed in the cure of the venereal disease, till the use of mercury caused it to be neglected.

SASSAFRAS. (Ger. Du. Da. Sw. and Fr. *Sassafras*. It. *Sassafrasso*. Sp. *Sasafras*. Port. *Sassafraz*, *Salsafras*. Rus. *Sassafras*. Pol. *Sasafras*. Lat. *Sassafras*.) The *laurus Sassafras*, or sassafras-tree, is a native of North America, and grows in the greatest perfection in Florida. Its roots are even with the surface of the ground. Its trunk, which is very straight, without leaves, and not high, is covered with a thick and dirty bark, of an ash-colour, and throws out at its summit some branches, which spread out on every side. The leaves are disposed alternately, green on the upper, and white on the under surface, sometimes divided into three lobes, sometimes entire of different sizes, from three to six inches long, and nearly as broad, with clusters of small yellowish flowers, succeeded by small blackish pendent berries, fixed to a red pedicle, and to a calyx of the same colour.

The root of the sassafras has a fragrant smell, and a sweetish, aromatic subacrid taste; the bark tastes much stronger than any other part, and the small twigs stronger than the large pieces. It is a warm aperient and corroborant, and frequently employed with good success for purifying the blood and the juices. For these purposes decoctions are made from the rasped root, or bark. In America the bark of this tree is used for dyeing worsted a fine lasting orange-colour; some people also boil the peel of the root with the beer during the process of brewing, because they believe it to be wholesome. The flowers are used instead of tea.

An oil extracted from sassafras-wood is very fragrant, and possesses most of the virtues of the wood itself.

SAT, a measure used at Siam, for corn,

seeds, pulse, and some dry fruits; it is a sort of bushel made of bamboo, and forty of the sats make a seste; and forty sestes the cohi. It is hard to reduce this measure to the European standard; it is, however, generally accounted about 500 lbs. marc.

SATALEER, a silver coin, current in the East Indies, at about 7½*d.* sterling.

SATIN, (Ger. *Atlas.* Du. *Atlas.* Da. *Atlas, Atlask.* Sw. *Atlask.* Fr. *Satin.* It. *Raso.* Sp. *Raso liso.* Port. *Setim.* Rus. *Atlass.* Pol. *Atlas,*) a soft, closely woven silk, with a glossy surface, usually employed for women's wear. In the manufacture of other silken stuffs, such, for example, as taffety, the mode is to raise alternately each half of the warp, in order to form the body of the stuff. On the contrary, in weaving satin, the workman only raises the fifth or the eighth part of the warp; by these means the woof is hidden beneath the warp, which, presenting an even, close, and smooth surface, is the more capable of reflecting the rays of light; and thus it is that satin acquires that lustre and brilliancy, which distinguishes it from most other kinds of silks. The chief seats of this branch of manufacture, are Lyons in France, and Genoa and Florence in Italy. At these places they manufacture plain, embossed, striped, and embroidered satins, besides a great variety of other designs, whose colours and fabric have hitherto given them a decided superiority in the market. Very capital imitations of the foreign satins are made in Spitalfields, and in other parts of England; but we seldom export this article. There is a species of satin composed of a silken warp and a flaxen woof, made at Bruges in Flanders, whence it has received the denomination of *Bruges satin.* This sort is likewise imitated with success in England, and some other parts of Europe. *Satinet* is a kind of very light, thin satin, principally manufactured at Bruges, and usually employed in making furniture. From the East Indies are imported those light stuffs called Indian or Chinese satins. They are either plain, damasked, striped, open-worked, or embroidered. Both in lustre and execution, they are far inferior to the Lyonese satins; they, however, possess this peculiar property, that even after scouring, they retain their original gloss.

SAUNDERS. *See* SANDERS.

SAWS, (Ger. *Sägen.* Du. *Zaagen.* Da. *Sauge, Saver.* Sw. *Säg.* Fr. *Scies.* It. *Seghe.* Sp. *Sierras.* Port. *Serras.* Rus. *Pili.* Pol. *Piły,*) are instruments which serve to cut into pieces several solid matters; as wood, stone, ivory, &c.

The best saws are of tempered steel ground bright and smooth; those of iron are only hammer-hardened: hence, the first, besides their being stiffer, are likewise found smoother than the last. They are known to be well hammered by the stiff bending of the blade; and to be well and evenly ground, by their bending equally in a bow. The edge, in which are the teeth, is always thicker than the back, because the back is always to follow the edge. The teeth are cut and sharpened with a triangular file, the blade of the saw being first fixed in a whetting-block. After they have been filed, the teeth are set, that is, turned out of the right line, that they may make the kerf or fissure the wider, that the back may follow the better. The teeth are always set ranker for coarse cheap stuff than for hard and fine, because the ranker the teeth are set, the more stuff is lost in the kerf. The saws by which marble and other stones are cut, have no teeth: these are generally very large, and are stretched out and held even by a frame.

The lapidaries, too, have their saw, as well as the workmen in mosaic; but of all mechanics, none have so many saws as the joiners; the chief are as follow: the pit-saw, which is a large two-handed saw, used to saw timber in pits; this is chiefly used by the sawyers.

The whip-saw, which is also two-handed, used in sawing such large pieces of stuff as the hand-saw will not easily reach. The hand-saw, which is made for a single man's use, of which there are various kinds; as the bow, or frame-saw, which is furnished with cheeks: by the twisted cords which pass from the upper parts of these cheeks, and the tongue in the middle of them, the upper ends are drawn closer together, and the lower set further apart. The tenon-saw, which being very thin, has a back to keep it from bending. The compass-saw, which is very small, and its teeth usually not set: its use is to cut a round, or any other compass-kerf: hence the edge is made broad, and the back thin, that it may have a compass to turn in.

SAW-MILLS. In early periods, the trunks of trees were split with wedges into as many and as thin pieces as possible; and if it was necessary to have them still thinner, they were hewn on both sides to the proper size. This simple and wasteful manner of making boards has been still continued in some places, to the present time. Peter the Great, of Russia, endeavoured to put a stop to it, by forbidding hewn deals to be transported on the river Neva. The saw, however, though so convenient and beneficial, has not been able to banish entirely the practice of splitting timber used in building, or in making furniture and utensils, for we do not speak here of fire-wood; and, indeed, it must be allowed that this method is attended with peculiar advantages, which that of sawing can never possess. The wood-splitters perform their work more expeditiously than sawyers, and split timber is much stronger than that which has been sawn; for the fissure follows the grain of the wood, and leaves it whole; whereas the

saw, which proceeds in the line chalked out for it, divides the fibres, and by these means lessens its cohesion and solidity. Split timber, indeed, turns out often crooked and warped; but in many purposes to which it is applied this is not prejudicial; and these faults may sometimes be amended. As the fibres, however, retain their natural length and direction, thin boards, particularly, can be bent much better. This is a great advantage in making pipe-staves, or sieve-frames, which require still more art, and in forming various implements of the like kind.

The use of the pit-saw succeeded the mode of splitting wood so long pursued; and its utility was found to be so great, that it was adopted in every civilised nation on the face of the globe.

The most beneficial and ingenious improvement of this instrument was, without doubt, the invention of saw-mills, which are driven either by water or by the wind. Mills of the first kind were erected so early as the fourth century, in Germany, on the small river Roeur or Ruer: for though Ausonius speaks properly of water-mills for cutting stone, and not timber, it cannot be doubted, that these were invented later than mills for manufacturing deals, or that both kinds were erected at the same time. The art, however, of cutting marble with a saw, is very old. Pliny conjectures that it was invented in Caria; at least, he knew no building incrusted with marble of greater antiquity, than the palace of king Mausolus, at Halicarnassus. This edifice is celebrated by Vitruvius, for the beauty of its marble; and Pliny gives an account of the different kinds of sand used for cutting it, "for it is the sand properly," says he, "and not the saw, which produces that effect."

The latter presses down the former, and rubs it against the marble; and the coarser the sand is, the longer will be the time required to polish the marble which has been cut by it. Stones of the soap-rock kind, which are indeed softer than marble, and which would require less force than wood, were sawn at that period: but it appears that the far harder glassy kinds of stone were sawn then also; for we are told of the discovery of a building, which was incrusted with cut agate, cornelian, lapis lazuli, and amethysts. We have, however, found no account in any of the Greek or Roman writers of a mill for sawing wood; and as the writers of modern times speak of saw-mills as new and uncommon, it would seem that the oldest construction of them has been forgotten, or that some important improvement has made them appear entirely new.

When the infant Henry sent settlers to the island of Madeira, which was discovered in 1420, and caused European fruits of every kind to be carried thither, he ordered saw-mills to be erected also, for the purpose of sawing into deals the various species of excellent timber, with which the island abounded, and which were afterwards transported to Portugal. About the year 1427, the city of Breslau had a saw-mill, which produced a yearly rent of three marks; and in 1490, the magistrates of Erfurth purchased a forest, in which they caused a saw-mill to be erected, and they rented another mill in the neighbourhood besides.

Norway, which is covered with forests, had the first saw-mill about the year 1530. This mode of manufacturing timber was called the new art; and because the exportation of deals was by these means increased, that circumstance gave occasion to the deal-tythe, introduced by Christian III., in the year 1545. Soon after, the celebrated Henry Canzau caused the first mill of this kind to be built in Holstein. In 1552, there was a saw-mill at Joachimsthal, which, as we are told, belonged to Jacob Geusen, mathematician. In the year 1555, the bishop of Ely, ambassador from Mary, queen of England, to the court of Rome, having seen a saw-mill in the neighbourhood of Lyons, the writer of his travels thought it worthy of a particular description. In the sixteenth century, however, there were mills with different saw-blades, by which a plank could be cut into several deals at the same time. The first saw-mill was erected in Holland at Saardam, in the year 1596; and the invention of it is ascribed to Cornelius Cornelissen. Perhaps he was the first person who built a saw-mill at that place, which is a village of great trade, and has still a great many saw-mills, though the number of them is becoming daily less: for within the last thirty years a hundred have been given up. The first mill of this kind in Sweden, was erected in the year 1653. At present, that kingdom possesses the largest perhaps ever constructed in Europe, where a water-wheel, 12 feet broad, drives, at the same time, 72 saws.

In England, saw-mills had at first the same fate that printing had in Turkey; the ribbon-loom, in the dominions of the church; and the crane at Strasburgh. When attempts were made to introduce them, they were violently opposed, because it was apprehended, that the sawyers would be deprived by them of their means of getting a subsistence. For this reason, it was found necessary to abandon a saw-mill erected by a Dutchman, near London, in 1663; and in the year 1700, when one Haughton laid before the nation the advantages of such a mill, he expressed his apprehension that it might excite the rage of the populace. What he dreaded, was actually the case in 1767 or 1768, when an opulent timber-merchant, by the desire and approbation of the Society of Arts, caused a saw-mill, driven by wind, to be erected at Limehouse, under the direction of James Stransfield, who had learned in Holland, and Norway, the art of

constructing, and managing, machines of that kind. A mob assembled, and pulled the mill to pieces; but the damage was made good by the nation, and some of the rioters were punished. A new mill was afterwards erected, which was suffered to work without molestation, and which gave occasion to the erection of others. It appears, however, that this was not the only mill of the kind then in Britain; for one, driven also by wind, had been built at Leith, in Scotland, some years before.

The mechanism of a sawing-mill may be reduced to three principal things: the first, that the saw is drawn up and down as long as is necessary, by a motion communicated by water to the wheel: the second, that the piece of timber to be cut into boards is advanced by an uniform motion to receive the strokes of the saw; for here the wood is to meet the saw, and not the saw to follow the wood, therefore the motion of the wood and that of the saw ought immediately to depend the one on the other: the third, that when the saw has cut through the whole length of the piece, the whole machine stops of itself, and remains immoveable; for fear, lest having no obstacle to surmount, the force of the water should turn the wheel with too great rapidity, and break some part of the machine.

SAW-WORT, (Ger. *Scharte, Farberscharte.* Du. *Verwend zaaghlad.* Da. *Farveskiær, Engeckier.* Sw. *Angskärä.* Fr. *Sarrette, Serrette.* It. *Serratola.* Sp. and Port. *Serratula.* Rus. *Serp, Serpucha.* Pol. *Sierpick.* Lat. *Serratula tinctoria.*) This plant is employed by dyers to impart a yellow colour; but, being inferior to the dyer's weed, its use is chiefly confined to the coarser woollen cloths, and as an ingredient in other dyeing drugs, in combination with indigo; the common saw-wort strikes a permanent green colour; its leaves readily yield a brownish-yellow decoction, which, on being diluted with water, changes to a brighter tinge, and by adding a solution of pure pot-ash, acquires a darker shade: but on dropping into it a little of the spirit of sal-ammoniac, becomes a reddish-brown, which may again be rendered of a golden tint, by the addition of pure water. Alum and gypsum appear to be best calculated for extracting a fine yellow colour from this plant, which the Germans industriously cultivate.

SAY, or Saye, a kind of serge or woollen stuff, much used abroad for linings, and by the religious of some orders for shirts: with us it is employed as aprons, by several descriptions of artificers, being usually dyed green.

Some of the manufacturers in Belgia make says of very superior quality, which are entirely formed of Segovian, or English wool. These are usually 7-8ths in breadth; but some sorts are only 3-4ths. The latter are made from the wools of the country itself. The denomination of say is likewise bestowed upon a remarkably stout kind of cloth, of which the Turks make short cloaks and vests for winter wear. The only colours given to this species of stuff are bright scarlet and dark red.

SAXON-GREEN, a fine bright, green colour, employed in dyeing. *See* DYEING.

SCALES. *See* BALANCES.

SCALIN, a silver coin, current in the French West Indies, at $5\frac{3}{8}$ sterling. There is likewise the half-scalin, equivalent to $2\frac{1}{15}d.$ Scalin is also a silver money which passes in the Netherlands, at $6\frac{3}{10}d.$ and here is besides an imaginary specie rated at $5\frac{2}{5}$ of our English penny.

SCAMMONY, (Ger. *Skammonien.* Du. *Skammoneum.* Da. *Skammonium.* Sw. *Skammonium.* Fr. *Scammonée.* It. *Scammonea.* Sp. and Port. *Escamonea.* Lat. *Scammoneum,*) is the produce of a species of convolvulus, or creeper plant; which grows wild in the vales between Nazareth and Mount Carmel. The scammony is prepared from the root and the stalk of the plant, and when genuine ought to be like a fine clear gum, of a darkish gray, light and brittle, and in chewing, ought to yield a white milky froth. The best scammony is brought from Marasch, a town about four days' journey from Aleppo, near the confines of Armenia. It is thence carried to Aleppo, in small skins, and by the merchants sent to London and Marseilles.

Scammony is used in medicine as a purgative.

SCANTLING, irregular timber or boards, reduced to the standard measure.

SCAPOLITE, a mineral found at Arendal, in Norway. It is of a pearl-colour, and is crystallized in long, four-sided, rectangular prisms. Faces longitudinally streaked.

SCARLET, a beautiful bright-red, employed in painting and in dyeing. *See* DYEING and PAINTING.

SCARLET-BERRIES. *See* KERMES.

SCATES, or Skates, (Ger. *Schlittschuhe.* Du. *Schaatsen.* Da. *Glideskoe.* Sw. *Skridskor.* Fr. *Patins.* It. *Pattini.* Sp. *Patines.* Port. *Patinos.* Rus. *Konki.* Pol. *Kosle Lyze, Narty,*) are a sort of wooden shoe, with a steel or iron plate underneath, used for sliding upon the ice. In England, these are merely considered as toys, used for the purposes of recreation; but in Holland, and some more northerly countries, scates occupy the place of vehicles, by enabling persons to pass with facility from one town or village to another, over frozen rivers and canals. Scates, which are principally manufactured at Birmingham, and Sheffield, are exported to the northern countries of Europe, and to America.

SCAVAGE, a toll or custom, anciently exacted by mayors, sheriffs, and bailiffs, of

cities and towns corporate, and of merchant-strangers, for wares exposed and offered to sale within their liberties, which was prohibited by 19 Hen. 7. But the city of London still retains this custom. *See* PACKAGE.

For the table of SCAVAGE-DUTIES, payable at the port of London, *see* PACKAGE.

SCHAN, or SCHANG, a weight used in the kingdom of Siam. The Chinese cati is equal to two Siamese schans; so that the former being 16 taels, the latter must be only 8, though some reckon the cati at 20 taels, and the schan at 10. The tael weighs four baats or ticals, each of nearly half an ounce; the baat four selings or mayons: the mayon two fouangs; the fouang four payes; the paye two clams; and the clam weighs twelve grains of rice; so that the tical or baat weighs 768 of those grains. *See* BAAT.

It is to be observed, also, that the greatest part of those weights pass for money, either real or in reckoning.

SCHARIFI, a golden coin formerly made in Egypt, and of the same value as the sultanin. The Arabians call it dinar, or methcalald-hegel; but it is at present rarely to be met with.

SCHEDULE, a scroll of paper or parchment, annexed to a will, lease, or other deed, containing a particular inventory of goods, not enumerated in the body of the deed, &c.

Schedule likewise implies the account or statement of his affairs, delivered by a bankrupt to the commissioners appointed to investigate his case.

SCHEREFI, a golden coin current in Persia, worth eight larins, at the rate of nine shillings British, *per* larin; the Europeans call it *golden seraphin.*

SCHERIF, otherwise called SULTANIN, *which see.*

SCHILLING, the name of a Dutch silver money, current at *6d.* and of a Danish and Norwegian money of account, reckoned at 1-32 of a penny sterling. The *schilling-lub* is a German silver coin, and passes for $1\frac{1}{2}$*d.* of our money.

SCHOONER, a small vessel, usually a fast sailer, and principally employed in trade by those who make speculations where dispatch is requisite.

SCHOPPEN, a liquid measure of Strasburg.

SCHUITE D'ARGENT, a money of account at Japan, by which payments in trade are estimated, being equivalent to $12\frac{1}{2}$ Dutch guilders. It is, otherwise, reckoned equal to four taels, six mace, and five condorins; the value of them varying a little, according to circumstances.

SCISSARS, or SCISSORS, (GER. *Scheeren.* DU. *Schaaren.* DA. *Saxe.* SW. *Saxar.* FR. *Ciseaux.* IT. *Cesoje, Forbici.* SP. *Tijeras.* PORT. *Tesouras, Tesourinhas.* RUS. *Noshnizii.* POL. *Nozyce,*) are instruments used for cutting with, the construction of which is so well known, as to need no particular description. Scissars are of various sizes, according to the purposes for which they are designed, and when remarkably large, such as those used by tailors, book-binders, &c., they are commonly denominated shears. Those implements which are properly called scissars, are chiefly employed by mantua-makers and milliners, and are made of fine polished steel, or iron. The best scissars are manufactured at Sheffield, and London.

SCORE, the number of twenty.

SCOT AND LOT, a customary contribution laid upon all persons according to their ability. Persons assessed to any contribution are generally said to pay scot and lot.

SCOURER. The business of this workman consists in cleaning or scouring clothes, either wet, or dry; and is pretty laborious.

Water, as well as many dry detergents, such as fuller's earth, &c., is used by the scourer in the course of his occupation.

SCREWS. (GER. *Schrauben.* DU. *Schrüeven.* DA. *Scruve, Skrue.* SW. *Skrufvar.* FR. *Vis. Verrins.* IT. *Viti, Verricelli.* SP. *Tornillos, Husillos.* PORT. *Parafusos.* RUS. *Schtschurupi.* POL. *Szruby.*) The screw is one of the principal of the mechanical powers. Screws are divided into male, and female: *the male screw* is cut in such a manner as to have a prominent part going round the cylinder in a spiral form, which prominent part is called the thread of the screw; *the female screw,* or inside screw, is a solid body, containing a hollow cylinder, whose concave surface is cut in the same manner as the convex surface of the male screw, so that the prominent parts of the one may fit the concave part of the other. Screws are used for various purposes, which it would be alike tedious, and unprofitable, to attempt to enumerate; they are chiefly made at Birmingham, Wolverhampton, Dudley, &c.

SCRIBBLING, is a term used to express a process performed by an engine, commonly called a scribbling mill, in preparing woollen cloth. The wages due to persons engaged in the species of work performed by one of these mills became the subject of a decision, in the court of K. B. in *53 Geo. 3. see* R. *v.* Heywood & al. 1 M. & S. Rep. 624.

SCRIBING, in joinery, &c. is a term used when one side of a piece of stuff is to be fitted to another that is irregular. In order to make these join close all the way they scribe it, that is, they lay the piece to be scribed close to that they intend to scribe it to, and opening their compasses to the widest distance these two pieces stand from each other, they bear the point of one of the legs against the side they intend to scribe to, and with the other point draw a line on the stuff to be scribed. Thus they form a line on the irregular piece parallel to the edge of the

regular one; and if the stuff is cut exactly to the line when these pieces are put together they will seem a joint.

SCRIP. A term used to signify those remaining shares of the different articles, which make up the terms of a loan to government, in the hands of individuals, who have not paid up their whole sub—*scrip*—tions. The value of scrip is, like all other property, governed by the price of stocks, of a fluctuating kind. Its value, at any particular moment, is ascertained by deducting the amount of the payments remaining due from the whole amount *at the market price* of the same stock.

SCRIVELLOS, or Scrivelli, are the small elephants' teeth, or pieces of them, or of the large ones, which are not sold singly, but in parcels.

SCRIVENER, one whose profession is, to engross all writings for the attornies, on paper, vellum, or parchment; and no attorney in the city of London can employ his own clerk in engrossing, without paying a valuable consideration to the company of scriveners for a license to do it. The scriveners, sometimes, also practise the business of a notary public; and at others sell their own stamps, with various articles of stationery, &c. in which last case they go under the denomination of writing-stationers.

Scriveners are liable to the bankrupt laws, and attorneys charging procuration fees for loans may be made bankrupts as scriveners.

SCRUPLE, a weight equal to the third part of a drachm, or to twenty grains. This is the apothecaries' scruple; the goldsmiths' is equal to twenty-four grains troy.

SCUDI, an Italian money of account and silver coin. The imaginary specie is equivalent to 4*s.* 3*d.* The silver scudi passes in most parts of Italy at 4*s.* 3*d.*; but at Milan, Modena, Parma, and Pavia, it is current at 4*s.* 2½*d.*; while, on the contrary, at Turin, Chambery, Cagliari, and in Sardinia, it is equivalent to 4*s.* 6*d.* British.

SCULPTURE, is an art, in which, by means of taking from, or adding to, matter, all sorts of figures are formed; as in clay; wax; wood; marble, or other stones; or in metal.

The art of sculpture, in its most extensive sense, comprehends not only carving in wood, stone, &c. but also enchasing, engraving in all its kinds, and casting in bronze, lead, wax, and plaster of Paris, as well as modelling in clay, wax, or stucco.

Works of sculpture are performed either by hollowing or excavating, as in metals, agates, or other precious stones, and in marbles of every description; or by working in relief, as in bas-reliefs, in the materials just mentioned, or in statues in metal, clay, woods, &c.

The excavation of precious stones forms a particular branch of the art called *intaglio*, which, together with the working them in relievo, (when the term *cameo* is applied to them,) appertains to the art of seal-engraving. *See* ENGRAVING AND INTAGLIO.

The excavation of metals constitutes the art of engraving in its various branches, on metal of any kind; and its relief comprises enchasing, casting in bronze, &c.

Of Sculpture in Wax, or Clay. — As not only the beginning of sculpture was in clay, for the purpose of forming statues; but as models are still made in clay, or wax, for every work undertaken by the sculptor; we shall first consider the method of modelling figures in those materials.

Few tools are necessary for modelling in clay. The clay being placed on a stand or sculptor's easel, the artist begins the work with his hands, and puts the whole into form by the same means. The most expert practitioners of this art seldom use any other tool than their fingers, except in such small, or sharp, parts of their work, as the fingers cannot reach. For these occasions, they are provided with three or four small tools of wood, about seven or eight inches in length, which are rounded at one end, and at the other flat, and shaped into a sort of claws. These tools are called by the French *ebauchoirs*. In some of these the claws are smooth, for the purpose of smoothing the surface of the model; and in others, are made with teeth, to rake or scratch the clay, which is the first process of the tool on the work, and in which state many parts of the model are frequently left by artists, to give an appearance of freedom and skill to their work.

If clay could be made to preserve it original moisture, it would undoubtedly be the fittest substance for the models of the sculptor; but when it is placed either in the fire, or left to dry imperceptibly in the air, its solid parts grow more compact, and the work shrinks, or loses a part of its dimensions. This diminution in size would be of no consequence, if it affected the whole work equally, so as to preserve its proportions. But this cannot be the case: for, the smaller parts of the figure drying sooner than the larger; and thus losing more of their dimensions in the same space of time, than the latter do; the symmetry and proportions of the work inevitably suffer.

This inconvenience, however, is obviated by forming the model first in clay, and moulding it in plaister of Paris before it begins to dry, and then taking a plaister cast from that mould, and repairing it carefully from the original work; by which means you have the exact counterpart of the model in its most perfect state.

In order to model in wax, you must prepare the wax in the following manner: to a pound of wax add half a pound of scammony, (some mix turpentine also,) and melt the whole together with oil of olives; put-

ting more, or less, oil as you would have your modelling-wax harder, or softer. Vermilion is sometimes mixed with this composition, to give it a reddish colour, in imitation of flesh.

Whatever considerable work is undertaken by the sculptor, whether bas-relief, or statue, &c. it is always requisite to form a previous model of the same size as the intended work; and the model being perfected, according to the method before described, whether it be in clay, or in wax, or a cast in plaister of Paris, becomes the guide for the artist, and the standard from which he takes all its measurements. In order to regulate himself more correctly by it, he puts over the head of the model an immoveable circle, divided into degrees, with a moveable rule fastened in the centre of the circle, and likewise divided into parts. From the extremity of the rule hangs a line with a lead, which directs him in taking all the points, which are to be transferred from the model to the marble; and from the top of the marble is hung also a line, tallying with that which is hung from the model; by the correspondence of which two lines, the points are ascertained in the marble.

Many eminent sculptors prefer measurements taken by the compasses to the method just described; for this reason, that if the model be moved but ever so little from its level, the points are no longer the same.

This method, however, offers the best means by which mechanical precision may be attained; but it is manifest, that enough yet remains to exercise, and display, the genius and skill of the artist. For, first, as it is impossible, by the means of a straight line, to determine with precision the procedure of a curve, the artist derives from this method no certain rule to guide him, as often as the line, which he is to describe, deviates from the direction of the plumb-line. It is also evident that this method affords no certain rule to determine exactly the proportion, which the various parts of the figure ought to bear to each other, considered in their mutual relation and connections. This defect, indeed, may be partly supplied by intersecting the plumb-lines by horizontal ones; but even this resource has its inconveniencies; since the squares formed by transversal lines that are at a distance from the figure, (though they be exactly equal,) yet represent the parts of the figure as greater, or smaller, according as they are more, or less, removed from our point of view.

Of sculpture in Wood. — A sculptor in wood requires wood of the best quality, and the most proper kind. If he undertake a large work requiring strength and solidity, he ought to choose the hardest wood, and that which keeps best, as oak, and Spanish chesnut; but for works of moderate size, pear, or apple, tree serve as well. Even these latter woods are of a considerable hardness; therefore, if the work consist only of delicate ornaments, some more tender wood, provided it is at the same time firm and close, may be preferable; for instance, the Indian tree, which is excellent, as the chisel cuts it more neatly, and easily, than any other wood. Sycamore is much used.

The beauty of sculpture in wood, consists in the tender manner of cutting the wood, free of all appearance of hardness, or dryness.

For any work of large dimensions, even though it consists of a single figure, it is better to join together several smaller pieces of wood, than to make the whole of a single large piece; which is more liable to warp and crack, on account of its not being always equally, and perfectly, dry throughout.

No wood can be properly fit for works of this kind, that has not been cut several years, and well prepared by seasoning.

The tools used for sculpture in wood, are the same as those of the joiner or cabinet-maker.

Of sculpture in Stone and Marble. — For sculpture in marble, and other stone, tools of good steel, well tempered, and of strength proportioned to the hardness of the material, are necessary.

The first thing to be done, is to saw out, from a larger mass, a block proportioned to the size of the object which is to be produced. The sculptor then shapes the gross masses of the forms he designs to represent, by knocking off the superfluous parts of marble with a strong mallet or beel, and a strong steel tool called a point.

When the block is thus hewn out agreeably to the measures previously taken for the performance of the work, the sculptor brings it nearer to the intended form by means of a finer point; and sometimes of a tool called a dog's tooth, having two points, but less sharp than the single one.

After this he uses the gradine, which is a flat cutting tool, with three teeth, but is not so strong as the point.

Having advanced his work with the gradine, he uses the chisel to take off the ridges left by the former tools; and by the dexterous and delicate use of this instrument, he gives softness and tenderness to the figure, till at length, by taking a rasp, which is a sort of file, he brings his work into a proper state for being polished.

Rasps are of several kinds, some straight, some curved, and some harder, or softer, than others.

When the sculptor has thus far finished his work with the best tools he can procure, wherever certain parts require polishing, he uses pumice-stone to make them smooth and even. He then goes over them with tripoli, and when he would give a still higher gloss, he rubs them with leather and straw-ashes.

Besides the tools already mentioned, sculp-

tors use also the pick, which is a small hammer pointed at one end, and at the other formed with teeth made of good steel, and squared, to render them the stronger. This serves to break the marble, and is used in all places where the two hands cannot be employed to manage the mallet and chisel.

The bouchard, which is a piece of iron, well steeled at the bottom, and formed into several strong, and short, points like a diamond, is used for making a hole of equal dimensions, which cannot be done with cutting tools. The bouchard is driven with the mallet or beetle, and its points bruise the marble, and reduce it to powder. Water is thrown into the hole from time to time, in proportion to the depth that is made, to bring out the dust of the marble, and to prevent the tool from heating, which would destroy its temper; for the free-stone dust, on which tools are edged, is only moistened with water to prevent the iron from heating, and taking off the temper of the tool, by being rubbed dry; and the trepans are wetted for the same reason.

The sculptor uses the bouchard to bore or pierce such parts of his work, as the chisel cannot reach, without danger of spoiling or breaking them. In using it, he passes through a piece of leather, which leather covers the hole made by the bouchard, and prevents the water from spirting up in his face.

The other tools necessary for sculpture on marble, or stone, are the roundel, which is a sort of rounded chisel: the houguet, which is a chisel squared and pointed; and various compasses to take the requisite measures.

The process of sculpture in stone is nearly the same as in marble, excepting that the material being less hard than marble, the tools used need not be so strong, and some of them are of a different form, as the free-stone is apt to scale, and does not work like hard stone, or marble.

Sculptors in stone have commonly a bowl in which they keep a powder composed of plaister of Paris, mixed with the same stone in which their work is executed. With this composition they fill up the small holes, and repair the defects which they meet with in the stone itself.

Several statutes attach upon the subject of sculpture. The 38 Geo. 3. c. 71. and 54 Geo. 3. c. 56. secure the property in them to the inventors. The 41 Geo. 3. c. 89. regulates the duty to be paid on the importation of them per ton-weight.

SCURVY-GRASS, (Ger. *Löffelkraut.* Du. *Lepelkruid.* Da. *Skeeurt, Skörbugsurt.* Sw. *Skëdort, Skörbjuggsgräs.* Fr. *Cranson.* It. *Coclearia.* Sp. *Cochlearia, Coclearia.* Port. *Cochlearia.* Rus. *Losheteschnaja trawa.* Pol. *Warzecha ziele.* Lat. *Cochlearia,*) a plant which is commonly grown in our gardens. It is propagated by seeds, which should be sown in July: in spring they will be fit for use. Scurvy-grass is particularly celebrated in scurvies, and is the principal herb employed in these disorders in the northern countries. It is supposed to constitute the principal portion of several patent medicines in great request.

SCUTTLES, in a ship, square holes cut in the deck, big enough to let in the body of a man, serving to let people down into any room below upon occasion, or from one deck to another. They are generally before the main-mast, before the knight in the forecastle: in the gun-room, to go down to the stern-sheets; in the round-house, to go down into the captain's cabin, when forced by the enemy in a fight aloft. There are also some smaller scuttles, which have gratings over them: and all of them have covers, that people may not fall down through them in the night.

Scuttle is also a name given those little windows and long holes which are cut out in cabins to let in light.

SCYTHES, (Ger. *Sensen.* Du. *Seissen.* Da. *Leer.* Sw. *Liar.* Fr. *Faux, Faulx.* It. *Falci.* Sp. *Guadanas.* Port. *Fouces, Gadanhos.* Rus. *Kossü.* Pol. *Kosy,*) the instrument of mowing; consisting of a curved blade, joined at right angles to a long pole. The best scythes are manufactured principally at Sheffield, whence vast quantities are exported to Ireland, the Continent of Europe, and North America.

SEA-CHART, a map on which only the coasts are delineated.

SEA-COAL, mineral coal, so called because brought to London by sea. *See* COAL.

SEA-HORSE. *See* MORSE.

SEAL, in zoography, (Ger. *Seehund, Robbe.* Du. *Zeehond.* Da. *Sælhund, Sæl.* Sw. *Sjæl.* Fr. *Phoque, Vean marin.* It. *Foca, Vitello marino.* Sp. *Foca, Bercero marino.* Port. *Phoca, Vitello ou bezerro marinho.* Rus. *Tzulen, Nerpa.* Pol. *Ciele morskie.* Lat. *Phoca, Vitulus marinus,*) an animal of the amphibious kind, a native of the European seas, and found about all the coasts of the northern hemisphere, and even extending to the southern polar regions. It also inhabits some fresh water lakes, as those of Baikal, Oron, &c. Seals are generally very fat, and are hunted in the northern regions for the sake of their oil, which forms a considerable article of commerce. The bottle-nosed seal is usually so excessively fat, as to resemble a skin of oil, the tremulous motion of the blubber being plainly perceivable beneath the skin. A single animal of this species has been known to yield a butt of oil. The skin of the seal yields a very fine species of fur, which hatters employ as a substitute for beaver. The seal-skins are likewise used for covering trunks, and for other purposes.

SEAL, (Ger. *Petschafte.* Du. *Zegelen.* Da. *Signet.* Sw. *Pitser.* Fr. *Cachets.* It. *Sigilli.* Sp. and Port. *Sellos.* Rus. *Petschatü.* Pol. *Pieczatki,*) the instrument em-

ployed for impressing sealing-wax. It was an early invention to identify instruments, before signatures were used. Seals are usually formed of cornelian, agate, or other valuable gems, mounted in gold and neatly engraven. Vast quantities of gilt seals, and seals made of stained glass, &c. mounted in gilt copper, are manufactured at Birmingham, and thence exported to Spain, Portugal, France, and other parts of Europe, as well as to North, and South, America.

SEALED-EARTH, (Ger. *Siegelerde.* Du. *Zegeläarde.* Da. *Sejglejord.* Sw. *Sigillera.* Fr. *Terre sigillée.* It. *Terra sigillata.* Sp. *Tierra sijilata.* Port. and Lat. *Terra sigilata,*) is brought from the island of Lemnos, where it is found in great abundance. It is thus named on account of the print, or seal, with which they impress it. It is considered an excellent antidote against the bite of a snake, in venomous wounds, and the bloody flux. The Lemnian curriers use it as a substitute for tan, in dressing hides. That which is sold at Constantinople is usually adulterated, and the pieces are commonly larger than the genuine. Its colour is likewise different, being generally yellowish, whereas the genuine is red. The surest indication of this earth, is a peculiar unctuosity, which causes it, when taken in the mouth, to have the flavour and consistence of tallow, so that it adheres to the teeth and tongue, and when moistened with saliva, or thrown into water, blisters or rises into bubbles. The genuine earth, when chewed, emits an extremely fragrant odour, insomuch that if persons were not aware of this circumstance, they would be led to imagine that it was adulterated with aromatic spices. There is a considerable trade in sealed-earth from the island of Lemnos; but it is most certain, that the greater part of what is sold in the shops, is adulterated, or wholly counterfeit.

SEALING. This is an essential part of every deed, and if the seal be torn off it will be tantamount to cancelling, or rendering such deed void; and where several are bound in a bond or obligation, pulling off the seal of one will make such deed void as to all the other parties.

SEALING-WAX, (Ger. *Siegellack.* Du. *Brieflak, Zegellak.* Da. *Sejglak.* Sw. *Sigillvax.* Fr. *Cire d'Espagne, Cire à cacheter.* It. *Cera Lacca, Cera di Spagna.* Sp. and Port. *Lacre.* Rus. *Surgutsch.* Pol. *Lak,*) is the wax used for sealing letters, legal instruments, &c. It is a composition of gum-lac, melted, and incorporated with resin, and afterwards coloured with some pigment, as vermilion, verditer, ivory-black, &c.

There are two kinds of sealing-wax generally used; the one hard, for sealing letters, legal instruments, &c. and the other soft, for receiving the impressions of seals of office to charters, patents, and other written documents.

The following is the method of preparing the best hard red sealing-wax: take two parts of shell-lac, with one of resin, and one of vermilion; let these ingredients be reduced to a fine powder, melt them over a moderate fire, and when they are thoroughly incorporated, roll the composition into sticks: seed-lac may be substituted for the shell-lac, and boiled Venice turpentine may be employed instead of resin. A coarser kind of such sealing-wax may be manufactured, by mixing equal parts of resin, and of shell-lac, (or vermilion and red-lead, in the proportion of one part of the former to two of the latter,) then proceeding in the manner above directed; but where large quantities of this wax are consumed, both the vermilion, and shell-lac, are generally omitted, so that it may be obtained at a much cheaper rate.

Black sealing-wax is composed of gum-lac, or shell-lac, melted with one-half, or one-third, of its weight of levigated ivory-black. To prevent the composition from becoming too brittle, Venice turpentine, in the proportion of *two-thirds* of the above ingredients, is usually added, as it likewise contributes to improve the beauty of the manufacture. These substances being melted, and properly stirred over a slow fire, the liquid is next poured upon an iron plate or stone, previously oiled, and while soft, it must be rolled into sticks, which are then exposed to heat till they acquire a glossy surface.

Uncoloured soft sealing-wax is commonly prepared of bees' wax 1lb., of turpentine 3oz., and of olive-oil 1 oz.: these ingredients are carefully boiled in a proper vessel for some time, till the compound becomes fit to be formed into rolls, or cakes, for use; and in order to impart to it the requisite colour, one ounce, or more, of either of the pigments above-mentioned may be added, stirring the mass till the whole be duly combined.

SEAMEN. The following are the chief laws and regulations relative to seamen, and the wages of mariners.

1. *Agreement in writing.* Every seaman, who ships himself on board a merchant ship for any voyage, shall be obliged to sign an agreement for wages within three days. 2 Geo. 2. c. 36. s. 2. And, by the act of 31 Geo. 3. c. 39. this regulation is extended to the coasting trade.

2. *Deserting.* If any seaman desert, or refuse to proceed on the voyage, after signing such contract, he shall forfeit to the owners all the wages due to him. If any such seaman absent himself from such ship after signing, the master may apply to any justice for a warrant to apprehend him: and, if he shall refuse to proceed on the voyage without sufficient reason, the justice shall commit him to the house of correction. 2 Geo. 2. c. 36. s. 3 & 4.

3. *Absent without leave.* If any seaman absent himself from the vessel to which he be-

longs without leave, he shall, for every day's absence, forfeit two days' pay to the use of Greenwich-hospital. 2 Geo. 2. c. 36. s. 5.

4. *To be discharged by writing.* If any seaman leave the vessel to which he belongs, without receiving his discharge in writing from the master, unless he enters into his majesty's service, he shall forfeit one month's pay. 2 Geo. 2. c. 36. s. 6.

5. *When wages are to be paid.* On arrival in Great Britain, the master shall pay the seamen their wages, if demanded, in thirty days after entry at the custom-house, or at the time the seamen shall be discharged, (whichever shall happen first,) deducting therefrom the above-mentioned penalties, under the forfeiture of 20*s.* to every such seaman unpaid. 2 Geo. 2. c. 36. s. 7.

6. *Refusing to defend the ship.* If any mariners or inferior officers of any merchant-ship shall decline or refuse to defend the ship, or utter words to discourage others from doing so, every mariner so behaving shall lose all his wages, together with such goods as he may have in the ship, and suffer imprisonment for a time not exceeding six months. And every mariner, who shall have laid violent hands on his commander, to hinder him from fighting in defence of his ship and goods, shall suffer death as a felon. 22 & 23 Car. 2. c. 11. s. 7 & 9.

7. *Wilfully losing the ship.* If any master, mariner, &c., shall wilfully cast away, burn, or destroy his ship, or procure the same to be done, he shall suffer death as a felon. 22 & 23 Car. 2. c. 11. s. 12.

8. *Negligence of mariners.* Masters may reimburse themselves, out of the wages of their mariners, for losses happening by their negligence. *Raymond's Rep. p.* 650.

9. *Sueing for wages in the Admiralty.* The convenience arising to mariners in sueing for wages in the Admiralty is so great, that, out of regard to that useful body of men, it is permitted that *they* may sue for wages there. But, this liberty permitted to mates and mariners, is denied to the master: and moreover the mariners may *all join* in a suit there for wages, thereby lessening the expense: and in the Admiralty, the ship itself is answerable and not the owners.

Even if a master of a ship designs to go a voyage, and hires, and takes on board, seamen in order to it; afterwards the owners cannot agree about sending the ship the voyage, and the seamen are thereupon discharged; the seamen have the same remedy in the Admiralty for their wages as if the ship had gone the voyage.

10. *In what cases wages are due.* If a ship be lost before she arrives at any port of delivery, the seamen lose all their wages. If she be lost after coming to a port of delivery, they only lose their wages from the last port of delivery; and, even though the officers and mariners gave bond not to demand wages unless the ship returned to London, she arrived at a delivering-port, and afterwards was taken by an enemy, they had their wages to the delivering-port. If they run away, though after coming to a port of delivery, they lose all their wages.

If a ship outward-bound arrives at her destined port, unloads there, receives freight to return to England, and is taken by enemies in her return, the mariners shall have their wages to the time she arrived at the port she unloaded in, and for half the time she staid there to unload.

If a seaman be impressed before the ship arrive at the delivering-port, and she afterwards arrive there safe, his wages are recoverable for the time he served; and if articled for a certain voyage, and before he have performed it, he be disabled by accident happening in the course of his duty, he is entitled to his whole wages. *Chandler* v. *Grieves.* 2 *H. B.* 606.

An action was brought by a sailor for wages in a voyage from Barnstaple to Newfoundland, and thence to Spain, Portugal, or some port in the Mediterranean. The ship was taken after her arrival at Newfoundland, and the action was brought for the wages due on that part of the voyage. Verdict was given for the defendant; but, on motion for a new trial, it was the opinion of the court that it was all one entire voyage. The fish is only the lading of the ship; (no matter where taken in;) and the ship was lost before its arrival at the port of delivery: as the freighter lost his cargo, the mariner ought to lose his wages.

A sailor was hired for a voyage from Jamaica to Liverpool, and took, of the captain, this promissory-note: "Ten days after the ship, Governor Parry, myself master, arrives at Liverpool, I promise to pay to Mr. T. Cutter the sum of thirty guineas, provided he proceeds, continues, and does his duty, as second mate in the said ship, from hence to the port of Liverpool. Kingston, July 31. 1793." The ship sailed on the 2d of August, and arrived at Liverpool on the 9th of October following; but T. Cutter died on his passage the 20th of September. An action was brought by his administratrix: and the court were of opinion, that, as there was no general usage among merchants with respect to these notes in such a case as the present, they must decide that, as T. Cutter did not continue to do his duty till arrival at Liverpool, his representative could recover nothing even for that part of the time in which he did duty. *Cutter* v. *Powel*, 6 *Term Rep.* 320.

The cargo of a ship was lost by the capture of a Swedish privateer, who carried her into Gottenburgh: the master staid there three months to refit and take in new lading; and, to prevent the seamen from going away, he agreed to pay them so much a month while they staid there. And, in an action for this, the master would have dis-

charged himself on the rule, that *freight is the mother of wages, and that none are ever paid while the ship is lading and unlading;* which the chief-justice agreed to be the general doctrine: but he held it not sufficient to set aside a special agreement, as there was in this case. The seamen therefore recovered their wages.

The abuses that existed, by desertion of seamen from merchant-ships in the West-India trade, gave rise to an act of parliament, 37 Geo. 3. c. 73.

For preventing Desertion of Seamen from British Merchant Ships trading to His Majesty's Colonies and Plantations in the West Indies.

1. *Seamen deserting forfeit their wages.* From the first day of July, 1797, every seaman, mariner, and other person, who shall desert at any time during the voyage, either out or home, from any British merchant-ship trading to or from the West-India colonies or plantations, shall, over and above all punishments, penalties, and forfeitures, to which he is now by law subject, forfeit all the wages he may have agreed for with, or be entitled to, during the voyage, from the master or owner of the ship on board of which he shall enter, immediately after such desertion.

2. *Masters hiring seamen who have deserted.* Every master or commander of any British merchant-ship, who shall hire, or engage to serve on board his ship or vessel, any seaman, &c., who shall, to the knowledge of such master, have deserted from any such ship or vessel, shall forfeit and pay one hundred pounds.

3. *Upon what terms seamen may be hired in the West Indies.* No master or commander of any merchant-vessel shall hire or engage any seamen, &c., at any port or place in the West Indies, to serve on board any such merchant-vessel, at greater wages than double of the monthly wages contracted for with the seamen, &c., hired to serve on board such vessel at the time of her then last departure from Great Britain, being in the same degree and station as such seamen, &c., unless the governor, chief-magistrate, collector, or comptroller, of such port or place, *shall think that greater wages ought to be given, and shall accordingly authorise the same to be given,* by writing under his hand. And all contracts, bonds, bills, notes, and other securities, promises, and undertakings, made contrary hereto, shall be null and void to all intents and purposes; and every person who shall make, or enter into, any such contract, &c., or who shall hire, or procure to be hired, any seamen, &c., to enter on board any vessel contrary hereto, or who shall pay, or procure to be paid or given, any greater wages, or other gratuity or advantage whatsoever, to or for any seaman, &c., as aforesaid, than is allowed by this act, shall, for every such offence, forfeit one hundred pounds.

A general licence by a chief-officer, "to procure men *on such terms as he can,*" was held not to be sufficient authority to give greater wagers than allowed by the act. *Rogers* v. *Lacy*, 2 *B. & P.* 57.

4. *Ships to have apprentices.* Every master of any merchant-ship trading to the West Indies, shall have on board his ship, at the time of clearing out from Great Britain, one apprentice under the age of seventeen years, duly indented for three years, for every 100 tons, admeasurement, and so in proportion for every 100 tons, according to the certificate of registry, which certificate shall be duly enrolled, &c. and the said apprentices shall be exempt from serving in his majesty's navy for three years from the date of such indentures; and every owner, or master, neglecting to enrol the same, shall, for every such offence, pay ten pounds, to be paid, one moiety by the owner and the other moiety by the master.

5. *Masters to deliver lists of certain particulars.* Every master of such ship shall, within ten days after arrival out at any port, in the said colonies or plantations, and also within ten days after arrival home at any port in Great Britain, deliver, upon oath before the collector or comptroller of such port, a true and exact list and description of all the crew on board at the time of their clearing out from any port or ports in Great Britain, and also of the crew on board the same, at the time of their arrival at any port or ports in the said colonies or plantations; and also a true and exact list and description of every seaman, mariner, or other person, who has deserted from such ship, or who has died during the voyage; and also, a true account of the wages due to such seaman, &c. at the time of his death; under a penalty of fifty pounds.

6. *No seaman entitled to greater wages than herein authorised.* No seaman, mariner, or any other person, who shall, at any port or place in the West Indies, engage himself to serve, or who shall enter on board any merchant-vessel, which shall sail from Great Britain after the 1st of July, 1797, shall be entitled to or receive any greater wages or hire, or other gratuity or advantage whatsoever, than such wages or hire as hereinbefore authorised.

7, 8. *Wages of dead men.* The wages due to any seaman, mariner, or other person, hired, or engaged on board any British merchant-ship for any voyage from any port in Great Britain to any port in the West Indies, and who has died on board during the voyage, shall, within three calendar months after arrival in Great Britain, be paid to the receiver of the sixpenny duty for Greenwich-hospital to the use of the executor or administrator; and, if any master shall neglect, or refuse to pay the same to

the said receiver, he shall pay, for every such offence, fifty pounds; and also double the amount of the wages due. And, if the said wages be not lawfully demanded of the said receiver within three years after the payment thereof to him, they shall be forfeited to the seamen's hospital of the port to which such ship belongs; but, in case there should be no seamen's hospital at that port, then to the use of the old and disabled seamen of the same port, and their families, to be distributed at the discretion of the magistrates for the county where such port shall be situate, or any two or more of them.

When the captain of a ship has accounted upon oath to the collector of the port for a sum of money as wages due to a deceased seaman, and paid the sum to Greenwich-hospital, the representatives of such seaman may still sue the captain for any wages due beyond the sum so paid. *Armstrong* v. *Smith*, 1 *N. R.* 299.

9. *Disposition of penalties.* The penalties, &c. by this act shall be applied, one-third part to Greenwich-hospital; one-third part to the seamen's hospital at the port to which the ship or vessel belongs; but, in case there shall be no seamen's hospital there for the benefit of the old and disabled seamen of the same port and their families, to be distributed by the persons having the direction of the merchant-seamen's fund at such port; or, in case there shall be no establishment there, by the magistrate or overseer of the poor of such port; and the other third part thereof to and for the person who shall sue for the same.

10. *Exemption of certain cases.* Nothing in this act shall extend to any agreement made with any seaman, &c., hired in the West Indies, who shall, at the time of such hiring, deliver to the master of such merchant-vessel a certificate, under the hand of the master of the vessel on board of which such seaman, &c., had then last served, signed in the presence of one witness or more, stating their usual place of abode, and thereby certifying that such seaman, &c., had been duly discharged from the vessel on board which he had so last served; and which certificate the said master shall grant within three days next after application made to him by such seaman, &c., before a witness; or, in default thereof, shall forfeit twenty pounds. Nor shall this act extend to any agreement to be made with any person hired or engaged to serve on board any merchant-vessel, which, through necessity, or on account of any hazardous service or extraordinary duty, require such agreement to be made, and more wages given, and of which proof shall be made on oath before the chief magistrate or principal officer of any port or place, or before any justice of the peace of the said colonies or plantations; and provided also, that such person so hired shall not have deserted from the vessel on board of which he had then last served; and provided also, that no greater wages shall be given or received, except in case of such necessity, very hazardous service, or extraordinary duty as aforesaid, then after the rate of double the monthly wages, or the wages to be settled by any governor, chief magistrate, collector, or comptroller, as hereinbefore directed.

11. *Articles to be entered into.* From the 1st of July, 1797, the articles to be entered into by and between the masters, seamen, and mariners, of such merchant-ships, shall be agreeable to the purport and effect prescribed by the statute, for which, *see* the schedule thereto annexed.

The 45 Geo. 3. c. 81. is an act to amend the 31 Geo. 3. c. 39., respecting the agreements of seamen, and enacts, that if any seaman, after he shall have entered into any agreement as mentioned in the said act, shall neglect or refuse to proceed on the voyage in pursuance of the same, on the complaint of the master or commander, or owner, to a justice of the peace, he shall on conviction be imprisoned and kept to hard labour for not more than 30, nor less than 14, days.

The most recent statute on the subject of seamen is the 58 Geo. 3. c. 38. It first recites the 11 & 12 W. 3. c. 7., by which statute, masters of merchant-vessels are punishable by three months' imprisonment for leaving any of his ship's crew in any foreign country, being able and willing to return home; and directs that the mode of convicting such offenders shall be by indictment in the court of King's Bench at Westminster, which court may issue commissions to take evidence on the subject in other countries. It next notices an omission in 31 Geo. 3. c. 10., and inflicts a penalty of 100*l.* on any master of a merchant-vessel, who shall refuse to take on board, and bring home any seafaring-man, or boy, a subject of Great Britain, left behind in any foreign country, being required so to do by the proper authorities, to be recovered by information in the said court of K. B. and with like power of issuing commissions. It next provides regulations to be observed by masters of vessels leaving seafaring-men, or boys, at any foreign port or place on account of sickness; and lastly inflicts a penalty of 20*l.* on every master of a vessel, who, having left such seafaring-man, or boy, at any such foreign port, &c., neglect or refuse to deliver an account of wages due, and to pay the amount of the same, to be recovered by action or information in K. B. with full costs of suit, and with like powers respecting the obtaining of evidence &c.

By various statutes, the last of which is 56 Geo. 3. c. 67., sailors having served the king for a limited time, are free to use any trade, or profession, in any town, except in Oxford or Cambridge.

SEAM, or Seme *of corn*, is a measure of eight bushels.

SEAM *of glass*, the quantity of 120 pounds, or 24 stones, each five pounds weight. The seam of wood is a horse-load.

SEAMS *of a ship*, are places where her planks meet, and join together. There is also a kind of peculiar seam in the sewing of sails, which they call monk-seam; the other seam of a sail is the round seam, so called from its being round like the common seams.

SEA-ONION. *See* SQUILL.

SEA-WORTHY. A ship is said to be sea-worthy, when she is in every respect fitted for her destined voyage.

Every ship assured must, at the time of the assurance, be able to perform the voyage, unless some external accident should happen; and, if she have a latent defect, though wholly *unknown* to the parties, that will vacate the contract; and the assurers are discharged. This doctrine is founded upon that general principle of assurance-law, that the assurers shall not be responsible for any loss arising from the insufficient or defective quality or condition of the thing assured.

But, although the assured ought to know whether the ship was sea-worthy or not at the time she set out upon her voyage, yet he may not be able to know the condition she may be in after she is out a twelvemonth; and, therefore, whenever it can be made appear, the decay to which the loss is attributable did not commence till a period subsequent to the assurance, as she was sea-worthy at the time, the underwriter would be liable. In the case, *Eden* v. *Parkinson*, *Doug.* 708, the same principle was much relied upon. Lord Mansfield said, "By an implied warranty, every ship assured must be right, staunch, and strong; but it is sufficient if she be so at the time of her sailing. She may cease to be so in twenty-four hours after departure, and yet the underwriter will continue liable. — Every case of this kind, it is true, must depend upon its own circumstances; but, when they are once ascertained, the rule of law is clear and decisive." So in *Arman* v. *Woodman*, 3 *Taunt.* 299.

Sea-worthiness being an implied condition, in the contract of assurance, it is not necessary there should be any previous representation of the condition of the ship, unless particularly called *for*, because, unless it be fit for the performance of the voyage assured, there is no binding contract. — *Shulbred* v. *Nutt*; sittings at Guildhall after Hilary, 1782. — *Haywood and another* v. *Rodger*, 4 *E. R.* 490.

It is also an implied condition, that the ship should be furnished with every thing necessary for the purpose of safe and careful navigation. She must have a sufficient crew, a captain of competent skill, and a *pilot on board*, wherever a pilot is customarily employed. — *Law* v. *Hollingworth*, 7. *Term Rep.* 160. So, also, she must be furnished with sufficient tackling. *See* INSURANCE.

But as a full complement of men is not necessary in harbour, she does not cease to be sea-worthy for want of a crew, till she sails on a voyage without a crew. *Arman* v. *Woodman*, 3 *Taunt.* 299.

A neutral vessel is not sea-worthy, unless she be provided with documents to show her neutrality. *Steel* v. *Lacy*, 3 *Taunt.* 285.

The ship Indian sailed from Liverpool to the coast of Africa, and thence to the West Indies and America. She arrived at Demerara a mere wreck, owing to a concussion resembling an earthquake, and foundered before she reached shore. The slaves were profitably sold: and the plaintiff recovered, as for a total loss. — A rule was obtained, calling on the plaintiff to show cause, why a new trial should not be had, on the grounds that the subject-matter of the assurance was considerably deteriorated on the ship's arrival. It was, however, held that this argument was of no weight, and the rule was discharged. — *Shawe* v. *Felton*. 2 *E. R.* 109.

SEARCHER, an officer of the customs, whose business is to search and examine all ships outward-bound, to see whether they have any prohibited or unaccustomed goods on board.

SEASIN, or Seasing, in a ship, the name of a rope, by which the boat rides by the ship's side when in the harbour, &c.

SEBESTINES, (Ger. *Sebesten, Schwarze Brustbeeren.* Du. *Zwarte borstbessen, Borstpruimen, Sebesten.* Da. and Sw. *Sebester.* Fr. *Sebestes.* It. *Sebesten, Sebesto.* Sp. *Sebesto, Sebestes.* Port. *Fruta d'entrudo.* Rus. *Sebasteny, Sliwki iedwabne.* Lat. *Sebestena,*) a sort of fruit of a dark green colour, approaching to black, somewhat similar to the small Damascan plum, except that the kernel is of a triangular form. It comes to us from the Levant, and is used for medicinal purposes.

SEED-LAC, (Ger. *Saamenlack, Körnerlack.* Du. *Zaadlak.* Da. *Sædlak.* Sw. *Sädeslack.* Fr. *Lacque en graine.* It. *Lacca in grana.* Sp. *Laca en granos.* Port. *Laca ern grãos.* Lat. *Lacca in granis,*) is nothing more than STICK-LAC, (*which see,*) separated from the adhering sticks, and grossly powdered. It is employed for the same purposes as the other lacs.

SEED-PEARL. *See* PEARL, and PEARL-SEED.

SEEDS, that product of all vegetables by which their respective species are propagated. Its general acceptation, as a commercial term, is confined to some particular descriptions of seed which we are in the continual practice of importing, especially clover-seed, and rape-seed: *see those titles.*

The 30 Geo. 3. c. 41. regulates the duty to be paid on the importation of rape-seed

from America; and 35 Geo. 3. c. 117., continued by 49 Geo. 3. c. 20., prescribes rules for the warehousing and bonding rape-seed, clover-seed, &c. imported from America, Ireland, and other countries.

SEEDSMAN. This shopkeeper sells all sorts of garden and grass seeds, gardeners' tools, mats, &c. Most of the opulent London seedsmen have nurseries in the environs of the metropolis, where they rear fruit-trees, and plants of nearly every description, and grow a great part of the seeds which they sell in their shops. They, however, likewise import garden-seeds from Holland, and other parts of Europe, and the wholesale dealers in seeds export clover, trefoil, and garden-seeds, as well as split-peas, &c. to a large amount to Ireland.

SEELING, at sea, is used in the same sense nearly with heeling: when a ship lies down constantly, or steadily on one side, the seamen say, she heels; and they call it seeling when she tumbles violently, and suddenly, by the sea forsaking her, as they call it, that is, the waves leaving her for a time in a bowling sea.

SEELITE, the name given by Dr. Clarke to a red siliceous stone, lately brought to this country from Gryphylta in Sweden. It is described by some of the Swedish chemists, as a pure hydrate of silica, of the same nature as opal. It is of a red colour, possessing no more lustre and transparency than horn. Its fracture resembles that of flint, which it equals in hardness: its specific gravity is 2.71. Its chemical constituents are silica, alumina, manganese, and water.

SEIGNORAGE, signifies the right, or due belonging to a seigneur, or lord; but it is particularly used for a duty belonging to the prince, for the coining of money, called also coinage; which under our ancient kings was five shillings for every pound of gold brought in the mass to be coined, and a shilling for every pound weight of silver. At present the king claims no seignorage at all, but the subject has his money coined at the public expense; nor has the king any advantage, but what he has from the alloy. *See* COINING.

SEIZE, in the sea-language, is to make fast, or bind, particularly to fasten two ropes together, with rope-yarn. The seizing of a boat is a rope tied to a ring, or little chain, in the foreship of the boat, by which means it is fastened to the side of the ship.

SEIZURE, an arrest of some merchandise, moveable, or other matter, either in consequence of some law, or of some express order of the sovereign. Contraband goods, those fraudulently entered, or landed without entering at all, or at wrong places, are subject to seizure. In seizures, among us, one-half generally goes to the informer, and the other half to the king. *See* CUSTOMS, EXCISE, and SMUGGLING.

The principal statutes which relate to seizures, are, 5 Geo. 2. c. 11. — 6 Geo. 1. c. 2. — 8 Geo. 1. c. 18. — 11 Geo. 1. c. 30. — 9 Geo. 2. c. 35. — 21 Geo. 3. c. 39. — 24 Geo. 3. c. 47. — 27 Geo. 3. c. 52. — 45 Geo. 3. c. 121. — 47 Geo. 3. c. 66. — 49 Geo. 3. c. 65. — 51 Geo. 3. c. 96. — 54 Geo. 3. c. 171. — 57 Geo. 3. c. 87. — 58 Geo. 3. c. 76.

SELENITE, in mineralogy, crystallized gypsum. *See that title.*

SELENIUM, a metallic substance, lately discovered by Berzelius, the Swedish chemist, in the pyrites from the mine of Fahlun in Sweden. In the state of an oxide, in which form it is obtained, it is, when viewed in a mass, of a grey colour, with a brilliant metallic lustre; its fracture is vitreous, like that of sulphur, and displays a reddish tinge. The specific gravity is 4.6. In hardness and friability, it is nearly similar to sulphur. It may be reduced by trituration into a red powder, with particles having a metallic lustre. It becomes soft at the temperature of boiling water, and melts at a higher degree of heat. During cooling, it preserves, for some time, a degree of fluidity, like sulphur, or Spanish wax; so that it may be moulded between the fingers, and drawn into threads of a brilliant metallic lustre, which, by transmitted light, are of a deep-red colour. In a still higher degree of heat, it sublimes in opaque metallic globules. Distilled in a long-necked retort, it sublimes in flowers of a beautiful vermilion colour. Selenium has not yet been employed in the arts; but from its physical properties above enumerated, it is evident that it may be applied to many useful purposes.

SELTZER WATER, a mineral water, which springs up at Lower Seltzer, a village about ten miles from Frankfort on the Maine. This is a medicinal water, which was formerly imported in considerable quantities; but at present, almost all that is drunk in Great Britain, is artificial. This is more pleasant to the taste than the natural Seltzer water, as the saline particles, of a disagreeable flavour, and which contribute nothing to its medicinal virtue, are left out of the composition. It is likewise considerably stronger. It is made by adding one scruple of *magnesia alba*, six scruples of fossil alkali, and four scruples of common salt, to each gallon of water, and saturating the water with fixed air, by means of one of the common glass-machines.

SENA, or SENNA, (GER. *Senesblätter.* DU. *Senne.* DA. *Semsblade.* SW. *Sennesblader.* FR. *Séné.* IT. *Sena.* SP. *Sen, Sena.* PORT. *Sene, Senna.* RUS. *Senetnüe listü.* POL. *Senes.* LAT. *Senna, Sennae folia.*) The leaf of the *cassia senna*, Lin. This is a shrubby plant, cultivated in Persia, Syria, and Arabia; whence the leaves are brought, dried, and picked from the stalks, to Alexandria, in Egypt, and thence imported into Europe. They are of an oblong figure,

sharp-pointed at the ends, about a quarter of an inch broad, and not a full inch in length; of a lively yellowish-green colour, a faint, not very disagreeable smell, and a nauseous taste. Some inferior sorts are brought from Tripoli, and other places; these may easily be distinguished by their being either narrower, longer, and sharper-pointed; or larger, broader, and round-pointed, with small prominent veins; or large and obtuse, of a fresh green colour, without any yellow cast.

The Arabians sell their senna at Mecca and Jidda, whence it passes by way of Suez and Kahira, to Alexandria.

The senna Italica, or blunt-leaved senna, is a variety of the Alexandrian species, which by its cultivation in the south of France, has been found to assume this change. It is less purgative than the pointed-leaved sena. Sena, in medicine, is a very useful cathartic.

SENEGAL, or Seneca Gum. *See* GUM-SENEGAL.

SEQUIN, Zechin, or Chequin, a Venetian golden coin, worth 9*s.* 2*d.*; at Rome it passes for 9*s.* There is a golden sequin current in Barbary at 8*s.* 4*d.* The silver sequin passes in Barbary at 3*s.* 4*d.* and there is also a silver sequin in Arabia, worth 7*s.* 6*d.* sterling.

SERGE, (Ger. *Sarsche.* Du. *Sargie.* Da. *Sars, Sarge, Sirts.* Sw. *Sars.* Fr. *Sarge, Serge.* It. *Sargia.* Sp. *Sarga.* Port. *Sarja.* Rus. *Ssarsha.* Pol. *Szaroza,*) a woollen stuff manufactured in a loom, of which there are various kinds, denominated either from their different qualities, or from the places where they are wrought; the most considerable of which is the London serge, which is highly valued abroad.

In the manufacture of London serges, the longest wool is chosen for the warp, and the shortest for the woof. But before either kind is used, it is first scoured, by putting it in a copper of liquor, somewhat more than luke-warm, composed of three parts of fair water, and one of urine. After it has staid in it long enough for the liquor to take off the grease, &c it is stirred briskly about with a wooden peel, taken out, drained, washed in a running water, and dried in the shade; beaten with sticks on a wooden rack, to drive out the coarser dust and filth, and then picked clean with the hands. It is then greased with oil of olives; and the longest wool combed with large combs, heated in a little furnace for that purpose: to clear it from the oil, it is put into a vessel of hot soap-water, whence being taken out, wrung, and dried, it is spun on the wheel. As to the shorter wool, intended for the woof, it is only carded on the knee, with small fine cards, and then spun on the wheel, without being scoured of its oil: and here it is to be observed, that the thread for the warp is always to be spun finer, and much better twisted, than that of the woof.

The wool both for the warp, and woof, being spun, and the thread reeled into skains, that of the woof is put on spools, fit for the cavity of the shuttle; and that for the warp is wound on a kind of wooden bobbins, to fit it for warping; and when warped, it is stiffened with a size, usually made of the shreds of parchment; and when dried, put into the loom, and mounted so as to be raised by four treadles, placed under the loom, which the workman makes to act transversely, equally, and alternately, one after another, with his feet; and as the threads are raised, throws the shuttle. *See* WEAVING.

The serge, on being taken from the loom, is carried to the fuller, who fulls or scours it, in the trough of his mill, with fullers'-earth; and after the first fulling, the knots, ends, straws, &c. sticking out on either side of the surface, are taken off with a kind of pliers or iron pincers, after which it is returned into the fulling-trough, where it is worked with warm water, in which soap has been dissolved; when quite cleared, it is taken out, the knots are again pulled off; it is then put on the tenter to dry; taking care, as fast as it dries, to stretch it out, both in length and breadth, till it is brought to its just dimensions; then being taken off the tenter, it is dyed, shorn, and pressed.

SERON of almonds, is the quantity of two hundred weight; of indigo, the same; of aniseed from three, to four, hundred; of Castile soap, from two hundred and a half, to three hundred and three quarters.

SERVANTS. *See title* MASTER.

SESTE, a measure for corn, &c. *See* SAT.

SETTING, in the sea-language. To set the land, or the sun, by the compass, is to observe how the land bears on any point of the compass, or on what point of the compass the sun is. Also when two ships sail in sight of one another, to mark on what point the chased bears, is termed setting the chase by the compass.

SET-OFF AND MUTUAL DEBTS. Where tradesmen are mutually indebted, one debt may be set against the other; and in case any action be brought, notice of the particular sum or debt so intended to be insisted upon, and upon what account it became due, must be given, otherwise it shall not be allowed in evidence upon the general issue.

Debts of a different nature may not be set off, as bond debts against simple contracts, &c. The debts intended to be set off, may be either pleaded in bar, or be given in evidence, with notice under the general issue, unless such debts shall accrue by reason of any penalty, in which judgment in such action shall be entered up for no more than shall be justly due.

The actions for which a set-off is allowed,

are *debt*, *covenant*, and *assumpsit* for the non-payment of money; and the demand intended to be set off must be liquidated, or capable of being certainly ascertained, and such as might have been made the subject of one of these actions.

In cases of bankruptcy, the defendant may set off a debt due to him at the time of the bankruptcy, but he cannot set off a note given to him afterwards; nor can he set off cash-notes issued by the bankrupt before his bankruptcy, and payable to bearer, unless the defendant show further, that such notes came to his hands before the bankruptcy.

Where, at the time of action brought, a larger sum was due from the plaintiff to the defendant than from the latter to the former, the set-off should be pleaded; but where the sum is less, it is more proper to give a notice.

A set-off reducing the plaintiff's original demand under 40*s*. does not affect the jurisdiction of a superior court; so if plaintiff recover 1*s*. damages, where there is a set-off, he must have costs.

The notice of set-off is usually written underneath the plea, and delivered with it to the plaintiff's attorney, a copy of which should be made; because, upon the trial of the cause, it becomes proper to produce such notice.

SEXLING, an imaginary money of Germany, equivalent to 3-64ths of a penny sterling.

SHAG, (Ger. *Plüsch*. Du. *Tryp*. Da. *Plys*, *Plyds*. Sw. *Plys*, *Schagg*. Fr. *Peluche*, *Panne*. It. *Felpa*, *Peluzzo*. Sp. *Felpa*. Port. *Peluça*, *Pelucia*, *Felpa*. Rus. *Plisch*. Pol. *Plisz*, *Plisnia*,) a sort of woollen stuff, smooth on one side, and velvety on the other. Shags are usually made from coarse wools, but there are some remarkably fine, which latter are used for waistcoating of the best kind. The coarser shags are employed as different parts of wearing apparel by the lower orders of the people. These articles are manufactured in abundance in Yorkshire, and some other parts of this kingdom, and are exported hence to the northern parts of Europe, to Ireland, and to North America.

SHAGRIN, or CHAGREEN, (Ger. *Schagrin*. Du. *Segryn*. Da. *Chagrain*. Sw. and Fr. *Chagrin*. It. *Zigrino*. *Sagrino*. Sp. *Zapa*. Port. *Lixa*. Rus. *Schagrim*, *Schagren*. Pol. *Capa*,) a kind of grained leather, prepared, as is supposed, of the skin of a species of squalus, or hound-fish, called the shagree, or shagrain, and much used in covering cases, books, &c.

It is imported from Constantinople, Tunis, Tripoli, Algiers, and from some parts of Poland, where it is prepared in the following manner: the skin being stretched out is first covered over with mustard-seed, which is bruised upon it; and being thus exposed to the weather for some days, it is then tanned.

are *debt*, *covenant*, and *assumpsit* for the non-payment of money; and the demand intended to be set off must be liquidated, or capable of being certainly ascertained, and such as might have been made the subject of one of these actions.

In cases of bankruptcy, the defendant may set off a debt due to him at the time of the bankruptcy, and even a mutual credit, but he cannot set off a note given to him afterwards; nor can he set off cash-notes issued by the bankrupt before his bankruptcy, and payable to bearer, unless he show that such notes came to his hands before the bankruptcy.

It is not unusual, even in Turkey, to prepare a species of shagrin from the hides of horses, asses, and mules. This sort of shagrin is frequently prepared in Poland, but the article is too dry, and is seldom, if ever, well dyed.

SHAKLES, in a ship, are the rings with which the ports are shut fast, by lashing the port-bar to them. There are also shakles put upon bilbow-bolts, for confining the men who have deserved corporal punishment.

SHALE, a mineral that occurs among coal, and appears to be a mixture of clay and bitumen. It is in masses of a brownish black colour, has a straight slaty fracture. It emits a pale flame, and burns white.

SHALLOON, a slight woollen stuff, being a species of serge. It derives its appellation from the town of Chalons, in France, where the first specimens of the article were produced. At the present day, abundance of shalloons are manufactured in Northamptonshire, and other parts of England, as well as at Edinburgh. The Scotch shalloons are of peculiarly excellent quality. Shalloons are exported to Ireland, the North of Europe, and America.

SHALLOP, so called from the French *chaloupe*, is one of the boats belonging to a ship. It is particularly adapted for sailing in shoal water, and is therefore extremely useful in dangerous roads, &c.

SHAMBLES, among miners, a sort of niches, or landing-places, left at such distances in the adits of mines, that the shovelmen may conveniently throw up the ore from shamble to shamble, till it comes to the top of the mine.

SHAMMY, or Chamois Leather, (Ger. *Sämischleder*. Du. *Zeem*, *Zeemleêr*. Da. *Semslæder*. Sw. *Sämskläder*. Fr. *Chamois*. It. *Camoscio*. Sp. *Gamioza*. Port. *Camurça*. Rus. *Samschaniii*, *Koshi*. Pol. *Zamesz*, *Lesz*,) a kind of leather dressed either in oil, or tanned, and much esteemed for its softness, pliancy, and being capable of bearing soap without hurt.

The real shammy is prepared of the skin of the chamois-goat.

The true chamois leather is counterfeited with common goat, kid, and even sheep-skin; the practice of which makes a particular profession, called by the French *cha-*

moisure. The last is the least esteemed, yet so popular, and such vast quantities prepared, especially about Orleans, Marseilles, and Tholouse, that it may not be amiss to give the method of preparation.

The manner of chamoising, or of preparing sheep, goat, or kid-skins in oil, in imitation of chamois:

The skins being washed, drained, and smeared over with quick-lime, on the fleshy side, are folded in two, lengthwise, the wool outwards, and laid on heaps, and so left to ferment eight days; or if they had been left to dry after flaying, for fifteen days.

Then they are washed out, drained, and half-dried, laid on a wooden leg or horse, the wool stripped off with a round staff for the purpose, and laid in a weak pit, the lime whereof had been used before, and had lost the greatest part of its force.

After twenty-four hours they are taken out, and left to drain twenty-four more; then put into another strong pit. This done, they are taken out, drained, and put in again by turns; which begins to dispose them to take oil; and this practice they continue for six weeks in summer, or three months in winter; at the end whereof they are washed out, laid on the wooden leg, and the surface of the skin on the wool side peeled off, to render them the softer; then made into parcels, steeped a night in the river, in winter more; stretched six, or seven, over one another on the wooden leg; and the knife passed strongly on the fleshy side, to take off any thing superfluous, and render the skin smooth.

Then they are stretched, as before, in the river, and the same operation repeated on the wool side; then thrown into a tub of water with bran in it, which is brewed among the skins till the greatest part sticks to them; and then separated into distinct tubs, till they swell, and rise of themselves, above the water.

By these means, the remains of the lime are cleared out; they are then wrung out, hung up to dry on ropes, and sent to the mill, with the quantity of oil necessary to fill them: the best oil is that of stock-fish.

Here they are first thrown in bundles into the river for twelve hours, then laid in the mill-trough, and fulled without oil, till they are well softened; then oiled with the hand, one by one, and thus formed into parcels of four skins each, which are milled, and dried on cords a second time, then a third; then oiled again, and dried.

This process is repeated as often as necessity requires; when done, if there is any moisture remaining, they are dried in a stove, and made up in parcels wrapped up in wool; after some time they are opened to the air, but wrapped up again as before, till such time as the oil seems to have lost all its force, which it ordinarily does in twenty-four hours.

The skins are then returned from the mill to the chamoiser, to be scoured; which is done by putting them into a lixivium of wood-ashes, working and beating them in it with poles, and leaving them to steep till the lye has had its effect; then wrung out, steeped in another lixivium, wrung again, and this repeated till the grease and oil are purged out. They are then half dried, and passed over a sharp-edged iron instrument, placed perpendicularly in a block, which opens, softens, and makes them gentle: lastly, they are thoroughly dried, and passed over the same instrument again, which finishes the preparation, and leaves them in form of chamois.

Kid, and goat-skins, are chamoised in the same manner as those of sheep, excepting that the hair is taken off without the use of any lime; and that when brought from the mill they undergo a particular preparation called ramalling, the most delicate, and difficult, of all.

It consists in this, that as soon as brought from the mill they are steeped in a fit lixivium; taken out, stretched on a round wooden leg, and the hair scraped off with the knife; this makes them smooth, and in working cast a fine nap. The difficulty is in scraping them evenly.

The animal called the chamois, which yields the true skin, is extremely timid, and abounds in the department of the Isère, in France, as also in the Alpine and the Pyrenean mountains. The greater part of the real shammy-skins is prepared with oil, &c. in the towns of Grenoble, Geneva, Chambery, &c.

SHARPING-CORN, a customary gift of corn, said to be half a bushel for a plough-land, which the farmers pay in some parts of England to their smith, every Christmas, for sharping their plough-irons, harrow-tines, &c.

SHAWLS, (Ger. *Schalen.* Du. *Shawls.* Da. *Shawles.* Sw. *Shawlar.* Fr. *Chals, Chales, Shals.* It. *Shavali.* Sp. *Schavalos.* Port. *Chales.* Pol. *Schavales,*) a species of fine woollen handkerchief, forming an article of female dress.

The finest shawls are imported from the East Indies, where they are highly esteemed, and cost from fifty, to two hundred, guineas each; John Philip Knight, an ingenious manufacturer of Norwich, invented a method of making shawls, for which, in 1792, the Society for the Encouragement of Arts, &c. conferred on him their silver medal. The shawls of this manufacture are inferior only to those of India, though they are sold at one-twentieth part of the price. They are now made in Edinburgh to a large extent, and in several other places.

Cachemire, or Kosmir, a province in the late territories of the Great Mogul, is the grand seat of the manufacture of those beautiful shawls, which bear the name of this

province. Not only men and women, but children of an extremely tender age, are engaged in this fabric. The Cachemire shawls are usually made in pieces of a yard and a half long, and half a yard in breadth, and are embroidered, in the working, at each end. The Moguls, and the generality of the Orientals, as well male, as female, wear them on their heads during winter, rolled up in turban fashion, one end falling long, and gracefully, over the left shoulder. These shawls are of two sorts: those of the first sort are made from the wool of the country, which is finer than that of Spain; and those of the second sort from the wool, or rather hair, taken from the breasts of the wild goats, which inhabit Great Thibet. This kind of hair is called *towz*. The shawls of the second sort are much dearer than those of the first, no beaver being more delicate than they are; but the greatest care must be taken to open and air them frequently, as otherwise they will become a prey to worms. The Omrachz have some made on purpose, which cost 150 rupees, whereas those made from the wool of the country seldom sell at more than 50 rupees. Speaking of the shawls made in Patna, Agra, and Cahor, Bernier says, that the artisans of those places are unable to give their shawls that softness, and beauty of appearance, that we so much admire in those of Cachemire, perfections which he attributes to the peculiar quality of the water in the latter province. At Seringar, in Cachemire, there are above two thousand manufactories, in which the different processes of weaving, and dyeing, the shawls are constantly practised. The merchants of the country annually journey from mountain to mountain, for the purpose of buying up wools for the use of the manufacturers.

We procure the greater part of the Cachemire shawls used in this country, from Surat, where it is said a vast number of them are made from the Cachemire wool itself.

In Russia also are made shawls of very excellent quality, called Moscow-shawls.

SHEARS, (Ger. *Grosse Scheeren.* Du. *Groote schaaren.* Da. *Store saxe.* Sw. *Stora saxar.* Fr. *Forces.* It. *Forbici, Cesoje.* Sp. *Tijeras.* Port. *Tesouras,*) an appellation bestowed generally upon the largest sort of scissars, though, properly speaking, it is only applicable to the instruments used by sheep-shearers, clothiers, bookbinders, &c. The best shears are those made at Sheffield.

SHEATHING, in the sea-language, is the casing that part of a ship which is to be under water. This is done with fir-board of an inch thick; first laying hair and tar, mixed together, under the boards, and then nailing them on, in order to prevent worms from eating the ship's bottom. It is also usual to denominate the casing formed of copper (with which the bottoms of the West India ships, &c. are protected) by the same appellation.

SHEATS, in a ship, are ropes bent to the clews of the sails; serving in the lower sails to haul aft the clews of the sail; but in top-sails, they serve to haul home the clew of the sail, close to the yard-arm.

SHEEP. (Ger. *Schafe.* Du. *Schaapen.* Da. *Faar.* Sw. *Fär.* Fr. *Brebis, Bêtes à laine, Moutons.* It. *Pecore.* Sp. *Pecora, Ganado lanar, Ovejas.* Port. *Gado ovelhum, Ovelhas.* Rus. *Owzü.* Pol. *Owce, Stalek.* Lat. *Oves*). These well known and useful animals are, in more than one respect, of great importance to the trading part of the community, as well as to society in general. Their wool, skins, and flesh, and even their guts, constitute articles of most extensive traffic.

Of all the countries of Europe, Spain is most abundant in sheep, for clothiers' wool; but the English breeds of sheep have of late years undergone astonishing improvements, insomuch that the wool of some of them, is little, if at all, inferior to the best Segovian. *See articles* Agriculture, England, in *articles* EUROPE, and WOOL.

Sheep-skins, when dressed in the ordinary way, are used by glovers, breeches-makers, book-binders, &c.

The string generally called catgut, is, in part, the guts of sheep. Nor is any part of their carcase useless; for even their feet are dressed and sold under the name of *sheep's trotters.*

SHEERING, or Shearing, in the woollen manufacture, is the cutting off, with large shears, the too long nap, in order to make the cloth more smooth and even.

SHEERING, in the sea language. When a ship is not steered steadily, they say "she sheers," or "goes sheering," or, when at anchor, she goes in and out by means of the current of the tide, they also say, "she sheers."

SHEERS, in a ship, are two masts set across at the upper end of each other; a contrivance generally used for setting, or taking out, the masts of a ship, where there is no hulk to do that office.

SHEET ANCHOR, in a ship, is the largest anchor; which, in stress of weather, is the mariner's last refuge, when an uncommonly stiff gale of wind happens.

SHELF, among miners, the same with what they otherwise call *fast ground,* or *fast country;* being that part of the internal structure of the earth, which they find lying even, and in an orderly manner, and evidently having retained its primitive form and situation, unmoved by the waters of the general deluge, while the circumjacent and upper strata have been evidently disturbed.

SHELLAC, or Shel-lac, (Ger. *Schellack.* Du. *Schellak.* Da. *Skallak.* Sw. *Skällak.* Fr. *Lacque en feuilles.* It. *Lacca piana.* Sp. *Laca en tablillas.* Port. *Laca en folhas.* Lat. *Lacca in tabulis,*) the species of lac which has undergone a simple

purification, in the following manner: The common lac is broken into small pieces, and put into a canvas bag of about four feet long, and not above six inches in circumference. Two of these bags are in constant use, and each of them is held by two men. The bag is placed over the fire, and frequently turned, till the lac is liquid enough to pass through its pores; when it is taken off the fire, and twisted in different directions by the men who hold it, at the same time dragging it along the convex part of a plantain-tree prepared for this purpose; and while this is doing, the other bag is heating to be treated in the same way. By this process the lac is formed into thin transparent laminæ, which pass under the name of shell-lac. *See* LAC.

SHELON, a copper money of Poland and Prussia, equivalent to 7-45ths of a penny sterling.

SHERRY, a sort of Spanish wine, made in the vicinity of Xeres, a town of Andalusia, whence it receives its name, for Sherry is said to be a mere corruption of Xeres. There are not only dry, but sweet sherries; but the dry, however, are the most esteemed, more particularly when the face presents a pale straw-colour. There is something in its flavour, which partakes of the taste of leather. This is owing to the custom of bringing the wines down the country in large leather vessels, or, as the Spaniards call them, *boots*, whence we derive the term *butts*, which we bestow upon the casks in which we receive the wine. This flavour goes off with keeping; wherefore it is that no wine of this kind can be palatable till it be of a considerable age. The Sherry-wines are shipped for the most part at Cadiz; and are principally exported to England.

SHILLING, a silver coin, current in this country at twelve, and in Ireland at thirteen, pence. There is an imaginary money of the British West Indies, called a Shilling, which is reckoned at 8½*d* sterling.

SHINGLES, in building, are small pieces of wood, or quartered oaken boards, sawn to a certain scantling, or, as is more usual, cleft to about an inch thick at one end, and made like wedges, four or five inches broad, and eight or nine inches long.

Shingles are also used instead of tiles or slates, especially for churches or steeples; however, this covering is dear; yet where tiles are very scarce, and a light covering required, it is preferable to thatch; and where the shingles are made of good oak, cleft, and not sawed, and well seasoned in water and the sun, they make a sure, light, and durable, covering. The building is first to be covered all over with boards, and the shingles nailed upon them. Vast quantities of this article are annually exported from North America to the West Indies. *See* AMERICA.

SHIP, a general name for all large vessels, particularly those equipped with three masts and a bow-sprit; the masts being composed of a lower-mast, top-mast, and top-gallant mast: each of these being provided with yards, sails, &c.

SHIP, *of War*, is a vessel properly equipped with artillery, ammunition, and all the necessary martial weapons and instruments for attack or defence. They are distinguished from each other by their several ranks or rates, a specification of which will be found under the article RATE. Ships of war are fitted out either at the expense of the state, or by individuals. Those fitted out by the state are called king's ships, and are divided into ships of the line, frigates, sloops, &c. Ships of war fitted out by individuals are called privateers.

SHIP, *Hospital*, a vessel fitted up to attend on a fleet of men of war, and receive their sick, or wounded; for which purpose her decks should be high, and her ports sufficiently large. Her cables ought also to run upon the upper deck, to the end that the beds or cradles may be more commodiously placed between decks, and admit a free passage of the air to disperse that which is offensive or corrupted.

SHIP, *Merchant*, a vessel employed in commerce to carry commodities of various sorts from one port to another. The largest merchant-ships are those employed by the different companies of merchants who trade to the East Indies. They are in general larger than our 40-gun ships, and are commonly mounted with 20 guns on their upper-deck, which are nine-pounders; and six on their quarter-deck, which are six-pounders.

SHIP, *Store*, a vessel employed to carry artillery or naval stores for the use of a fleet, fortress, or garrison.

SHIP, *Transport*, is generally used to conduct troops from one place to another.

Besides the different kinds of ships above-mentioned, which are denominated from the purpose for which they are employed, vessels have also, in general, been named according to the different manner of rigging them. It would be an endless, and at the same time an unnecessary, task, to enumerate all the different kinds of vessels with respect to their rigging.

To ship, is either used actively, as to embark any person, or put any thing aboard ship; or passively, to put any thing into a ship; as, "we shipped a heavy sea at three o'clock in the morning."

To ship, also implies to fix any thing in its place; as, to ship the oars, that is, to put them in their rowlocks; to ship the swivel guns, is to fix them in their sockets: to ship the handspokes, &c.

Management of ships at single anchor, is the method of taking care of a ship while riding at single anchor in a tide-way, by preventing her from fouling her anchor, &c.

The following rules for this purpose will be found of the utmost consequence:

Riding in a tide-way, with a fresh of wind, the ship should have what is called a short or windward-service, say 45 or 50 fathoms of cable, and always sheered to windward, not always with the helm hard down, but more, or less, so according to the strength or weakness of the tide. It is a known fact, that many ships sheer their anchors home, drive on board of other ships, and on the sands near which they rode, before it has been discovered that the anchor had been moved from the place where it was let go.

When the wind is cross, or nearly cross, off shore, or in the opposite direction, ships will always back. This is done by the mizen-topsail, assisted, if needful, by the mizen-staysail; such as have no mizen-topsail commonly use the main-topsail, or if it blows fresh, a top-gallant sail, or any such sail at the gaff.

In backing, a ship should always wind with a tawt cable, that it may be certain the anchor is drawn round. In case there is not a sufficiency of wind for that purpose, the ship should be hove apeak.

Riding with the wind afore the beam, the yards should be braced forward; if abaft the beam, they are to be braced all aback.

If the wind is so far aft, that the ship will not back (which should not be attempted if, when the tide eases, the ship forges ahead, and brings the buoy on the lee quarter), she must be set ahead: if the wind is far aft, and blows fresh, the utmost care and attention are necessary, as ships riding in this situation often break their sheers and come to windward of their anchors again. It should be observed, that when the ship lies in this ticklish situation, the after-yards must be braced forward, and the fore-yards the contrary way; she will lie safe, as the buoy can be kept on the lee quarter; or suppose the helm is aport, as long as the buoy is on the larboard quarter. With the helm thus, and the wind right aft, or nearly so, the starboard main and fore braces should be hauled in. This supposes the main braces to lead forward.

When the ship begins to tend to leeward, and the buoy comes on the weather-quarter, the first thing to be done is to brace about the fore-yard; and when the wind comes near the beam, set the fore-staysail, and keep it standing until it shakes; then brace all the yards sharp forward, especially if it is likely to blow strong.

If lying in the aforesaid position, and she breaks her sheer, brace about the main-yard immediately; if she recovers, and brings the buoy on the lee, or larboard-quarter, let the main-yard be again braced about; but if she comes to a sheer the other way, by bringing the buoy on the other quarter, change the helm, and brace the fore-yard to.

Riding leeward tide with more cable than the windward service, and expecting the ship will go to windward of her anchor, begin, as soon as the tide eases, to shorten in the cable. This is often hard-work; but it is necessary to be done, otherwise the anchor may be fouled by the great length of cable the ship has to draw round; but even if that could be done, the cable would be damaged against the bows or cut-water. It is to be observed, that when a ship rides windward tide the cable should be cackled from the short service towards the anchor, as far as will prevent the bare part touching the ship.

When the ship tends to windward, and must be set ahead, hoist the fore-staysail as soon as it will stand; and when the buoy comes on the lee quarter, haul down the fore-staysail, brace to the fore-yard, and put the helm a-lee: for till then the helm must be kept a-weather and the yards full.

When the ship rides leeward tide, and the wind increases, care should be taken to give her more cable in time, otherwise the anchor may start, and probably it will be troublesome to get her brought up again; and this care is the more necessary when the ship rides in the hause of another ship. Previous to giving a long service, it is usual to take a weather-bit, that is, a turn of the cable over the windlass end, so that in veering away the ship will be under command. The service ought to be greased, which will prevent its chafing in the hause.

If the gale continue to increase, the top-masts should be struck in time; but the fore-yard should seldom, if ever, be lowered down, that in case of parting, the foresail may be ready to be set. At such times there should be more on deck than the common anchor-watch, that no accident may happen from inattention, or falling asleep.

In a tide-way a second anchor should never be let go but when absolutely necessary; for a ship will sometimes ride easier and safer, especially if the sea runs high, with a very long scope of cable, and one anchor, than with less length, and two cables; however, it is advisable, as a preventive, when ships have not room to drive, and the night is dark, to let fall a second anchor under foot, with a range of cable along the deck. If this is not thought necessary to be done, the deep-sea lead should be thrown overboard, and the line frequently handed by the watch, that they may be assured she rides fast.

SHIP-BUILDING. The pieces by which this complicated machine, a ship, is framed, are joined together in various places, by scarfing, rabitting, tenanting, and scoring.

During the construction of a ship, she is supported in the dock, or upon a wharf, by a number of solid blocks of timber placed at equal distance from, and parallel to, each other. She is then said to be on the stocks.

The first piece of timber laid upon the

blocks is generally the keel: we say generally, because of late, a different method has been adopted in some of the royal dock-yards, by beginning with the floor timbers; the artists having found that the keel is often apt to rot during the long period of building a large ship of war. The pieces of the keel are scarfed together, and bolted, forming one entire piece, which constitutes the length of the vessel below. At one extremity of the keel is erected the stem. It is a strong piece of timber incurvated nearly into a circular arch, or, according to the technical term, compassing, so as to project outwards at the upper end, forming what is called the rake forward. In small vessels this is framed of one piece; but in large ships it is composed of several pieces scarfed and bolted together. At the other extremity of the keel is elevated the stern-post, which is always of one entire straight piece.

The heel of it is let into a mortoise in the keel, and having its upper end to hang outwards, making an obtuse angle with the keel, like that of the stem: this projection is called the rake abaft. The stern-post, which ought to support the stern, contains the iron-work, or hinges of the rudder, which are called googings, and unites the lower part of the ship's sides abaft.

Towards the upper end of the stern-post, and at right angles with its length, is fixed the middle of the wing-transom, where it is firmly bolted. Under this is placed another piece parallel thereto, and called the deck-transom, upon which the after-end of the lower deck is supported. Parallel to the deck-transom, and at a proper distance under it, another piece is fixed to the stern-post called the first-transom; all of which serve to connect the stern-post to the fashion-pieces. Two more transoms, called second and third, are also placed under these, being likewise attached to the fashion-pieces, into which the extremities of all the transoms are let. The fashion-pieces are formed like the other timbers of the ship, and have their heels resting on the upper part of the kelson, at the after extremity of the floor ribbands.

All these pieces, viz. the transoms, the fashion-pieces, and their top-timbers being strongly united into one frame, are elevated upon the stern-post; and the whole forms the structure of the stern, upon which the galleries and windows, with their ornaments, are afterwards built.

The stem and stern-post being thus elevated upon the keel, to which they are securely connected by knees and arched pieces of timber bolted to both; and the keel being raised at its two extremities by pieces of dead wood, the midship floor timber is placed across the keel, whereto it is bolted through the middle. The floor-timbers before and abaft the midship frame are then stationed in their proper places upon the keel; after which the kelson, which, like the keel, is composed of several pieces scarfed together, is fixed across the middle of the floor-timbers, to which it is attached by bolts driven through the keel, and clinched on the upper part of the kelson. The futtocks are then raised upon the floor-timbers, and the hawse pieces erected upon the cant-timbers in the fore part of the ship. The top-timbers on each side are next attached to the head of the futtocks, as already explained. The frames of the principal timbers being thus completed, are supported by ribbands.

The ribs of the ship being now stationed, they proceed to fix on the planks, of which the wales are the principal, being much thicker and stronger than the rest. The harpins, which may be considered as a continuation of the wales at their fore ends, are fixed across the hawse pieces, and surround the fore part of the ship. The planks that inclose the ship's sides are then brought about the timbers; and the clamps, which are of equal thickness with the wales, fixed opposite to the wales within the ship: these are used to support the ends of the beams, and accordingly stretch from one end of the ship to the other. The thick-stuff, or strong planks of the bottom within board, are then placed opposite to the several scarfs of the timbers, to reinforce them throughout the ship's length. The planks employed to line the ship, called the ceiling, or foot-waling, is next fixed in the intervals between the thick stuff of the hold. The beams are afterwards laid across the ship to support the decks, and are connected to the side by lodging and hanging knees.

The cable bits being next erected, the carlings, and ledges, are disposed between the beams to strengthen the deck. The waterways are then laid on the ends of the beams throughout the ship's length, and the spriketting fixed close above them. The upper deck is then planked, and the string placed under the gunnel or plansheer in the waist.

They proceed next to plank the quarter-deck and fore-castle, and to fix the partners of the masts and capsterns with the coamings of the hatches. The breast-hooks are then bolted across the stem and bow within-board; the step of the foremast placed on the kelson; and the riders fayed on the inside of the timbers, to reinforce the sides in different places of the ship's length. The pointers, if any, are afterwards fixed across the hold diagonally to support the beams; and the crotchets stationed in the after-hold to unite the half-timbers. The steps of the main-mast and capsterns are next placed; the planks of the lower-decks and orlop laid; the navel-hoods fayed on the hawse-holes; and the knee of the head, or cut-water, connected to the stem. The figure of the head is then erected, and the trail-board and checks are fixed on the sides of the knee.

The taffarel and quarter-pieces, which terminate the ship abaft, the former above, and the latter on each side, are then disposed; and the stern and quarter-galleries framed and supported by their brackets. The pumps, with their well, are next fixed in the hold; the limber-boards laid on each side of the kelson; and the garboard strake fixed on the ship's bottom next to the keel without.

The hull being thus fabricated, they proceed to separate the apartments by bulkheads, or partitions; to frame the portlids; to fix the cat heads and chess-trees; to form the hatchways and scuttles, and fit them with proper covers or gratings. They next fix the ladders whereby to mount or descend the different hatchways; and build the manger on the lower deck, to carry off the water that runs in at the hawse-holes when the ship rides at anchor in a sea. The bread-room and magazines are then lined; and the gunnel, rails, and gangways, fixed on the upper part of the ship. The cleats, kevels, and rand ranges, by which the ropes are fastened, and afterwards bolted or nailed to the sides in different places.

The rudder, being fitted with its irons, is next hung to the stern-post; and the tiller, or bar, by which it is managed, let into a mortoise at its upper end. The scuppers, or leaden tubes, that carry the water off from the decks, are then placed in holes cut through the ship's sides; and the standards bolted to the beams and sides above the decks to which they belong. The poop-lanthorns are last fixed upon their cranes over the stern; and the bilge-ways, or cradles, placed under the bottom, to conduct the ship steadily into the water whilst launching.

Stowing and trimming of ships, the method of disposing of the cargo in a proper and judicious manner in the hold of a ship. A ship's sailing, steering, and wearing, and being lively, and comparatively easy at sea in a storm, depend greatly on the cargo, ballast, or other materials, being properly stowed, according to their weight and bulk, and the proportional dimensions of the built of the ship, which may be made too crank or too stiff to pass on the ocean with safety.

These things render this branch of knowledge of such consequence, that rules for it ought to be endeavoured after, if but to prevent, as much as possible, the danger of a ship oversetting at sea, or being so laboursome as to roll away her masts, &c. by being improperly stowed, which is often the case.

When a ship is new, it is prudent to consult the builder, who may be supposed best acquainted with a ship of his own planning, and most likely to ascertain what her properties will be, to judge how the cargo of materials, according to the nature of them, ought to be disposed of to advantage, so as o put her in the best sailing trim; and at every favourable opportunity afterwards, it will be proper to find out her best trim by experiment.

Ships must differ in their form and proportional dimensions; and to make them answer their different purposes, they will require different management in the stowage, which ought not to be left to mere chance, or done at random, as goods or materials happen to come to hand, which is too often the cause that improper stowage makes ships unfit for sea: therefore the stowage should be considered, planned, and contrived, according to the built and properties of the ship, which, if they are not known should be inquired after. If she be narrow, and high-built in proportion, so that she will not shift herself without a great weight in the hold, it is a certain sign that such a ship will require a great part of heavy goods, ballast, or materials, laid low in the hold, to make her stiff enough to bear sufficient sail without being in danger of oversetting. But if a ship be built broad, and low in proportion, so that she is stiff and will support herself without any weight in the hold, such a ship will require heavy goods, ballast, or materials, stowed higher up, to prevent her from being too stiff at sea, so as to endanger her masts being rolled away, and the hull worked loose and made leaky.

In order to help a ship's sailing, that she should be lively and easy in her pitching, and ascending, motions, it should be contrived by the stowage, that the principal and weightiest part of the cargo or materials, should lie as near the main body of the ship, and as far from the extreme ends, fore and aft, as things will admit of. For it should be considered, that the roomy part of our ships lengthwise, forms a sweep or curve near four times as long as they are broad; therefore those roomy parts at, and above, the water's edge, which are made by a full harping, and a broad transom to support the ship steady, and keep her from plunging into the sea, and also, by the entrance and run of the ship having little, or no, bearing body under for the pressure of the water to support them, of course should not be stowed with heavy goods or materials, but all the necessary vacancies, broken stowage, or light goods, should be at these extreme ends, fore, and aft; and in proportion as they are kept lighter by the stowage, the ship will be more lively to fall, and rise, easy in great seas; and this will contribute greatly to her working and sailing, and to prevent her from straining and hogging; for which reason it is a wrong practice to leave such a large vacancy in the main hatchway as is usual, to coil and work the cables, which ought to be in the fore, or aft, hatchway, that the principal weight may be more easily stowed in the main body of the ship, above the flattest and lowest floorings, where the pressure of the water acts the more to support it.

SHIPS, *Masts of.* The mast of a ship is a long round piece of timber, elevated perpendicularly upon the keel of a ship, to which are attached the yards, the sails, and the rigging. A mast, with regard to its length, is either formed of one single piece, which is called a pole-mast, or composed of several pieces joined together, each of which retains the name of mast separately. The lowest of these is accordingly named the lower-mast; the next in height is the top-mast, which is erected at the head of the former; and the highest is the top-gallant mast, which is prolonged from the upper end of the top-mast. Thus the two last are no other than a continuation of the first upwards.

The lower mast is fixed in the ship; the foot, or heel of it, rests on a block of timber called the step, which is fixed upon the kelson, and the top-mast is attached to the head of it by the cap, and the trestle-trees. The latter of these are two strong bars of timber, supported by two prominences, which are as shoulders on the opposite sides of the mast, a little under its upper end: athwart these bars are fixed the cross-trees, upon which the frame of the top is supported. Between the lower-mast-head, and the foremost of the cross-trees, a square space remains vacant, the sides of which are bounded by the two trestle-trees. Perpendicularly above this is the foremost hole in the cap, whose after-hole is solidly fixed on the head of the lower-mast. The top-mast is erected by a tackle, whose effort is communicated from the head of the lower-mast to the foot of the top-mast; and the upper end of the latter is accordingly guided into, and conveyed up through, the holes between the trestle-trees and the cap.

Besides the parts already mentioned in the construction of masts, with respect to their length, the lower-masts of the largest ships are composed of several pieces united into one body. As these are generally the most substantial parts of various trees, a mast formed by this assemblage, is justly esteemed much stronger than one consisting of any single trunk, whose internal solidity may be very uncertain.

The whole is secured by several strong hoops of iron, driven on the outside of the mast, where they remain at proper distances.

The principal articles to be considered in equipping a ship with masts are, 1, the number; 2, their situation in the vessel; and 3, their height above the water.

The masts being used to extend the sails by means of their yards, it is evident that, if their number were multiplied beyond what is necessary, the yards must be extremely short, that they may not entangle each other in working the ship, and by consequence their sails will be very narrow, and receive a small portion of wind. If, on the contrary, there be not a sufficient number of masts in the vessel, the yards will be too large and heavy, so as not to be managed without difficulty. There is a mean between these extremes, which experience, and the general practice of the sea, have determined; by which it appears, that in large ships every advantage of sailing is retained by three masts and a bowsprit.

The most advantageous position of the masts is undoubtedly that, from whence there results an equilibrium, between the resistance of the water on the body of the ship on one part, and of the direction of their effort on the other. By every other position this equilibrium is destroyed, and the greatest effort of the masts will operate to turn the ship horizontally about its direction; a circumstance which retards her velocity. It is counterbalanced indeed by the helm; but the same inconvenience still continues; for the force of the wind, having the resistance of the helm to overcome, is not entirely employed to push the vessel forward. The axis of the resistance of the water should then be previously determined, to discover the place of the mainmast, in order to suspend the efforts of the water equally, and place the other masts so that their particular direction will coincide with that of the main-mast. The whole of this would be capable of a solution, if the figure of the vessel was regular, because the point about which the resistance of the water, would be in equilibrio, might be discovered by calculation.

The exact height of the masts, in proportion to the form, and size, of the ship, remains yet a problem to be determined. The more the masts are elevated above the centre of gravity, the greater will be the surface of sail which they are enabled to present to the wind; so far an additional height seems to have been advantageous. But this advantage is diminished by the circular movement of the mast, which operates to make the vessel stoop to its effort; and this inclination is increased in proportion to the additional height of the mast, an inconvenience which it is necessary to guard against. Thus, what is gained upon one hand is lost upon the other. To reconcile these differences, it is certain that the height of the mast ought to be determined by the inclination of the vessel, and that the point of her greatest inclination should be the term of this height above the centre of gravity, In order to secure the masts and counterbalance the strain they receive from the effort of the sails impressed by the wind, and the agitation of the ship at sea, they are sustained by several strong ropes, extended from their upper ends to the outside of the vessel, called the shrouds. These are further supported by other ropes, stretched from their heads towards the fore part of the vessel.

The mast, which is placed in the middle of the ship's length, is called the main-mast;

that which is placed in the fore-part, the fore-mast; and that which is towards the stern, is termed the mizen-mast. *See* MAST.

SHIPPING AND TRADE. The earliest statute on this subject, which we shall notice here, is the 5 Rich. 2. c. 3. by which it was ordained that "none of the king's liege people should ship any merchandise into, or out of, the kingdom, but only, *in ships of his majesty's licence*, on pain of forfeiture. Such were the rudiments of that code of laws, by which the English navy, and English commerce, have been brought to the state, in which we have to contemplate them in this volume.

The *general* subject of *navigation* has been sufficiently treated under *that* title; to this more particularly belong the consideration of *shipping* abstractedly, and some notice of the system of laws relating to the prohibitions, and protections, which attach to our shipping.

First, then, respecting our shipping abstractedly. By 28 Edw. 3. c. 13. "no shipping fraught toward England or elsewhere, shall be compelled to come into any particular port; and in whatever port they enter, the master, mariners, and merchants *shall part with what pleaseth them of their goods, and after paying custom thereof may freely depart with the remainder.* By the statutes of Car. 2. (*see ante, title* NAVIGATION,) and subsequent ones, these privileges are abridged, and regulated, so far as is necessary for better securing the duties of customs, especially by 6 Geo. 1. c. 21. If a ship now have taken goods for several ports of this country upon his arrival at the first port, report must be made there of the whole cargo, in like manner as if it were all to be *there* delivered, distinguishing the particular sorts of goods to be delivered at each port. And by 5 Geo. 3. c. 43. goods found concealed without entry, &c. shall be forfeited.

By 19 Geo. 3. c. 48. every vessel coming from foreign parts within the limits of the port of London, which shall be removed *out of the stream*, except to the lawful quays, before all the goods are discharged; or, if outward bound with goods aboard, shall be so removed out of the stream, except to the lawful quays or by accident, &c. without consent of commissioners of customs, the master shall forfeit 100*l.* (with the exception of vessels passing between England and Ireland, by 51 Geo. 3. c. 24.)

Cutters, luggers, shallops, and wherries, belonging in whole, or in part, to any of his majesty's subjects, are prohibited, under pain of forfeiture, from being built, rigged, or fitted otherwise than as directed by 24 Geo. 3. c. 47., 27 Geo. 3. c. 32., 38 Geo. 3. c. 33. By 47 Geo. 3. c. 66. and 48 Geo. 3. c. 84., the number of persons by whom such vessels are to be navigated, is regulated in proportion to the tonnage of such vessels respectively; and disobedience incurs a forfeiture. The reasons for these regulations having been adopted were to prevent smuggling; wherefore by the later statutes of this reign above enumerated, a power is vested in the commissioners of customs to grant licences to certain of these vessels before described (notwithstanding the general prohibitions), though otherwise built, &c. than as the statutes prescribed, for navigating in the course of lawful trade. For more information on this portion of the subject, we refer the reader to cases in Anstruther's Exchequer Rep. and *post.* SMUGGLING.

Secondly, respecting the course of *trade* carried on by our shipping, with the different countries of the world. This head of discussion naturally resolves itself into three distinct branches, viz. 1st, the trade of Great Britain with her own colonies and dependencies; 2dly, her trade with foreign countries not under her jurisdiction or control; and 3dly, the trade permitted by her to be carried on directly between such colonies or dependencies, and such foreign countries.

Immense in quantity, and diversified in matter, as the laws relating to this complicated subject, with all their concomitants of duties, drawbacks, bounties, prohibitions, &c. &c. present themselves, it has been found entirely impracticable to reduce the substance of them into any state of abridgment which would be sufficiently comprehensive to be useful, and at the same time admissible into a work of this kind. It has been thought best, therefore, to give a correct enumeration of the several statutes immediately connected with this part of the subject, which have been enacted from a period so early as the reign of Edward III. specifying the particular object, or objects, to which they are respectively applicable: by these means every individual subject of commercial enquiry may be traced in its progress, from the first and fundamental provision respecting it, through all its successive amendments, alterations, and collateral bearings, to its most recent and most minute regulation, modification, or adjustment.

27 Edw. 3. c. 19. Forfeitures.
31 Edw. 3. st. 2. c. 1. Fisheries.
——— st. 3. Ditto.
35 Edw. 3. st. 1. Ditto.
38 Edw. 3. c. 8. Forfeitures.
42 Edw. 3. c. 8. Ships of Gascony
5 Rich. 2. st. 1. c. 3. English ships.
6 Rich. 2. c. 8. Ditto.
——— c. 10, 11. Fisheries.
14 Rich. 2. c. 6. English ships.
3 Edw. 4. c. 1. Foreign ships.
1 Hen. 7. c. 8. Gascony wine.
4 Hen. 7. c. 10. Thoulouse woad.
7 Hen. 8. c. 2. Licences declared void.
23 Hen. 8. c. 7. To continue 5 Rich. 2.
25 Hen. 8. c. 4. Fisheries.
32 Hen. 8. c. 14. Price of freight.
33 Hen. 8. c. 2. Fisheries.

2 & 3 Edw. 6. c. 6. Fisheries.
5 & 6 Edw. 6. c. 18. Wines of France.
1 Eliz. c. 13. Repeals 5 Rich. 2. and 4 Hen. 7.
5 Eliz. c. 13. Export of corn.
——— c. 5. Constitutions for the Navy.
13 Eliz. c. 11. Fisheries.
——— c. 15. English hoys.
23 Eliz. c. 7. Engrossing fish.
27 Eliz. c. 15. Ditto.
39 Eliz. c. 10. Ditto.
1 Jac. 1. c. 23. Pilchard fishery.
3 Jac. 1. c. 12. Ditto.
12 Car. 2. c. 18. Act of navigation.
12 Car. 2. c. 34. Planting tobacco.
13 & 14 Car. 2. c. 11. Act of frauds.
15 Car. 2. c. 7. Act of trade.
18 Car. 2. c. 2. Herring, cod, &c.
22 & 23 Car. 2. c. 26. Ireland, tobacco.
25 Car. 2. c. 6. Export of fish.
25 Car. 2. c. 7. Plantation goods, &c.
32 Car. 2. c. 2. Stock fish and eels.
1 Jac. 2. c. 18. Coasting vessels.
2 Will. & Mary, st. 1. c. 9. Thrown silk.
7 & 8 Will. 3. c. 22. Plantation trade and registering.
9 & 10 Will. 3. c. 26. African trade.
9 & 10 Will. 3. c. 44. East India company.
10 & 11 Will. 3. c. 6. Russia company.
——— c. 24. Fish in foreign ships.
——— c. 25. Newfoundland.
1 Ann. st. 1. c. 12. Hungary wines.
3 & 4 Ann. c. 5. Rice and molasses.
——— c. 8. Irish linens.
5 Ann. c. 8. Act of union.
6 Ann. c. 37. Manning of British ships.
7 Ann. c. 8. Jesuits'-bark.
9 Ann. c. 21. South Sea company.
1 Geo. 1. st. 2. c. 18. Fish bought of foreigners.
5 Geo. 1. c. 18. Salt fish exported.
——— c. 21. East India company.
6 Geo. 1. c. 14. Raw silk and mohair.
——— c. 15. Timber from Germany.
7 Geo. 1. st. 1. c. 21. East India company.
8 Geo. 1. c. 12. Coffee and other enumerated goods.
——— c. 18. Copper ore.
11 Geo. 1. c. 30. Tea from Holland.
13 Geo. 1. c. 5. Salt to Pennsylvania.
——— c. 15. Cochineal.
3 Geo. 2. c. 12. Salt to New York.
——— c. 28. Rice.
4 Geo. 2. c. 15. Non-enumerated goods to Ireland.
4 Geo. 2. c. 18. Mediterranean passes.
5 Geo. 2. c. 19. Hops from plantations to Ireland.
6 Geo. 2. c. 33. Greenland.
7 Geo. 2. c. 18. Indigo.
8 Geo. 2. c. 19. Rice.
9 Geo. 2. c. 33. Mediterranean duty.
——— c. 35. Hovering.
12 Geo. 2. c. 30. Sugars to Europe.
13 Geo. 2. c. 3. Foreign seamen.
14 Geo. 2. c. 36. Persian silks.
15 Geo. 2. c. 31. Registering of ships.
——— c. 31. Plantation bonds.
——— c. 33. Sugars to Europe.
17 Geo. 2. c. 36. Foreign-owned ships.
20 Geo. 2. c. 45. Prize ships.
22 Geo. 2. c. 45. Greenland.
23 Geo. 2. c. 24. British fisheries.
——— c. 31 African trade.
25 Geo. 2. c. 32. Gum senega.
——— c. 40. African trade.
26 Geo. 2. c. 18. Turkey company.
28 Geo. 2. c. 14. British Fishery.
30 Geo. 2. c. 30. Ditto.
2 Geo. 3. c. 24. Salt to Nova Scotia.
4 Geo. 3. c. 15. American act.
——— c. 19. Salt to Quebec.
——— c. 20. African trade.
——— c. 27. Rice.
5 Geo. 3. c. 30. Coarse calicoes.
——— c. 39. Isle of Man.
——— c. 44. African trade.
——— c. 45. American act.
6 Geo. 3. c. 49. Free ports.
——— c. 52. Plantation bonds, cotton-wool.
7 Geo. 3. c. 2. Plantations, Ireland.
——— c. 45. Isle of Man.
9 Geo. 3. c. 28. European goods to the plantations.
11 Geo. 3. c. 31. British fishery.
——— c. 38. Whale fishery.
13 Geo. 3. c. 26. British ships.
——— c. 72. Salt fish.
14 Geo. 3. c. 19. Boston harbour.
15 Geo. 3. c. 10. Restraining act.
——— c. 18. Ditto.
——— c. 31. Newfoundland.
——— c. 35. Goat skins.
16 Geo. 3. c. 5. Prohibitory act.
——— c. 47. Southern whale fishery.
17 Geo. 3. c. 7. Letters of marque.
18 Geo. 3. c. 55. Ireland, plantations
——— c. 56. Irish shipping.
19 Geo. 3. c. 9. Organzined silk.
——— c. 48. Of manufacturing.
20 Geo. 3. c. 10. Ireland, plantations.
——— c. 45. Foreign-owned ships.
——— c. 60. Greenland.
21 Geo. 3. c. 19. Flax-seed.
——— c. 27. Jesuits'-bark.
——— c. 62. Orchilla weed.
22 Geo. 3. c. 19. Greenland.
——— c. 78. Austrian Netherlands.
23 Geo. 3. c. 1. Corn and grain.
——— c. 9. Indian corn.
——— c. 26. Repeal of the prohibitory acts.
——— c. 39. Intercourse with America.
——— c. 65. African company.
24 Geo. 3. c. 16. Aliens' duty.
——— c. 45. Intercourse with America.
25 Geo. 3. c. 1. Newfoundland supply.
——— c. 58. Pilchard fishery.
——— c. 65. Herring fisheries.

26 Geo. 3. c. 26. Newfoundland fishery.
——— c. 41. Greenland fishery.
——— c. 45. Pilchard fishery.
——— c. 50. Southern whale fishery.
——— c. 60. Registering act.
——— c. 81. Herring fishery.
27 Geo. 3. c. 7. Intercourse with America.
——— c. 10. Herring fishery.
——— c. 13. Consolidation act.
——— c. 19. Morocco goods, registering, &c.
——— c. 27. Free port act.
28 Geo. 3. c. 5. Intercourse with America.
——— c. 6. Intercourse between the Colonies and America.
——— c. 35. Newfoundland fishery.
29 Geo. 3. c. 16. United States, Quebec, bread, &c.
——— c. 53. Newfoundland, Greenland, and Southern whale fishery.
30 Geo. 3. c. 8. United States, Quebec, neat cattle, &c.
——— c. 29. Countries bordering on Quebec.
31 Geo. 3. c. 38. Timber from South America.
——— c. 55. Sierra Leone company.
33 Geo. 3. c. 50. South America, United States, Nova Scotia.
33 Geo. 3. c. 63. Ireland, plantation goods.
34 Geo. 3. c. 35. Indemnity, West Indies.
——— c. 68. Registering of ships, &c.
35 Geo. 3. c. 15, c. 80. Dutch property acts.
——— c. 92. Southern whale fishery.
——— c. 115. East India trade, foreign ships.
36 Geo. 3. c. 76. Neutral ship act.
——— c. 112. Ships, British, repurchased.
37 Geo. 3. c. 21. Cape of Good Hope.
——— c. 63. Alien merchants, surrendered ships.
——— c. 97. American treaty.
——— c. 117. East India trade, foreign ships.
——— c. 121. Southern whale fishery.
38 Geo. 3. c. 57. Southern whale fishery.
39 Geo. 3. c. 112. Neutral ship act.
39 & 40 Geo. 3. c. 34. War act, 1793.
——— c. 51. Greenland, oil.
41 Geo. 3. c. 95. United States, Ireland.
——— c. 103. Trade of Malta.
42 Geo. 3. c. 18. Southern whale fishery.
——— c. 61. Registering, Ireland.
——— c. 77. Southern whale fishery.
——— c. 80. Neutral ship act.
43 Geo. 3. c. 64. Foreign seamen.
——— c. 153. War act, 1803.
44 Geo. 3. c. 29. Hides, tallow, goat-skins.
——— c. 101. Exuma, salt,
45 Geo. 3. c. 32. Ships, foreign, surrendered.
——— c. 33. Indemnity, neutral trade.
——— c. 34. War act, 1803.
——— c. 57. Free port act.
45 Geo. 3. c. 96. Southern whale fishery.
46 Geo. 3. c. 9. Greenland fishery, complement.
——— c. 29. Newfoundland, oil, blubber.
——— c. 30. Cape of Good Hope.
——— c. 53. Indemnity, West Indies.
——— c. 72. Tortola, free port.
——— c. 74. Prussian yarn.
——— c. 103. Newfoundland, salted fish.
——— c. 111. Intercourse, West Indies.
——— c. 116. Malta, Gibraltar, fisheries.
——— c. 117. Importation of timber for naval purposes from British America, duty free.
——— c. 121. Importation of arms and ammunition, the manufacture of Ireland.
——— c. 137. Warehousing certain goods at certain extra out-ports.
47 Geo. 3. sess. 1. c. 7. Reciprocal trade in corn between England and Ireland, duty free.
——— c. 9. Wool may be exported to Lower Canada.
——— c. 22. Additional duty on double-refined sugar.
——— c. 23. Trade of South Sea Company restrained.
——— c. 25. Repeal of certain acts respecting tobacco imported from Turkey.
——— c. 48. Affidavits in America and West Indies respecting goods to be shipped for Great Britain or Ireland.
——— sess. 2. c. 27. Importation of timber, pitch, tar, hemp, &c. from foreign kingdoms, with licence, by order of council.
——— c. 30. Foul salt in vessels arriving in Great Britain to be thrown overboard.
——— c. 34. Goods importable into, and exportable from, the islands of Trinidad and Curaçoa, in the West Indies.
——— sess. 2. c. 44. Sierra Leone Company divested of territory.
——— c. 49. Exportation of fullers' earth and tobacco-pipe-clay.
——— c. 58. British and Irish salt exportable from Ireland in vessels of certain burthen.
——— c. 61. Countervailing duties.
——— c. 64. Bounties on articles of trade to Malta.
——— c. 65. Goods sold for duties to West India Dock Company, exempt from auction duty.
——— c. 66. Smuggling.
48 Geo. 3. c. 12. Bounty on raw sugar exported not allowed but under certain circumstances.
——— c. 22. Import of wool from plantations to Great Britain.
——— c. 44. Wool exported from Great Britain to Ireland.

48 Geo. 3. c. 67. Copper-duties, &c. on importation, &c.

——— c. 84. Vessels rigged, &c. as luggers, of certain tonnage to be licensed to fish or carry on trade.

——— c. 110. Bounties on vessels employed in deep sea white herring fishery.

——— c. 117. Drawbacks on printed silk goods exported from Great Britain.

——— c. 119. Duties on spirits imported in Great Britain, above proof.

——— c. 120. Coffee to be imported and exported only in packages of certain weights.

——— c. 125. Certain articles may be imported on certain conditions into certain British settlements in the Atlantic from any part of America.

——— c. 130. Adjustment of salvage.

49 Geo. 3. c. 16. Rum imported into Lower Canada.

——— c. 17. Trade of the Cape of Good Hope.

——— c. 18. Wool imported from British colonies.

——— c. 20. Shipping of coffee, &c. from British West India islands.

——— c. 22. Imports and exports from ports in Jamaica.

——— c. 25. How unmanufactured tobacco may be imported from any port.

——— c. 27. Territories subject to the government of Newfoundland.

——— c. 34. Registry of prize-vessels at Malta.

——— c. 43. Duties of customs, in taking the average of price on Muscovado sugars.

——— c. 46. Oaths of officers respecting duties of customs in America and West Indies.

——— c. 49. Exportation of fullers' earth and tobacco-pipe-clay.

——— c. 59. Importation of goods from United States of America.

——— c. 62. Vessels trading under licence from commissioners of customs, not conforming.

——— c. 65. Fines for offences against customs cognizable by justices.

——— c. 81. Salt for exportation, warehoused at certain ports, deficient, punishable by excise.

——— c. 98. Duties and drawbacks—new regulations respecting.

——— c. 106. Warehousing system.

——— c. 107. Seizures for forfeitures in British plantations, how to be prosecuted.

——— c. 122. Salvage, regulations respecting.

50 Geo. 3. c. 10. Coffee exported

——— c. 11. Whale fishery bounties.

——— c. 21. Certain goods may be imported in certain vessels with one deck or more, from America and West Indies, under certain regulations.

50 Geo. 3. c. 26. Linen, duties on exportation of.

——— c. 40. Duties on brimstone for preparing oil of vitriol.

——— c. 41. Smuggled goods sold by hawking.

——— c. 42. Isle of Man, entry, landing, and shipping of goods.

——— c. 53. Malt imported into Great Britain from Ireland.

——— c. 55. Foreign silks, crapes, and tiffanies prohibited.

——— c. 60. Warehoused salt at Bristol, for exportation.

——— c. 62. Smuggling: Isle of Man.

——— c. 64. Moving of bonded goods from one port to another.

——— c. 77. Wood, duties and drawbacks on.

——— c. 86. Vessels: East Indies.

——— c. 107. Military cloathing, &c. may be exported duty free.

——— c. 207. Rotherhithe docks, what articles may be laden or unladen.

51 Geo. 3. c. 14. Linens, British and Irish, bounty on.

——— c. 24. Vessels of certain built (before forfeited) exempted under certain circumstances.

——— c. 31. Copper imported, duties on.

——— c. 32. Bristol docks, regulations for.

——— c. 34. Premiums to Southern whalers.

——— c. 43. Timber and deals used in mines of Devon and Cornwall.

——— c. 44. Linen imported, duties, &c. on.

——— c. 46. Quarantine.

——— c. 48. Rum, how to be imported into Canada from certain other British possessions on the coast of America.

——— c. 50. Licences for exporting sheep to the Isle of Man.

——— c. 58. Chocolate, not to be imported, &c.

——— c. 62. Rum may be exported from Bermuda to certain British possessions on coast of America.

——— c. 66. Dues for dockage of vessels in Rotherhithe docks.

——— c. 67. Hides, duties on importation of.

——— c. 68. Verdegris, duties on importation of.

——— c. 69. Glass, fraudulently entering for exportation.

——— c. 75. East India Company shipping.

——— c. 82. Salt shipped coastwise.

——— c. 83. Drawback on coals used in tin and copper mines, &c. of Cornwall and Devon.

——— c. 87. Tobacco exported.

——— c. 93. Drawback on wood used in mines of Devon and Cornwall.

51 Geo. 3. c. 96. Seizures may be restored by commissioners of customs.

——— c. 97. Regulation of trade between ports south of Cape Finisterre, and British colonies in America and West Indies.

——— c. 101. Bounties to busses, &c. in white herring fishery.

——— c. 143. Liverpool dock dues.

——— c. 171. Rotherhithe dock dues

52 Geo. 3. c. 9. Coals, clearing vessels of.

——— c. 18. Bark, when to be imported.

——— c. 35. Intercourse with St. Domingo.

——— c. 39. Pilots, regulation of.

——— c. 42. Pilchard fishery, bounties.

——— c. 53. Coffee imported, sold by auction.

——— c. 55. Inland navigation and land-carriage between Lower Canada and United States prohibited.

——— c. 59. Plate exported, drawback on.

——— c. 77. Glass exported, drawback on.

——— c. 79. Sugar and coffee, Bermuda.

——— c. 89. Copper imported, duties and drawbacks.

——— c. 94. Tobacco exported, drawbacks.

——— c. 98. Sugar, coffee, and cocoa, trade in, South of Cape Finisterre.

——— c. 99. Trade of Bahama islands.

——— c. 100. Trade in European goods between British West Indies and British America.

——— c. 105. Duties, drawbacks, bounties and premiums.

——— c. 106. Rum imported into Newfoundland, duty on.

——— c. 117. Wood imported, duties and drawbacks on.

——— c. 139. Stone bottles exported, drawbacks on.

——— c. 140. Wine, spirits, tea, tobacco, &c. exported to the Isle of Man.

——— c. 141. Books of certain descriptions, without licence forfeited.

——— c. 142. Coffee imported, warehousing.

——— c. 143. Smuggling and other offences against revenue laws.

——— c. 149. Damaged cotton warehoused on importation, may be separated from the sound.

——— c. 150. Medicines exported, or for home consumption, duties on.

——— c. 153. White herring fishery, bounties.

——— c. 159. Goods saved from wreck, liable to certain duties of customs, &c.

53 Geo. 3. c. 8. Duties and drawbacks.

——— c. 18. Coals consumed in fire, or steam engines in mines of Devon and Cornwall, drawbacks on.

53 Geo. 3. c. 30. Silk goods exported, bounties on.

——— c. 33. Duties and drawbacks on sundry goods imported.

——— c. 34. Tobacco, drawbacks on exportation.

——— c. 36. Hudson's Bay, regulation of vessels trading to.

——— c. 37. Goods imported into province of Quebec, schedule of value of.

——— c. 44. Wine exported for naval officers, drawbacks on.

——— c. 47. Vessels and boats, bonds not to trade illegally.

——— c. 50. Vessels prohibited from clearing out for India.

——— c. 55. Cordage, duties and drawbacks.

——— c. 84. Duties and drawbacks.

——— c. 87. Wrecks and salvage.

——— c. 98. Officers of customs dissatisfied with valuation of export, may require invoice, &c.

——— c. 105. Entry, landing, valuation, shipping, &c. of goods.

——— c. 122. Marine stores, Liverpool.

——— c. 125. Silks exported, bounties on.

——— c. 140. Pilots.

——— c. 155. India Comp. Trade.

54 Geo. 3. c. 24. Sugar exported, bounties on.

——— c. 26. Madder.

——— c. 34. East India private trade.

——— c. 36. Customs, manifests, smuggling, &c.

——— c. 43. West India free ports.

——— c. 46. Writs of assistance to search and seize goods concealed in shipping.

——— c. 50. Salt, valuation of, on export.

——— c. 59. Vessels engaged in slave trade.

——— c. 64. Duties of customs on imports.

——— c. 65. Duties and drawbacks on imports.

——— c. 66. Teake from India imported duty free.

——— c. 69. Corn, export of.

——— c. 77. Cape of Good Hope, shipping wine at.

——— c. 78. Wool, repeal of prohibitions respecting.

——— c. 97. How spread glass may be exported for drawback, &c.

——— c. 102. White herring fishery, bounties.

——— c. 103. East India goods imported from Ireland.

——— c. 121. Spirits, wine, &c. imports, lost by staving.

——— c. 122. Valuation of goods, import or export.

54 Geo. 3. c. 124. Mooring places for vessels importing tobacco.

——— c. 126. Vessels trading to Portuguese dominions in South America.

——— c. 127. Linen cloth exported from Scotland and Ireland, without stamp.

——— c. 129. Silk goods to Ireland, countervailing duties.

——— c. 134. Lascars employed navigating India ships.

——— c. 142. Tea, how to be exported to certain places.

——— c. 143. Bye-laws for safety of vessels trading to Isle of Man.

——— c. 149. Spirits to be of a certain strength, for trade between Great Britain and Ireland.

——— c. 156. Books prohibited importation, copy-right existing.

——— c. 160. Postage of foreign letters.

——— c. 171. Seizures restored by Lords of Treasury.

——— c. 185. Cordage export, bounties on.

——— c. 228. Pilots.

55 Geo. 3. c. 3. London Docks, smoking on board vessels in.

——— c. 10. Warehousing duties on certain goods.

——— c. 13. Glass export.

——— c. 18. Plate, countervailing duties between Great Britain and Ireland.

——— c. 22. Tobacco taken from warehousing.

——— c. 23. Citrat of lime, import.

——— c. 24. Duties on exports from Ireland.

——— c. 25. Linens of Ireland to be of certain dimensions.

——— c. 26. Corn, importing and warehousing.

——— c. 29. Exports from West Indies to Malta.

——— c. 30. Duties on snuff and tobacco, and penalty for molesting excise officers on duty.

——— c. 31. Sugar, raw, bounty on.

——— c. 32. Sugar, refined, duties on.

——— c. 33. Duties of customs upon goods imported.

——— c. 34. Ditto.

——— c. 36. Tonnage duties to be paid before breaking bulk.

——— c. 39. Greenland whale fishery bounty.

——— c. 45. Southern ditto, ditto.

——— c. 52. Copper, duties and drawbacks.

——— c. 59. South Sea Company, exclusive trade determined.

——— c. 66. Drawbacks on import of brimstone, salts, &c.

——— c. 82. Countervailing duties between Great Britain and Ireland.

——— c. 83. Clearance, &c. of goods interchangeably shipped between Great Britain and Ireland.

55 Geo. 3. c. 86. Wood, imported from British America.

——— c. 94. White herring fishery, bounties.

——— c. 95. Bark, Duties of Customs.

——— c. 102. Countervailing duties between Great Britain and Ireland.

——— c. 110. Ditto.

——— c. 113. Ditto.

——— c. 116. Registry of vessels by certain officers of East India Company.

——— c. 118. Entry, landing, &c. of goods.

——— c. 125. Countervailing duties between Great Britain and Ireland.

——— c. 129. Wine, and other articles exported for, drawback.

——— c. 134. Coals used in lead-mines in Cornwall and Devon.

——— c. 135. Blubber and oil from Newfoundland.

——— c. 153. Packets and Mails between Cape of Good Hope, Mauritius, and East Indies.

——— c. 162. Salts, drawbacks on, determined.

——— c. 163. Boats, licences for.

——— c. 174. Cinders, or coked coal, carried coastwise, not liable to duty.

——— c. 179. Credit for salt in curing fish.

——— c. 181. Seeds, duty of customs on.

——— c. 185. Plate, selling, exchanging, or exporting, with counterfeit stamp.

56 Geo. 3. c. 9. Duties on packets.

——— c. 15. Duties on import of produce from United States of America.

——— c. 17. Duties on snuff, tea, tobacco, spirits, &c.

——— c. 18. Lead, duty on, suspended.

——— c. 23. St. Helena, communication with, regulated.

——— c. 25. Butter, import duties on.

——— c. 26. Cheese, ditto.

——— c. 29. Duty of customs on sugar, and divers other articles, import.

——— c. 34. Corks, ditto.

——— c. 35. Loading, and shipping coals, &c. &c.

——— c. 36. Tonnage and lading of vessels.

——— c. 37. Prunes, importation of, from Germany, allowed.

——— c. 44. Soap, bounties and drawbacks on.

——— c. 51. American vessels clearing out from British ports for East Indies.

——— c. 59. Countervailing duties between Great Britain and Ireland.

——— c. 75. Rape and cole-seed, import duties on.

——— c. 76. Sugar, refined, regulation of bounties on.

56 Geo. 3. c. 77. Bullion, Gold, and silver, duties on import, determined.

——— c. 79. Duty of customs on berries, and divers articles, imports.

——— c. 81. Oil of vitriol, regulations respecting entry, &c. of.

——— c. 83. Passengers on board vessels to Newfoundland, number of, regulated.

——— c. 85. Plate, carriages, and books, admissible into Ireland duty free, under special circumstances.

——— c. 86. Aliens, &c.

——— c. 91. Privileges of trade in West India islands, as well as penalties annexed thereto, not enumerated in former acts.

——— c. 93. Officers of customs at creeks, may take entries of goods to and from Ireland.

——— c. 103. Paper and Pasteboard exported.

——— c. 104. Vessels licensed by commissioners, what bond to be given.

——— c. 105. Spirits, countervailing duties on, between Great Britain and Ireland.

——— c. 108. Export duties, &c. on divers articles.

——— c. 110. Ditto.

——— c. 114. Vessels, number of passengers on board, regulated.

——— c. 118. Oil imported.

——— c. 127. Coal, small, duty on.

——— c. 134. Coal used in mines in Cornwall, &c. drawbacks on.

57 Geo. 3. c. 1. Cape of Good Hope, commerce of.

——— c. 4. Gibraltar, commerce of.

——— c. 8. Warehousing and bonding produce of British America, Asia, or Africa.

——— c. 10. Passengers to and from British America, &c.

——— c. 17. Pre-emption of certain articles imported to be tendered to commissioners of navy.

——— c. 23. Cochineal and indigo, import.

——— c. 27. Articles bonded, or warehoused.

——— c. 28. Fruit and vegetables, rum and molasses, commerce in, between United States of America and Bermuda.

——— c. 29. Commerce between British America and West India islands.

——— c. 32. Bottles.

——— c. 33. Smuggling.

——— c. 36. East India trade with Malta, Gibraltar, &c.

——— c. 42. Vessels of United States of America laden with salt from the Bahamas.

——— c. 49. Salt, export of.

——— c. 58. Export duties on British goods to United States of America.

——— c. 62. Tonnage of vessels in Rotherhithe docks.

57 Geo. 3. c. 73. Yarn imported into Great Britain from Ireland.

——— c. 74. Free ports, West Indies.

——— c. 83. Cochineal and indigo, import.

——— c. 87. Vessels and boats, licence of, &c.

——— c. 88. Fuller's earth, and tobacco-pipe clay, export.

——— c. 89. Oranges and Lemons from the Azores or Madeira, to British America, export of.

——— c. 95. East India trade.

——— c. 96. Coals, duties on.

——— c. 109. Draperies, duties on, in Ireland.

——— c. 111. Countervailing duties between Great Britain and Ireland.

——— c. 116. Entry, landing, and shipping of goods.

——— c. 109. Blacking bottles exempt from duty, &c.

——— c. 120. East India trade, freight of vessels.

——— c. 123. Rum shipped for stores.

58 Geo. 3. c. 3. Malt, import and export.

——— c. 9. Madder.

——— c. 15. Fishing in North Seas, &c.

——— c. 19. Import of certain articles into certain ports in Nova Scotia.

——— c. 21. Broken or waste glass, export.

——— c. 26. Irish spirits, duties and drawbacks.

——— c. 27. Commerce in certain articles between continent of America and West India islands.

——— c. 28. Hydrometer for trying strength of spirits imported.

——— c. 33. Plate glass, export.

——— c. 34. Sugar, export duty on.

——— c. 36. Slave Trade, Spanish.

——— c. 56. Silk, export, bounties.

——— c. 59. Passengers on board vessels bound to America, regulations.

——— c. 62. Coals, import into port of London.

——— c. 63. Tobacco, import of unmanufactured.

——— c. 65. Vinegar, strength of, how tried, and duty charged.

——— c. 76. Smuggling.

——— c. 83. East India Company, vessels hired by.

——— c. 85. Slave trade, Portugal.

——— c. 87. Smuggling.

——— c. 89. Passengers on board vessels bound to America, regulations.

——— c. 96. Boys apprenticed to the sea service.

For further information on the subject of Shipping and Trade, see the articles COMMERCE, EUROPE, FISHERY, INSURANCE, PRIZE-SHIPS, REGISTER, SMUGGLING MASTERS OF

SHIPS, OWNERS OF SHIPS, CUSTOMS, DUTIES, NAVIGATION, &c.

SHIPPING-ORDER, is a written mandate directed by a merchant to his lighterman, ordering him to receive and put on board a certain ship, the goods and merchandise specified in the order. This order is generally delivered to the manufacturer or trader who makes up the goods to be shipped, and who sends it down with them to the water-side. The following is the form of a shipping order.

Messrs. T. and I. Belts, please to receive the goods as under, and to ship them per first tide on board the Lovely Peggy, Capt. D ——, lying off the Tower, and bound for Jamaica.

John Gregson and Co.

N. B. 1 at 4. Four Cases of Castor hats.
W. D. 12 at 15. Four Bales of woollen cloth.
J. C. 50 at 60. Eleven Puncheons haberdashery.

SHIVERS, or Sheevers, in the sea-language, names given to the little rollers or round wheels of pullies.

SHOES, (Ger. *Schuhe*. Du. *Schoenen*. Da. *Skoe*. Sw. *Skor*. Fr. *Souliers*. It. *Scarpe*. Sp. *Zapatos*. Port. *Sapatos*. Rus. *Baschmaki*,) coverings for the feet, usually made of leather, by the company of Cordwainers. There are few trades more useful than that of the shoe-maker, and perhaps not many that are more profitable, when it is carried on to a considerable extent. Ladies' shoe-makers have the most precarious part of this trade in their hands, owing to the frequent change of fashion, not only in the form, but in the material of the article, in which they deal. The best men's shoes are manufactured at London, and are commonly known by the hackneyed appellation of *town-made;* however, vast quantities of inferior kinds of shoes are sold in the metropolis, which are manufactured in Scotland, as well as in Staffordshire, and some other parts of England. Shoes are exported in considerable quantities to the north of Europe, to Asia, Africa, American Continent, and the West Indies.

SHOPBOARD, is the table upon which tailors, and some other sedentary mechanics, perform their work.

SHOT, a denomination given to all sorts of balls for fire-arms; those for cannon being of iron, and those for guns, pistols, &c. of lead.

SHOT, *Case*, formerly consisted of all kinds of old iron, nails, musket-balls, stones, &c. used as above.

SHOT, *of a cable*, on ship-board, is the splicing of two cables together, that a ship may ride safe in deep waters, and in great roads; for a ship will ride easier by one shot of a cable, than by three short cables out a-head.

SHOT, *Grape*. *See* GRAPE-SHOT.

SHOT, commonly called *patent milled*, is thus made; sheets of lead, whose thickness corresponds with the size of the shot required, are cut into small pieces, or cubes, of the form of a die. A great quantity of these little cubes are put into a large hollow iron cylinder, which is mounted horizontally, and turned by a winch; when by their friction against one another, and against the sides of the cylinder, they are rendered perfectly round, and very smooth. The other patent-shot is cast in moulds, in the same way as bullets are.

SHOT, *common small*, or that used for fowling, should be well sized; for, should it be too great, then it flies thin, and scatters too much; or if too small, then it has not weight and strength to penetrate far, and the bird is apt to fly away with it. In order, therefore, to have it suitable to the occasion, it not being always to be had in every place fit for the purpose, we shall set down the true method of making all sorts and sizes, under the name of mould-shot, formerly made after the following process:

Take any quantity of lead you think fit, and melt it down in an iron vessel; and as it melts, keep it stirring with an iron ladle, skimming off all impurities whatsoever, that may arise at top; when it begins to look of a greenish colour, strew on it as much auripigmentum, or yellow orpiment, finely powdered, as will lie on a shilling, to every twelve or fourteen pounds of lead; then stirring them together, the orpiment will flame. The ladle should have a notch on one side of the brim, for more easily pouring out the lead; the ladle must remain in the melted lead, that its heat may be the same with that of the lead, to prevent inconveniences which otherwise might happen, by its being either too hot, or too cold; then, to try your lead, drop a little of it into water, and if the drops prove round, then the lead is of a proper heat; if otherwise, and the shot have tails, then add more orpiment to increase the heat, till it is found sufficient.

Then take a plate of copper, about the size of a trencher, which must be made with a hollowness in the middle, about three inches compass, within which must be bored about 40 holes, according to the size of the shot which you intend to cast; the hollow bottom should be thin; but the thicker the brim, the better it will retain the heat. Place this plate on a frame of iron, over a tube or vessel of water, about four inches from the water, and spread burning coals on the plate, to keep the lead melted upon it; then take some lead and pour it gently on the coals on the plate, and it will make its way through the holes into the water, and form itself into shot; do thus till all your lead is run through the holes of the plate, taking care, by keeping your coals alive, that the lead does not cool and so stop up the holes.

While you are casting in this manner, another person with another ladle may catch

some of the shot, placing the ladle four or five inches underneath the plate in the water, by which means you will see if they are defective, and rectify them. Your chief care is to keep the lead in a just degree of heat, that it shall not be so cold as to stop up the holes in your plate, nor so hot as to cause the shot to crack; to remedy the heat, you must refrain working, till it is of a proper coolness; and to remedy the coolness of the lead and plate, you must blow your fire; observing, that the cooler your lead is, the larger will be your shot; as, the hotter it is, the smaller they will be.

After you have done casting, take them out of the water, and dry them over the fire with a gentle heat, stirring them continually that they do not melt; when dry, you are to separate the great shot from the small, by the help of a sieve made for that purpose, according to their several sizes. But those who would have very large shot, make the lead trickle with a stick out of the ladle into the water, without the plate. If it stops on the plate, and yet the plate is not too cool, give but the plate a little knock, and it will run again; care must be had, that none of your implements are greasy, oily, or the like; and when the shot, being separated, are found too large, or too small for your purpose, or otherwise imperfect, they will serve again at the next operation.

SHOT, *Tin-case*, in artillery, is formed by putting a great quantity of small iron shot into a tin cylindrical box, called a cannister, that just fits the bore of the gun. Leaden bullets are sometimes used in the same manner; and it must be observed, that whatever number, or sizes, of the shots are used, they must weigh, with their cases, nearly as much as the shot of the piece.

SHROWDS, or SHROUDS, in a ship, are the great ropes which come down both sides of the masts, and are fastened below to the chains on the ship's side, and aloft to the top of the mast; being parcelled and served, in order to prevent the mast's galling them. The topmast-shrowds are fastened to the futtock-plates, by dead-eyes and laniards, as the others are. Some of the terms relating to the shrowds are: ease the shrowds; that is, slacken them: and, set up the shrowds; that is, set them stiffer, &c. &c.

SHRUB, a beverage composed of sugar, acid, and spirit, in which the latter predominates.

SHRUFF, old brass.

SHUMACH. *See* SUMACH.

SHUTTLE, in the manufactures, an instrument much used by weavers, in the middle of which is an eye, or cavity, wherein is inclosed the spoul with the woof. *See* WEAVING.

SICILIAN-EARTH, or FOSSIL BEZOAR, is a kind of figured stone, formed like the animal *Bezoar*, and supposed to have the same virtues. It is of a purple colour, the size of a walnut, and light. It is called Sicilian-earth, because it is chiefly found in Sicily.

SIGNATURE, in ordinary concerns, means a name, or initials of a name, *signed*, or subscribed at the bottom of any page or sheet, in order to identify it. In printing, it signifies a letter put at the bottom of the first page at least, in each sheet, as a direction to the binder, in folding, gathering, and collating them. The signatures consist of the capital letters of the alphabet, which change in every sheet: if there are more sheets than letters in the alphabet, to the capital letter is added a small one of the same sort, as A a, B b; which are repeated as often as necessary. In large volumes, it is usual to distinguish the number of alphabets, after the first three or four, by placing a figure before the signature, as 5 B, 6 B, &c.

SILK, (GER. *Seide*. DU. *Zyde*, *Zy*. DA. and SW. *Silke*. FR. *Soie*. IT. *Seta*. SP. and PORT. *Seda*. RUS. *Schelk*. POL. *Jedwab*. LAT. *Sericum*,) a very soft, fine, bright thread, the work of an insect, called the bombyx, or the silk-worm. As the silk-worm is a native of China, the culture of the silk, in ancient times, was entirely confined to that country. Till the reign of Justinian, the silk-worm was unknown beyond the territories of China; but silk was introduced into Persia long before that period. After the conquest of the Persian Empire by Alexander the Great; this valuable commodity was brought into Greece, and thence conveyed to Rome. The first of the Roman writers extant, by whom silk is mentioned, are Virgil and Horace; but it is probable that neither of them knew from what country it was obtained, nor how it was produced. Among the Romans, silk was deemed a dress too expensive and delicate for men, and was wholly appropriated to women of eminent rank, and opulence. For several centuries, the Persians supplied the Roman empire with the silks of China. Caravans traversed the whole latitude of Asia, in 243 days, from the Chinese ocean to the sea-coasts of Syria, carrying this commodity. Sometimes it was conveyed to the ports of Guzerat and Malabar, and thence transported by sea to the Persian gulf.

In the reign of the Emperor Justinian, however, we are informed a number of the eggs of the silk-worm were conveyed by artifice to the capital; from which beginning, vast numbers were soon after reared in different parts of Greece. Sicily afterwards undertook to breed silk-worms with equal success: and was imitated by several towns of Italy. In all these places extensive manufactures were established, and carried on with silk of domestic production. The demand for silk from the East diminished of course, and a considerable change took place in the nature of the commercial intercourse between India, and Europe.

The silk-worm is a species of caterpillar,

which, like all others of the same class, undergoes a variety of changes. It is produced from a yellowish-coloured egg, about the size of a pin's head, which has been laid by a greyish-coloured moth, vulgarly confounded with the butterfly. These eggs in the temperature of this climate, even in summer, may be prevented from hatching, if they be kept in a cool place; and when the food on which the worm is fed is in perfection, the eggs need only be exposed to the sun for a day or two, when they will be hatched with great facility.

When the animal is first protruded from the egg, it is a small black worm, which is active in search of food. At this stage of its growth, the silk worm requires to be fed with the youngest, and most tender, leaves. On these it will feed very freely, for about eight days, during which time it increases in size to about a quarter of an inch in length. It is then attacked with its first sickness, which consists in a sort of lethargic sleep, of about three days continuance, during which time it refuses to eat, and changes its skin; preserving the same bulk. This sleep being over, it begins to eat again during five days, at which term it is grown to the size of full half an inch in length. After this follows a second, then a third, and a fourth sickness, in every respect like the former; and after every sickness it feeds again for five days. At the time it is attacked by its fourth sickness, it is arrived at its full growth; and on recovering, it feeds once more during five days, with a most voracious appetite; after which it disdains its food, becomes transparent, a little on the yellowish cast, and leaves its silky traces on the leaves where it passes. These signs denote, that it is ready to begin its cocoon. Thus it appears, that the whole duration of the life of the worm, in this state of its existence, in our climate, is usually forty days; twenty-eight of which days it takes food, and remains in its sick or torpid state about twelve; but it is to be observed, that warm weather shortens, and cold weather prolongs, the periods of sickness. When the worm is come to full perfection, it searches about for a convenient place for forming its cocoon, and mounts upon any branches or twigs that are put in its way for that purpose. After about two days spent in this manner, it settles in its place, and forms the cocoon, by winding the silk, which it draws from its bowels, round itself, into an oblong roundish ball. During this operation, it gradually loses the appearance of a worm; its length is much diminished, and its breadth augmented. By the time the web is finished, it is found to be transformed into an oblong roundish ball, covered with a smooth shelly skin, and appears to be perfectly dead. In this state it remains for several days, entirely motionless, in the heart of the cocoon, after which it bursts, like an egg hatching, and from that comes forth a heavy, dull-looking moth, with wings; but these wings it never uses for flying. This creature forces its way through the silk covering which the worm had woven, goes immediately in quest of its mate, after which the female lays her eggs; and both male and female, without tasting food in this stage of their existence, die in a very short time.

The silk-worm, when at its full size, is from an inch and a quarter, to an inch and a half, in length, and about half an inch in circumference. It is either of a milk or pearl colour, or blackish; these last are esteemed the best. The body is divided into seven wings, to each of which are joined two very short feet. It has a very small point like a thorn, exactly above the anus. The substance which forms the silk is in his stomach, which is very long, wound up, as it were, upon two spindles, and surrounded with a gum, commonly yellowish, sometimes white, but seldom greenish. When the worm spins his cocoon, he winds off a thread from each of his spindles, and joins them afterwards, by means of two hooks, which are placed in his mouth, so that the cocoon is formed of a double thread.

Of silk-worms, as of most animals, there is a considerable variety of species, some of which are much more hardy, and possess qualities materially different from others. This is a particular of much importance to be adverted to, at the time of beginning to breed these creatures in any place.

Though the silk-worm be a native of China, there is no doubt but it might be propagated in most parts of the temperate zones. The mulberry tree, upon the leaves of which it lives, is a hardy vegetable, bearing without injury, even the winters of Siberia, and could without doubt be reared in Great Britain. Nature, therefore, has furnished us with every thing necessary for the silk manufacture.

The cocoons from which the silk is to be immediately wound, must be submitted to the heat of an oven, in order to kill the *chrysalis* or *aurelia*, which would otherwise eat its way through the cocoon, and render it useless. Good cocoons are strong, small, and firm; have a fine grain, both ends round, and they are free from spots. Of the bad cocoons there are six species. 1. The pointed cocoons, one extremity of which is a point, the silk which covers the point is weak, and soon breaks or tears. 2. The cocalons, which are bigger, but the contexture is weak. 3. The dupions, or double cocoons. 4. The soufflons, which have a loose contexture, sometimes so loose, that they are transparent. 5. The perforated cocoons, which have a hole at one end. 6. The bad choquette, which is composed of spotted or rotten cocoons.

The cocoons which are kept for breeding are called royal cocoons. The largest and the best cocoons ought to be preserved for

breed, about an equal number of males and females, though one male will serve two or three females, if the time of coming out of the cocoon answers. About twelve or fifteen days after they begin to spin, the cocoons for breed may be laid on sheets of white paper; as about this time the moth opens for itself a passage through the end of the cocoon. When the female has laid her eggs, which, on an average, may amount to two hundred and fifty, they are spread upon paper, and hung up to dry in some cool place.

The next operation is the winding of the silk, before which the cocoons must be prepared as follows:

1. Strip them of the waste silk that surrounds them, and which served to fasten them to the twigs. This burr is proper to stuff quilts, or for other such uses; you may likewise spin it to make stockings, but they will be very coarse and ordinary.

2. You must sort your cocoons, separating them into different classes, in order to wind them apart. These classes are, the good white cocoons; the good cocoons of all other colours; the dupions; the cocalons, among which are included the weak cocoons; the good choquette; and, lastly, the bad choquette. In sorting the cocoons, you will always find some perforated cocoons among them, whose worm is already born; these you must set apart for fleuret. You will likewise find a few soufflons; but being very few, they may be put among the bad choquette. The good cocoons, as well white as yellow, are the easiest to wind: those which require the greatest care and pains are the cocalons; you must wind them in cooler water than the others; and if you take care to give them a good windster, you will have as fair silk from them as from the rest. You must likewise have careful windsters for the dupions and choquettes. These two species require hotter water than the common cocoons.

The cocoons produce a thread of very unequal length; you may meet with some that yield more than 1220 ells, whilst others will scarcely afford 200 ells. In general, you may calculate the production of a cocoon at from 500 to 600 ells in length.

The silk imported into this country is the produce of Italy, Turkey, and the East Indies.

The kingdom of Naples is computed to yield about 800,000 lbs. of silk annually; of which half is supposed to be worked at home, and the other half exported raw. The red mulberry-tree is invariably used as the food of the silk-worm in Calabria; and it is the opinion of the silk-workers, that worms fed with it, produce a more compact heavy silk, than those that live upon the leaves of the white one. This, however, seems to be a mere prejudice, as the Chinese, Piedmontese, and Languedocians prefer the white sort. In case of a blight among the mulberry trees, bramble tops have been found the best succedaneum. The silk-worm houses in Calabria, are mostly the property of reputable families in Reggio, who furnish rooms, leaves, eggs, and every necessary implement; take two-thirds of the profit, and leave the rest for the artisans. A succession of eggs is imported from Leghorn and other places, to renew the breed, and by frequent changes keep up the quantity of silk.

Silk is an important branch of the commerce of the island of Cyprus. The breeding of silk-worms here, is not subject to the inconveniences arising from the variations of the atmosphere, as it is in other parts. The finest, and whitest, silk is that produced in the environs of Famagusta, and Carpassia. The orange and sulphur coloured come from Cythera, or the villages beyond the northern mountains; and that of a gold yellow colour, is produced in the territory of Paphos and the neighbouring country. That principally esteemed in Europe, is the white silk, with which a little of the orange, and the sulphur coloured, is sometimes mixed. Venice, and Leghorn receive both, though the white silk has also there the preference. The island produces, on an average, 25,000 bags of silk annually. It is not uncommon, in Cyprus, to receive commissions from Constantinople, Aleppo, and Egypt, for silk which is afterwards sent to Europe. The silk trade is protected by a great number of statutes in these kingdoms; and the manufacture has of late years arrived at a degree of perfection even to rival those of India and of France. The manufacturers are protected from the frauds and embezzlement of their servants, by a succession of statutes passed from the 13 Car. 2. to nearly the present time; but the most important, to be noticed for the information of persons immediately concerned, are 22 Geo. 2. c. 27. 17 Geo. 3. c. 56. and 32 Geo. 3. c. 44.

By these, almost every species of fraud, that ingenuity can devise in the process of *manufacturing* silk goods, to defraud the owners, is duly provided against.

This manufacture is further encouraged by the laws of customs, which subject the importation of foreign silk goods of all descriptions, to extremely heavy duties, under very severe penalties.

Certain bounties are allowed by divers acts, beginning with 8 Geo. 1. c. 15., on the exportation of British manufactured silk. The 53 Geo. 3. c. 30. also gives a bounty on the exportation of goods manufactured from *refuse* or *waste* silk, provided the value of the goods be at least four times the amount of the bounty claimed thereon.

SILVER, (Ger. *Silber*. Du. *Zilver*. Da. *Sölv*. Sw. *Silfver*. Fr. *Argent*. It. *Argento*. Sp. *Plata*. Port. *Prata*. Rus. *Serebro*. Pol. *Srebro*. Lat. *Argentum*,) is a metal of a fine white colour, without

either taste or smell; and in point of brilliancy perhaps inferior to none of the metallic bodies, if we except polished steel. When melted, its specific gravity is 10.478; when hammered, 10.609. In malleability, it is inferior to none of the metals, if we except gold, and perhaps also platinum. It may be beaten out into leaves only $\frac{1}{160000}$ inch thick. Its ductility is equally remarkable: it may be drawn out into wire much finer than a human hair; so fine, indeed, that a single grain of silver may be extended about 400 feet in length. Its tenacity is such, that a wire of silver 0.078 inch in diameter is capable of supporting a weight of 187.13 lbs. avoirdupois without breaking.

The most considerable silver mines are at Potosi in South America, Kunsberg in Norway, Annaberg in Austria, the Hartz, Saxony in general, Schemnitz in Hungary, &c.

The uses of silver are well known: it is chiefly applied to the forming of various utensils for domestic use, and as the medium of exchange in money. Its disposition to assume a black colour by tarnishing, and its softness, appear to be the chief objection to its use in the construction of graduated instruments for astronomical, and other, purposes, in which a good white metal would be a desirable acquisition. Oxide of silver communicates an olive colour to glass. A solution of silver in nitric acid, diluted with water, will stain the skin and other animal substances of an indelible black. It is thus employed for dying human hair; for staining marbles, jaspers, &c., and for silvering ornamental work. It has also been employed for silvering ivory. A solution of nitrate silver, mixed with a little gum, forms the indelible ink for marking linen; the linen must be previously moistened with a solution of potash.

SILVERING. There are various methods of giving a covering of silver or silvery aspect to the surfaces of bodies. The application of silver leaf is made in the same way as that of gold, for which *see* GILDING.

Copper may be silvered over by rubbing it with the following powder: Two drachms of tartar, the same quantity of common salt, and half a drachm of alum, mixed with fifteen, or twenty, grains of silver precipitated from nitric acid by copper. The surface of the copper becomes white when rubbed with this powder, which may afterward be brushed off, and polished with leather.

The saddlers, and harness makers, cover their wares with tin for ordinary uses, but a cheap silvering is used for this purpose as follows: Half an ounce of silver, that has been precipitated from aquafortis by the addition of copper, common salt, and muriat of ammonia, of each two ounces, and one drachm of corrosive muriat of mercury, are triturated together, and made into a paste with water; with this, copper utensils of every kind, that have been previously boiled with tartar and alum, are rubbed, after which they are made red hot, and then polished. The intention of this process appears to be little more than to apply the silver in a state of minute division to the clean surface of the copper, and afterward to fix it there by fusion; and accordingly this silvering may be effected by using the argentine precipitate here mentioned, with borax or mercury, and causing it to adhere by fusion.

The dial-plates of clocks, the scales of barometers, and other similar articles are silvered by rubbing upon them a mixture of muriat of siver, sea-salt, and tartar, and afterward carefully washing off the saline matter with water. In this operation, the silver is precipitated from the muriatic acid, which unites with part of the coppery surface. It is not durable, but may be improved by heating the article, and repeating the operation till the covering seems sufficiently thick.

The silvering of pins is effected by boiling them with tin melted, and broken into very minute particles, for the explanation of which *see* PIN MAKING.

For the mode of silvering looking-glasses, *see* FOLIATING.

SILVER-LEAF, that beaten out into fine leaves for the use of the gilders, which is performed in the same manner as gold-leaf.

SILVER-WIRE, that drawn out into fine wire; for the manner of doing which, *see the articles* GOLD-WIRE, and WIRE-DRAWING.

SILVER, *Shell*, is prepared of the shreds of silver-leaves, or of the leaves themselves, for the use of painters, after the same manner as shell-gold. *See* GOLD.

SILVERSMITH. *See* GOLDSMITH.

SIMPLE CONTRACT. This is a term used to distinguish debts due for money lent, goods sold and delivered; as, book debts, bills of exchange, promissory notes, &c. from debts due upon specialties or contracts under seal, as bonds, deeds, &c.

Debts by simple contract, in case of the death of the party, are postponed to all other debts of a higher class; and if the personal representative discharge debts due by simple contract, before those due upon instruments under seal, in case of a deficiency of assets he will be liable to make those good out of his own personal estate.

SINGLO TEA, a sort of green tea, so called from the place where it is cultivated. *See* TEA.

SINKING FUND. A fund formed of the excess or surplus of the duties composing the revenue of the state. It is of more antiquity than is generally supposed; for it has existed ever since the 3d of Geo. I., and was then appropriated by act of parliament for the *sole purpose of discharging the na-*

tional debt, previously imposed. The necessities of the state, however, induced successive ministers, *partially* at least, to divert this accumulation, from time to time, into other channels, in relief of the annual burdens of the country. Little, comparatively, as had been the benefit to the nation, therefore, from this surplus, in that particular point of view for which a sinking fund was first created, the principle inculcated by its establishment was too obvious to escape the notice of future financiers. Mr. Pitt, (as it was said, by the advice of the celebrated Dr. Price) in 1786, created the new sinking fund, on the basis of the old one, providing at the same time, so far as the power of parliament could do it prospectively, against misapplications of its produce, similar to those which had taken place with respect to that which he had taken for his model. The preamble of the statute by which it was established, 26 Geo. 3. c. 31., recites, at the same time, the necessity which had previously subsisted for the measure, and the reasons for the former act having failed to attain the object, viz. "for the want of sufficient provisions for the constant application of the monies, according to the true intent of the said acts." The statute itself then directs, that on the 5th day of July, and the 10th day of October, in that year, viz. 1786; and at the end of every quarter of a year, viz. Jan. 5th, April 5th, July 5th, and Oct. 10th, respectively, in every succeeding year, there shall be issued and set apart at the Exchequer, pursuant to the several acts in that behalf made, out of the monies composing the aforesaid sinking fund, a sufficient sum to make good, to such quarter-day, all such interest or annuities, or deficiencies of funds provided for payment thereof, as shall be specially charged on said sinking fund; and after such sum shall have been so set apart and issued, there shall then be further set apart, in the said Exchequer, out of the surpluses, &c. composing the said fund, a sum of 250,000*l.*, or such part thereof as such excesses and surpluses then remaining in said Exchequer shall be sufficient to satisfy. It then directs that the deficiencies, if any, shall be charged to the succeeding quarter; and if there be any at the end of the year, they shall be made good out of the supplies granted for the same year: that at the end of each quarter the monies so set apart at the Exchequer shall be paid into the Bank of England, to an account of certain commissioners for applying certain sums to the reduction of the national debt: that such stock as shall be bought up, or redeemed, shall be transferred to the account of the commissioners, in the several books of the Bank, the South-Sea-house, and the East India-house, and the dividends which fall due on such redeemed stock shall be carried to the said account. That the several annuities which had from time to time been granted for lives, or for terms of years, instead of being dropped at the end of their term, should be continued; but after the claims of the annuitants should cease, they should go to the account of the commissioners.

It directs the commissioners to apply the monies placed in their hands to the payment or redemption of annuities at, or above, par, or to the purchase of such as are below par; and enables them to subscribe to any future loans. It provides, further, that whenever the whole sum annually receivable by the said commissioners, including as well the annual million issued quarterly, as the several annuities and dividends of stock, shall amount to four millions, then the terminable annuities which may afterwards fall in, and the dividends of stock which may be henceforth bought, shall no longer be issued from the exchequer, but shall be considered as redeemed, and held at the disposal of parliament.

In 1792, a further augmentation was made to this sinking fund, by providing that, along with the interest set apart out of the consolidated fund for the satisfying of future loans, there should be issued a sum equal to one per cent. on the stock created by the loan, and placed quarterly in the hands of the commissioners. In 1802 another act was passed, the preamble of which recited the good effects which had been already produced by the sinking fund, and after repealing such parts of the former statutes of 26 and 32 Geo. 3., it limited the amount of the fund to four millions, with some modifications of other provisions in the same, directs that the money placed to the account of the commissioners shall accumulate, and be applied to the redemption of public annuities, until the whole shall be paid off, within 45 years from their respective creation.

In the session of parliament of 1813, 53 Geo. 3., further provisions were made for accelerating the reduction of this national debt, which were preceded by certain resolutions in the commons, descriptive of its actual state, and of the progress which had then been made. By these, it is first stated that the total capital of the funded debt of Great Britain was, on the 5th of Jan. 1786, 238,231,248*l.* 5*s.* 2¾*d.*; that in consequence of the several provisions made by statute for its reduction, the sum of 238,250,143*l.* 18*s.* 1*d.* (exceeding the said former sum by 118,895*l.* 12*s.* 10¼*d.*) had, since that period, been actually purchased by the commissioners, and applied by them in reduction of the national debt. The statutable enactments which then followed these, and others, the resolutions, of which the act was a mere echo, provided, among other matters, that "in order to carry into effect the redemption of every part of the national debt, within 45 years from the time

of its creation, in future, whenever the amount of the sum to be raised by loan, or other addition to the funded debt, shall in any year exceed the sum estimated to be applicable, shall be set apart out of the monies composing the consolidated fund, and shall be issued at the receipt of the Exchequer, to the Governor and Company of the Bank of England, to be by them placed to the account of the commissioners; and upon the remainder of such loan or other addition, the annual sum of one per cent. on the capital thereof, according to the provisions of the anterior statutes. And that, in order to prevent the increase of the public debt, by means of exchequer bills, annually renewed on the 5th of Jan. in every year, an account shall be taken of all Exchequer bills outstanding, and charged upon funds not deemed capable of making good the same, within one year from such 5th of January, and a sum equal to one per cent. thereupon shall be granted out of the supplies of such year to the said commissioners. That on such part of the capital stock created by loans and fundings, belonging to the sum of 13,013,914*l.* sterling, (the amount deemed applicable to the reduction of the national debt, (1st Feb. 1813,) an annual sum equal to one per cent., and charges of management, should be issued to the account of the commissioners, and that on the capital stock created by the remainder, or excess on the said sum applicable, an annual sum equal to one half the interest shall be issued, for the purpose of redeeming the amount of the capitals forming such excess of debt as was created by the said fundings. See FUNDS, PUBLIC. We subjoin an abstract of the state of the sinking fund account, on 5th Jan. 1821.

		£	s.	d.
Annual charge per act 26 Geo. 3.		1,000,000	0	0
Ditto 42 Geo. 3.		200,000	0	0
Ditto 1 Geo. 4. c. 111. being 1*l.* per cent. on Exchequer bills, outstanding at 5th Jan. 1820		410,000	0	0
Annuities for 99 and 96 years, expired anno 1792		54,880	14	6
Ditto for 10 years anno 1787		25,000	0	0
Exchequer Annuities, unclaimed for 3 years, at 5th January 1821		30,835	2	0
Exchequer Annuities, of which nominees shall have died prior to 5th July 1802		21,481	6	1
Annual Interest on 386,416,582*l.* redeemed at 3*l.* per cent.		11,592,497	9	2¼
Ditto ditto on 4,334,500*l.* 3½ per cent.		151,707	10	0
Ditto ditto on 7,796,400*l.* 4 per cent.		311,856	0	0
Ditto ditto on 145,500*l.* 5 per cent.		7,275	0	0
Ditto ditto on 180,296*l.* 9*s.* 4*d.* Irish 5 per cent. payable in England		9,014	16	5½
One per cent. per annum, on part of capitals created, from 1st Feb. 1793 to 1815, both inclusive		6,640,220	3	7½
Annual Interest on 5,702,030*l.* at 3 per cent. transferred for purchase of Life Annuities		171,060	18	0
Ditto ditto on 41,706*l.* at 4 per cent. ditto		1,668	4	9½
Ditto ditto on 90,646*l.* at 5 per cent. ditto		4,532	6	0
Long Annuities transferred for ditto		8,471	0	0
Sinking Fund, borne by Consol. Fund, on Loans raised, and Bills funded 1815, 1818, & 1819		1,377,013	4	7
Annual Approp. on 12,000,000*l.* part of 14,200,000*l.* Loan 1807		626,255	10	5
Annual Interest on 193,743*l.* 14*s.* 10*d.* at 3 per cent. unclaimed for 10 years and upwards		5,812	6	2¾
Ditto ditto on 24,295*l.* 14*s.* 5*d.* at 4 per cent. ditto		971	16	6¾
Ditto ditto on 31,383*l.* 2*s.* 3*d.* at 5 per cent. ditto		1,569	3	1¼
Long Annuities, unclaimed for ditto		599	5	3
Annual Interest on 437,400*l.* at 3 per cent. purchased with unclaimed Dividends		13,122	0	0
Chargeable on the Sinking Fund		£22,665,843	16	9½
Life Annuities	£ 383,000 8 0			
Loans and Bills funded from 1813 to 1820	9,070,900 1 4			
Part of Charge on Treasury Bills raised for Ireland, anno 1816	9,014 16 5½			
	9,462,915 5 9½			
Deduct for Sinking Fund for said Loans and Bills	2,575,023 5 7¼			
		6,887,892	0	2¼
Actual Sinking Fund of Great Britain and Ireland funded therein, Consolidated		£15,777,951	16	7¼

The scheme of a sinking fund to liquidate the debts of a state, has something so plausible in it at first sight, that it is no great matter of wonder that this of Great Britain should have been extravagantly eulogised at home, and more, or less, so in other parts of the world. As a simple abstract proposition, and on the assumption that the taxes imposed do actually exceed the expenses for which they are destined, there can be no dispute about a sinking fund, if punctually applied, being a beneficial mode of liquidating a debt: but the machinery of that of which we have been treating is so complicated, as to divest it of one of its principal recommendations; and the delusion involved in the practice of borrowing (according to the vulgar phrase) *with the left hand, in order to pay with the right*, is rapidly passing away. The designed counterpoise, to be effected by the setting apart of one per cent. on the capital created, is a happy invention in theory; but, when it is considered that the more the commissioners have to lay out for the extinction of the debt, the higher will be the price at which they must purchase (for in proportion to the demand will always be the price of stock), when reduced to practice, no inconsiderable portion of the projected advantage vanishes. General reasoning, however, makes no necessary part of a work of this nature, and therefore we must refer the reader for that species of information to the treatises of Hamilton, and others, on this part of the subject.

SIRUP, or SYRUP, (*Sirups*. GER. *Syrupe*. DU. *Syroop*. DA. *Sirop, Sirup*. SW. *Sirap, Sirop*. FR. *Syrops, Sirops*. IT. *Saroppe*. SP. *Jaropes, Jarabes*. PORT. *Exxaropes, Xaropes*. LAT. *Syropi*,) a liquid form of medicines prepared of decoctions, juices, or infusions, preserved by means of honey, or sugar, and reduced to such a consistence, that a drop let fall on marble does not spread.

General rules for making Syrups.

1. The sugar employed for making the syrups to be formed without coction, should be first boiled with water to a candy-consistence; observing to clarify it with the whites of eggs, and by despumation. But the whitest, and purest, sugar, and sugar-candy, do not require this labour. The sugar thus prepared, ought afterwards to be powdered, that it may dissolve the more easily.

2. Though a double weight of sugar in proportion to the liquor, may be required in making such syrups; yet a less proportion will generally suffice. First, therefore, dissolve only an equal quantity of sugar; then by degrees add a little more in powder, till it remain undissolved at the bottom, to be afterwards incorporated by the gentle heat of a water-bath.

3. Acid syrups, or those made with the juices of fruits, should not be put into copper vessels, unless tinned.

4. Syrups made by coction are to be clarified with the whites of eggs, except diacodium; which, therefore, requires the purest sugar.

SIXPENCE, the smallest silver coin current in Great Britain; being, as its title expresses, equivalent to half a shilling, or six pence.

SIZE, (GER. *Lederlein*. DU. *Léerlym*. DA. *Læderlüm*. SW. *Laderlim*. FR. *Colle de gants*. IT. *Colla di limbellucci*. SP. *Cola de retal*. PORT. *Cola de lewas*,) a viscid preparation, consisting of the threads and parings of parchment, leather, or vellum, boiled in water, after which they are strained, it is employed by various artisans, but principally by painters and plaisterers, who dilute it with a certain portion of water, and lay it on walls and ceilings, before they are painted or white washed; such liquor, however, emits a very disagreeable smell, which continues for several days, till it be perfectly dry; hence, different substitutes have been contrived, the best of which is obtained from potatoes. There are other preparations known under the name of gold, and silver, size, used by carvers, and gilders, for applying gold, and silver, leaf to frame work, as well as to various toys, and for burnishing glass; the former may be obtained, by first grinding fine bole on a marble stone, adding a little beef suet, and triturating the whole together; next some common size is to be dissolved in a double quantity of water, and mixed with the ingredients before mentioned.

Silver size may be prepared, by grinding small portions of black-lead, and tobacco-pipe clay (both being previously pulverised) with a little Genoa soap, after which it is duly incorporated with common size.

SKINNER, one who works in skins. Skinners, or fellmongers, shall not retain any journeyman, &c. to work in their trade, except they themselves have served seven years as apprentices thereto, on pain of forfeiting double the value of the wares wrought by such persons. But *see* 54 Geo. 3. c. 96. *ante title* APPRENTICE.

SKINS, (GER. *Felle*. DU. *Vellen*. DA. *Skind, Huder*. SW. *Skinn*. FR. *Peaux*. IT. *Pelli*. SP. *Pieles*. PORT. *Pelles*. RUS. *Koshii*. POL. *Skory*,) the hides or pelts taken from animals to make leather. *See* CURRYING, FUR, HIDES, LEATHER, and TANNING.

SLAB, an outside sappy plank or board, sawed off from the sides of a timber-tree. The word is also used for a flat piece of marble.

SLATE, (GER. *Schiefer*. DU. *Arduin*. DA. *Skifer*. SW. *Skifver*. FR. *Ardoise*. IT. *Lavagna, Lastra*. SP. *Pizarra*. PORT. *Piçarra, Ardosia*. RUS. *Tesannoi Kamen, Tscherepiza*. POL. *Lupny Kamien*. LAT. *Schistus, Ardesia*,) a fossil, consisting of a compact stone that may be split into plates.

There are several varieties of this mineral, chiefly distinguished by their colour, which is in general grey, intermixed with blue, green, or black streaks, though sometimes purplish, yellowish, brown, bluish, black, and occasionally streaked with a darker hue than the ground itself.

Slate constitutes a part of many mountains: it is found in some counties of Britain and Ireland, near the surface of the soil; the largest masses of it however, are dug in the island of Eusdale, one of the Hebrides, whence slate is annually exported to England, the West Indies, &c. to a considerable amount.

The chief purpose to which slates are applied is that of covering houses, for which they furnish a strong, and elegant, roof.

SLATES, or SLATE-BOARDS, (GER. *Rechentafeln*. DU. *Rekentafelen*. DA. *Regnetavler*. SW. *Räkentaflor*. FR. *Ardoises en tables*. RUS. *Schtschetü*,) the smooth black slates used to write upon, being generally set in a wooden frame. The species of slate employed in the formation of these useful articles, is a friable, aluminous, black slate, or, as they call it in the shops, Irish slate. It is common in many parts of Ireland, and is also found in some places in England.

SLAVE-TRADE. This iniquitous traffic being now abolished in these kingdoms, it is unnecessary to notice the subject further than, for the gratification of curiosity, to refer to the statutes by which such a desirable event has been accomplished. They were passed in the 46th, 47th, & 51st years of the reign of his late majesty, and have been explained and enforced by 58 Geo. 3. c. 49. 58 Geo. 3. c. 98. 59 Geo. 3. c. 16. & c. 17.; and 1 & 2 Geo. 4. c. 99.

SLEDGE, a kind of carriage without wheels, for the conveyance of very weighty things, as huge stones, &c.

This is also the name of a large smith's hammer, to be used with both hands. Of this there are two sorts; the up-hand sledge, which is used by under-workmen, when the work is not of the larger sort; it is used with both the hands before, and they seldom raise it higher than their head: but the other, which is called the about-sledge, and which is used for battering, or drawing out, the largest work, is held by the handle with both hands, and swung round over their heads at their arm's end, to strike as hard a blow as they can.

SLEEPERS, in a ship, timbers lying before, and aft, in the bottom of the ship, as the rung-heads do; the lowermost of them is bolted to the rung-heads, and the uppermost to the futtocks and rungs.

SLET-DOLLAR, a silver coin current in Germany, being equivalent to 3*s*. sterling.

SLET-MARC, a copper coin of Denmark, and Norway, passing at 3-8ths of a penny British.

SLINGING, is used variously at sea, but chiefly for the hoisting up casks, or other heavy things, with slings; *i. e.* contrivances of ropes spliced into themselves, at either end, with one eye big enough to receive the cask, or other thing, to be slung.

SLOOP, a sort of small ship or vessel usually with one mast, otherwise called shallop. In our navy, sloops are tenders on the men of war, and are usually of about sixty tons, and carry about thirty men.

SLOPS, a general denomination for all sorts of wearing apparel, bedding, &c. used for the outfit of mariners.

SMACK, a small vessel, usually carrying a single mast, and principally employed in fishing. Vessels of this kind are also employed in carrying fish, and other goods, as well as passengers from the North of Ireland, and Scotland to London, &c.; thus we have Berwick smacks, Leith smacks, &c.

SMALT, (GER. *Smalte*. DU. DA. and SW. *Smalt*. FR. *Smalte*. IT. *Smalto azzurro, Smaltino*. SP. *Esmalte, Azul azur*. PORT. *Esmalte*. RUS. *Lasor*. POL. *Lazur*. LAT. *Smaltum*,) a species of glass, of a dark blue colour, and which on levigating it, assumes a beautiful shade resisting the action of air, and fire: hence, if it could be rendered sufficiently fine, it would prove an excellent substitute for ultramarine.

Smalt is prepared by melting one part of calcined cobalt, with two of pulverised flint, and one of pot-ash: at the bottom of the crucibles, which are employed in manufacturing this compound, there is generally found a regulus of a whitish colour, inclining to red, and rather brittle; this, on being again melted, and becoming cold, separates into parts; that which settles at the bottom is the true cobalt, and is used to increase the quantity of smalt; the other is called bismuth.

Smalt is employed in various branches of the arts, and manufactures, particularly in colouring paper; as likewise by clear starchers in getting up fine linen, by whom it is termed powder blue. *See* also COBALT, and ZAFFRE.

SMELTING, the art of fusing or melting the ores of metals after roasting. It is the principal and most important of metallurgic operations; all the others being preliminary, or preparative to this. The whole attention of the miner is directed towards this process; to this all his efforts are applied, because it affords the truly useful product, to which his hopes are directed.

Though it consists in general in fusing the roasted ore to extract the metal, and in this point of view it seems to present a simple and uniform operation, there is, nevertheless, no operation which differs so much in its circumstances, according to the nature of the metal, and the ore, required to be treated, and according to the furnaces made use of, the nature and quantity of the combusti-

ble employed, the energy, duration, and administration of the fire, the addition of an appropriate flux, the heat being applied in the midst of the coal, or in crucibles, the period, the length of time, and the mode of casting the fused metal; every thing, even the form of the metal which flows out, varies, and presents to the observer very remarkable differences.

When the ore is smelted, and the metal obtained, the whole process is not yet finished. This metal is scarcely ever pure. It is either altered by certain substances foreign to its metallic nature, or it contains a portion of another metal, which alters the properties of this which is desired in a pure state; or else it contains a portion of a metal more valuable than all the rest of the mass, which it is necessary therefore to extract; or, lastly, it is an alloy, in large proportions of several metals, which are required to be separated from each other. All the operations subsequent to the smelting, are comprehended under the general name of refining, because the effect is always to obtain a pure metal.

SMITHERY, or SMITHING, a manual art, by which an irregular lump of iron is wrought into a certain shape.

This is usually performed by heating the iron to a certain degree, and then, whilst it is malleable, hammering it into the form intended.

SMOKE-JACK. *See* JACK.

SMUGGLING, is the act of illegally importing, or exporting goods, either clandestinely or in an open hostile manner, without paying the accustomed duties thereon.

The laws against the offence of smuggling, in all its varieties, are both so numerous, and so voluminous, as to defy all attempts to epitomise them in a work of this description. Suffice it to observe, that independent of the particular statutes which annex penalties of various kinds to the clandestine importation, and exportation, of particular articles of commerce, by the 9 Geo. 2. c. 35., that persons "lurking within five miles of the coast, under circumstances of suspicion," are liable to be imprisoned; that two or more persons being within the same distance of the coast, or any navigable river, with cart and horses, laden with certain articles subject to the duty of customs, not having any permit with them, are subject to transportation.

By the 19 Geo. 3. c. 69., if any disguise of their persons, or the possession of any arms be added to the offence, the offenders may be tried at the quarter sessions, and on conviction be imprisoned three years, and sentenced to hard labour. By 19 Geo. 2. c. 34., extended by 19 Geo. 3.; and lastly by 43 Geo. 3. c. 157., further enlarged and made perpetual; many of the preceding offences, with additional circumstances respecting the *numbers* offending, viz. *three* or more, and the violence exercised, are declared to be felonies *sans* clergy.

The 56 Geo. 3. c. 104., makes "more effectual provisions for the prevention of smuggling, and for rewarding officers, and persons making seizures, and capturing smuggling vessels." And 58 Geo. 3. c. 76. subjects foreigners to arrest for smuggling within certain distances of *any* of the dominions of his majesty; and further regulates the rewards to officers seizing goods, &c., in proportion to the tonnage of vessels seized and condemned. These acts are amended by 1 Geo. 4. c. 43. and 3 Geo. 4. c. 110. *See* SEIZURE, EXCISE, &c.

SNAKE-ROOT, *Indian*, (GER. *Ostendische-schlengen-wurzel. Mango-wurzel.* DU. *Oostindische slangenwortel.* DA. *Indiansk slangerod.* SW. *Indiasnk ormerot.* FR. *Racine de serpent, Mungo.* IT. *Radice di serpe.* SP. *Raiz de serpiente.* PORT. *Colubrina.* LAT. *Radix serpentum,*) is not at present much known in the shops. The Indians are said to prevent the otherwise fatal effects of the bite of a rattle-snake, by giving it internally, and applying it to the wound. It is likewise said to have been of extraordinary service in the rheumatism, and other disorders arising from the viscidity of the blood, as well as in pleurisies, and other inflammatory disorders. This root is a species of *contrayerva.*

SNAKE-ROOT, *Virginian*, (GER. *Virginische schlangenwurzel, Giftwurzel.* DU. *Virginische slangenwortel.* DA. *Slangeurtrod.* SW. *Virginsk ormerot.* FR. *Serpentaire, ou coluvrine de Virginie.* IT. *Serpentaria di Virginia.* SP. *Serpentaria ò contrayerba de Virginia.* PORT. *Serpentaria de Virginia.* LAT. *Serpentaria Virginia, Contrayerva Virginiana,*) a medicinal root of a very singular figure, being wholly made up of a multitude of long and thin filaments, arranged in clusters together. It is to be chosen in large fibres, clean, of a brown colour, tough, and free from dirt, or other foreign matter. This root is supposed to be good as a remedy against the bites of venomous animals, and is considered a diuretic, diaphoretic, and alexipharmic. It grows principally in Virginia in North America, whence its denomination.

SNOW, a sort of trading vessel, with two masts; one of which, the sternmost, is shorter than the other.

SNUFF, (GER. *Schnupftaback.* DU. *Snuiftabak.* DA. and SW. *Snus, Snustobak.* FR. *Tabac en poudre.* IT. *Tabacco da naso.* SP. *Tabaco de polvo.* PORT. *Tabaco em po.* RUS. *Nosowoi tabak.* POL. *Proszek,*) a powder chiefly made of tobacco, the use of which is so universally known as to need no description here.

Although tobacco is the usual basis of snuff, yet other matters are sometimes added, to give it an agreeable flavour and scent, to suit the peculiar palates and fancies of the several takers. Many are the names which the venders of this article have in-

vented; and every day is adding to the catalogue.

It will be sufficient therefore to say, that there are three classes of snuffs, under which all the rest may be placed, viz. 1. *granulated;* 2. an *impalpable powder;* 3. the *bran*, or coarse parts remaining after the second sort has been sifted.

How to reduce Tobacco into Powder.

Uncord the tobacco, and spread the leaves on a carpet, to dry in the sun. Then pound them in a mortar, and sift through a coarse sieve, to get the coarsest powder out of it. As for sifting, you must observe to do it in due proportion as you pound it, and not to pound much at a time. You may also take another method, that of grinding it in one of those small mills which are made on purpose for grinding tobacco. By these means you may, without much trouble, make it as coarse or as fine as you like, by screwing the nut tighter, or slacker.

Large quantities of snuff are made both in Scotland, and Ireland, a great part of which is brought into this country for sale. The Irish snuff is prepared by toasting the tobacco, previously to the grinding, and not only the leaves but the *stalks* of the plant are ground up in the course of the process. Hence it is that the Irish snuff has obtained the appellation of stalk.

SOAP, (Ger. *Seife.* Du. *Zeep.* Da. *Sæbe.* Sw. *Tvål.* Fr. *Savon.* It. *Sapone.* Sp. *Jabon.* Port. *Sabão.* Rus. *Mülo.* Pol. *Mydlo.* Lat. *Sapo,*) an unctuous kind of paste, made with oil or other kinds of fat, and an alkali, sometimes actuated with quick-lime. The greatest quantities of soap are made in Spain, Portugal, France, and Italy; olive-oil being in those countries most plentiful. The process of making soap, as pursued by our manufacturers, is this:

A quantity of soda is pounded, and mixed in a wooden vessel, with about a fifth part of its weight of lime, which has been slacked and passed through a sieve immediately before. Upon this mixture a quantity of water is poured, considerably more than what is sufficient to cover it, and allowed to remain on it for several hours. The lime attracts the carbonic acid from the soda, and the water becomes strongly impregnated with the pure alkali, which in that state is caustic. This water is then drawn off by means of a stop-cock, and called the first ley.

Another quantity of water is then to be poured upon the soda, which, after standing two or three hours, is also to be drawn off by means of the stop-cock, and called the second ley.

Another portion of water is poured on; and after standing a sufficient time, is drawn off like the other two, and called the third ley.

Another portion of water may still be poured on, in order to be certain that the whole of the soda is dissolved; and this weak ley may be put aside, and employed afterwards in forming the first ley in subsequent operations.

A quantity of oil, equal to six times the weight of the soda used, is then to be put into the boiler, together with a portion of the third or weakest ley; and the mixture must be kept boiling and agitated constantly by means of a wooden instrument. The whole of the third ley is to be added, at intervals, to the mixture; and after it is consumed, the second ley must be added in the same manner. The oil becomes milky, combines with the alkali, and after some hours it begins to acquire consistence. A little of the first ley is then to be added, not forgetting to agitate the mixture constantly. Portions of the first ley are to be added at intervals; the soapy substance acquires gradually greater consistency, and at last it begins to separate from the watery part of the mixture.

A quantity of common salt is then to be added, which renders the separation much more complete. The boiling is to be continued still for two hours, and then the fire must be withdrawn, and the liquor must be no longer agitated. After some hours' repose, the soap separates completely from the watery part, and swims upon the surface of the liquor. The watery part is then to be drawn off; and as it contains a quantity of carbonat of soda, it ought to be reserved for future use.

The fire is then to be kindled again; and, in order to facilitate the melting of the soap, a little water, or rather weak ley, is to be added to it. As soon as it boils, the remainder of the first ley is to be added to it at intervals. When the soap has been brought to the proper consistence, which is judged of by taking out small portions of it and allowing it to cool, it is to be withdrawn from the fire, and the watery part separated from it as before. It is then to be heated again, and a little water mixed with it, that it may form a proper paste. After this, let it be poured into the vessels proper for cooling it; in the bottom of which there ought to be a little chalk in powder, to prevent the soap from adhering. In a few days, the soap will have acquired sufficient consistence to be taken out, and formed into proper cakes.

The use of the common salt in the above process is, to separate the water from the soap; for common salt has a stronger affinity for water than soap has.

Olive-oil has been found to answer best for making soap, and next to it perhaps tallow may be placed; but a great variety of other oils may be employed for that purpose, as appears from the experiments of the French chemists. They found, however, that linseed-oil, and whale-oil, were not proper for making hard soaps, though they

might be employed with advantage in the manufacture of soft soaps. Whale-oil has been long used by the Dutch for this last purpose.

Soap may also be made without the assistance of heat; but in that case a much longer time and a larger proportion of alkali are necessary.

Manufacturers have contrived various methods of sophisticating soap, or of adding ingredients which increase its weight without increasing its value. The most common substance used for that purpose is water; which may be added in considerable quantities, especially to soap made with tallow (the ingredient chiefly used in this country), without diminishing its consistency.

Soap, made with tallow and soda, has a white colour, and therefore known by the name of *white soap*; but it is usual for soap-makers, in order to lower the price of the article, to mix a considerable portion of rosin with the tallow; this mixture forms the common *yellow* or *turpentine soap*.

The process above described is that followed in the manufacture of *hard soap*; in making *soft soap*, potash is substituted for the soda; the rest of the process is precisely the same as that of which we have been treating. *Mottled soap* obtains its speckled appearance by dispersing the ley, towards the end of the operation, through the soap, or by adding to it a quantity of sulphate of iron. Some manufacturers use the oxide of manganese for the same purpose.

Soap is subject to the laws of excise, and the maker for sale to the necessity of taking out an annual licence with a duty of 4*l*. Soap imported is subject to the duty of customs, and exported entitled to drawback. See 56 Geo. 3. c. 44.

SOAP-EARTH, a species of fossil, which abounds in Devonshire, Cornwall, and some other counties, and the islands in the vicinity of the Lizard point: it is generally of a white, or grey, colour, intermixed with greenish, or yellowish, shades, is composed of very fine particles, of a firm, equal, and regular texture, and is very heavy; its surface is smooth and glossy; it feels soft and greasy, and neither melts in the mouth, adheres to the tongue, nor stains the fingers.

This mineral may be formed into a paste with water, which is easily worked on the potter's wheel; and if thus manufactured it be exposed to an intense heat, it becomes so hard as to emit fire when stricken against steel.

This soap-earth possesses similar properties with fullers' earth, and is employed for the purpose of cleansing woollen cloths from grease; it does not, however, work so easily as clays; and, when, digested with vitriolic acid, it forms a salt somewhat resembling that obtained by evaporating Epsom water.

SOCOTRINE ALOES. (Ger. *Sucotrinaloe*. Du. *Sucotrinaloë*. Da. and Sw. *Sokotrinaloë*. Fr. *Aloes succotrin, ou chicotin*. It. *Aloè succotrino*. Sp. *Acibar cicotrino*. Port. *Azevre succotrino*. Lat. *Aloe succotrina*.) *See* ALOES.

SODA, is an alkaline salt, principally obtained from the ashes of marine plants. For this purpose considerable quantities of sea-weeds are collected on the coasts of Scotland, and Spain, particularly, and burnt for the manufacture of what is called *barilla*, and *kelp*, both which are soda, mixed with a variety of extraneous substances. Soda, called also natron, may also be obtained from sea-salt, which consists principally of muriate of soda. It is also found in considerable quantities, combined with carbonic acid, in the natron beds of Egypt, and in the East Indies. When in a state of purity, it has a highly acrid, caustic taste, and quickly destroys animal substances. It is readily soluble in water, and rapidly absorbs the carbonic acid from the atmosphere, forming with it a mild neutral salt. It is difficult to distinguish pure soda, from pure potash; the most ready way is to add a little oxalic acid to them: this with potash forms a very soluble salt, but with soda, a salt soluble with great difficulty.

Soda is used by glass-makers, soap-makers, dyers, calico-printers, colour-makers, and is also employed in chemistry and medicine.

By 57 Geo. 3. c. 49. no maker of soda, or any alkaline preparation containing soda, according to the directions prescribed by the pharmacopœias of the Royal College of Physicians of London, Edinburgh, or Dublin, not exceeding 10 cwt. in any quarter of a year, shall be subject to the ordinary periodical surveys of the officers of excise, or to the several regulations on the time and manner of making alkali contained in this, or any other act of parliament, provided such maker shall make due entry of his works, and shall on, or within ten days after, the 5th of January, 5th of April, 5th of July, and 10th of October in every year, make a return in writing to the commissioners of excise, at the chief office, or to the collector, in whose collection his entered works shall be, of the whole quantity of soda and alkaline preparations containing soda sold by him in the quarter preceding, and verify the same by oath or affirmation, and shall thereupon pay to such commissioners, or collectors, the full duty on the quantity mentioned in such account, and according to the rate of thirty shillings per ton. § 28.

SODIUM is the metallic base of soda. It possesses many of the properties of potassium, (*see* POTASSIUM,) but it has a somewhat greater specific gravity, is fusible at 180° of Fahrenheit, and requires a strong red heat to reduce it to vapour. It has not been employed in the arts.

SOL, or SOU, a small copper money of France, equivalent to ½*d*. sterling. The

sol forms the basis of the values of the several copper, and silver, sol-pieces current in the French empire, an enumeration of which will be found under the article MONEY. In the French West Indies the copper sol is estimated at $\frac{117}{320}d.$ sterling. In Switzerland there is an imaginary specie called the sol, which, at Bern, &c. is reckoned at $1\frac{1}{2}d.$; and at St. Gall, &c. at $1\frac{1}{3}d.$ English currency.

SOLDER, Sodder, or Soder, a metallic composition, used in soldering, or joining, other metals. Solders are made of gold, silver, copper, tin, bismuth, and lead; usually observing, that, in the composition, there shall be some of the metal that is to be soldered, mixed with some higher and finer metals. Goldsmiths usually make four kinds of solder, viz. solder of eight, where to seven parts of silver, there is one of brass or copper; solder of six, where only a sixth part is copper; solder of four, and solder of three. It is the mixture of copper in the solder, that makes raised plate come always cheaper than flat.

As mixtures of gold with a little copper are found to melt with less heat than pure gold itself, these mixtures serve as solders for gold: two pieces of fine gold are soldered by gold that has a small admixture of copper; and gold alloyed with copper is soldered by such as is alloyed with more copper. The workmen add a little silver, as well as copper, and vary the proportions of the two to one another, so as to make the colour of the solder correspond as nearly as may be to that of the piece. A mixture of gold, and copper, is also a solder for fine copper, as well as for fine gold. Gold being particularly disposed to unite with iron, proves an excellent solder for the finer kinds of iron, and steel, instruments.

The solder used by plumbers is made of two pounds of lead to one of block-tin. Its goodness is tried by melting it, and pouring the size of a crown piece on the table; for, if good, there will arise little bright shining stars in it. The solder for copper is made like that of the plumbers, only with copper and tin; and for very nice works, instead of tin, they sometimes use a quantity of silver. Solder for tin is made of two-thirds of tin, and one of lead, or of equal parts of each; but where the work is any thing delicate, as in organ-pipes, where the juncture is scarcely discernible, it is made of one part of bismuth, and three parts of pewter. The pewterers use a kind of solder made with two parts of tin, and one of bismuth; this composition melts with the least heat of any of the solders.

Silver solder is that which is made of two parts of silver, and one of brass, and used in soldering those metals. Spelter solder is made of one part of brass, and two of spelter, or zinc, and is used by the braziers and coppersmiths for soldering brass, copper, and iron. This solder is improved by adding, to each ounce of it, one penny-weight of silver; but as it does not melt without a considerable degree of heat, it cannot be used when it is inconvenient to heat the work red-hot; in which case copper, and brass, are soldered with silver

SOLDERING, the joining, and fastening together, of two pieces of the same metal, or of two different metals, by the fusion, and application, of some metallic composition on the extremities of the metals to be joined. To solder upon silver, brass, or iron: take silver, five penny-weights; brass, four penny-weights; melt them together for soft solder, which runs soonest. Take silver, five penny-weights; copper, three penny-weights; melt them together for hard solder. Beat the solder thin, and lay it on the place to be soldered, which must be first fitted, and bound together, with wire, as occasion requires; then take borax in powder, and temper it like pap, and lay it upon the solder, letting it dry; then cover it with live coals, and blow, and it will run immediately; take it presently out of the fire, and it is done. It is to be observed, that if any thing is to be soldered in two places, which cannot well be done at one time, you must first solder with the harder solder, and then with the soft; for, if it is first done with the soft, it will unsolder again before the other is softened. Let it be observed, that if you would not have your solder run about the piece that is to be soldered, you must rub such places over with chalk. In the soldering either of gold, silver, copper, or either of the metals above mentioned, there is generally used borax in powder, and sometimes rosin. As to iron, it is sufficient that it be heated red-hot, and the two extremities thus hammered together, by which means they will become incorporated with each other. For the finer kinds of iron, and steel, instruments, however, gold proves an excellent solder. This metal will dissolve twice or thrice its weight of iron in a degree of heat very far less than that in which iron itself melts; hence, if a small plate of gold is wrapped round the parts to be joined, and afterwards melted by a blow-pipe, it strongly unites the pieces together, without any injury to the instrument, however delicate.

SOLDI, an Italian copper coin, equivalent to $\frac{31}{41}d.$ sterling.

SOLDO, a silver coin of Spain, worth $3\frac{5}{8}d.$

SOOCO, a silver money of the East Indies, current at 1*s.* 3*d.* British.

SOUCHONG TEA, a species of bohea tea. *See* TEA.

SOUNDING, at sea, the act of trying the depth of the water, and the quality of the bottom, by a line and plummet, or other artifice.

SOU. *See* SOL.

SOUTH-SEA COMPANY. *See title* COMPANY. Also, stat. 55 Geo. 3. c. 57. and 56 Geo. 3. c. 77.

SOUTH WALES, *New;* that portion of New Holland already colonized by the English government. The following accounts respecting this interesting division of the terraqueous globe, at the conclusion of the year 1817, may not be unacceptable:

Exports:—oil, fur, seal-skins, ana wool, and some horned cattle, to the Isle of France.

Population — in South Wales	-	17,165
Van Diemen's Land		3,214
		20,379
Acres of wheat in cultivation	-	14,500
Of potatoes, barley, and oats	-	1,250
Maize - - -	-	11,700
Stock — Horses -	-	2,850
Horned cattle -	-	33,650
Sheep - -	-	66,700
Pigs -	-	11,400

See further, HOLLAND, *New,* and VAN DIEMEN'S LAND.

SOW, in the iron-works, the name of the block or lump of metal they work at once in the iron-furnace. The size of these sows of iron is very different, even from the same workmen, and the same furnace. These furnaces having sand-stones for their hearths and sides, up to the height of a yard, and the rest being made of brick, the hearth by the force of the fire is continually growing wider, so that if it at first contains as much metal as will make a sow of six, or seven, hundred weight, it will at last contain as much as will make a sow of 2000 weight.

SOY, an extract from a sort of bean growing in China, introduced into Europe by the Dutch. It is in great request as a stimulant sauce. The genuine soy, when shaken in a glass vessel, leaves a coat of a yellow-brown colour on the sides of it. It is imitated in England by boiling strong purl down to half its quantity, and infusing in it red herrings, anchovies, Spanish juice, and garlick, in certain proportions.

SPAN, a measure taken from the space between the thumb's end, and the tip of the little finger, when both are stretched out. The span is estimated at three hands' breadths, or nine inches.

SPANISH BROWN. *See* BROWN.

SPANISH FLIES. *See* CANTHARIDES.

SPANISH JUICE. *See* LICORICE.

SPANISH LEATHER. *See* MOROCCO.

SPANISH RED. *See* RED OCHRE.

SPANISH WEED. *See* ORCHILLA.

SPAR, the ponderous *barytes,* or heavy earth, a name given to a fossil naturally combined with the sulphuric or carbonic acids, and found in different parts of England, particularly in the counties of York, and Derby.

This mineral is manufactured into vases, and other ornaments for chimney-pieces.

Abundance of spar-ornaments, of various kinds, are manufactured in Derbyshire.

SPARS, (Ger. *Sparren, Spieren.* Du. *Spieren.* Da. *Spiren.* Sw. *Spirar, Bommar.* Fr. *Espars.* It. *Percie.* Sp. *Perchas.* Port. *Berchas, Vergontas,*) are small beams, formed from various sorts of wood, especially fir and oak, which are employed as yards for ships, as well as for sundry purposes, in the construction of buildings. These articles are, for the most part, imported from the Baltic, and North America.

SPARTA, or Sparto Grass, a species of fibrous plant, or junk, which grows abundantly upon the sea-shore in Spain, as well as in Provence, Languedoc, and some other provinces of France. It is employed not only in the manufacture of ropes, but in that of mats, and a sort of carpet, which is looked upon in France as being extremely ornamental to a room.

SPELTER. *See* ZINC.

SPERMACETI, (Ger. *Wallrath.* Du. *Walschot.* Da. *Hvalrav.* Sw. *Vallratt, Valraf.* Fr. *Blanc de Baleine, Sperme de Baleine.* It. *Spermaceti.* Sp. *Esperma de Callena, Espermaceti, Blanco de Ballena.* Port. *Espermaceti.* Rus. *Spermazet.* Pol. *Spermaceti, Olbrod.* Lat. *Spermaceti,*) the brain of a species of whale, purified from the oily matter, affords a fat of a singular kind, known in the shops by the improper name of spermaceti.

The spermaceti whale, *physeter,* called by the English sailors employed in the Greenland-fishery, *torump, jubbart,* or *gibbart,* is smaller than the common whale, but the head is proportionably much larger, amounting to above one-third the bulk of the whole body. He is furnished with teeth, which the other is not; and wants the flexible bones in the mouth, called whale-bone, which the other has. The throat is also remarkably wider.

One of these fishes affords some tons of brains, which are first grossly freed from the oil, by draining, and pressing, and afterward more perfectly purified, by steeping them in a ley of alkaline salt, and quicklime, which dissolves the remains of the oily matter into a saponaceous liquid. The brains, being then washed with water, appear of a silver whiteness; and nothing more is required to complete the preparation, than to cut them in shivers with wooden knives, and spread them abroad to dry. Such is the simple process by which this profitable commodity is prepared. It has been said, that spermaceti is a natural concrete, found floating on the surface of the northern seas; but this is a false report.

Good spermaceti is in fine white flakes,

glossy, and semi-transparent, soft, and unctuous to the touch, yet dry, and easily friable, in taste somewhat like butter, of a faint smell, like that of tallow.

Beside the use of spermaceti in medicine, it is employed for making candles, which are of a beautiful colour, and appear to be a medium between wax, and tallow, with respect to the advantages derived from a slender wick.

SPICES. (Ger. *Spezereyen*. Du. *Speceryen*. Da. *Specerie, Krydderie*. Sw. *Speceri, Kryddor*. Fr. *Epiceries, Epices*. It. *Spezj, Spezierie*. Sp. *Especias, Especerias*. Port. *Especies, Especiaria*. Rus. *Pränüe korenja*. Pol. *Korzenie*.) Under this denomination, are included all those species of vegetable production, which are fragrant to the smell, or pungent to the palate; such as cloves, ginger, nutmegs, allspice, &c. &c. These will be found under their proper heads.

SPIKENARD. *See* NARD.

SPIKE-OIL, (Ger. *Spiköl*. Du. *Spykoli*. Da. *Spikolje*. Sw. *Spikolja*. Fr. *Huile d'aspic*. It. *Olio nardino*. Sp. *Aceite de espliego*. Port. *Oléo de espique*. Lat. *Oleum spicæ*,) is the same with oil of aspic. *See* ASPIC.

SPINDLE, in the sea language, is the smallest part of a ship's capstan, which is betwixt the two decks. The spindle of the jeer capstan has whelps to heave the viol.

The axis of the wheel of a watch, or clock, is also called the spindle.

Among miners the spindle is a piece of wood fastened into either stow blade.

SPINNING, the art of reducing silk, flax, hemp, hair, wool, or other matter, into thread. Spinning is either performed on the wheel, or with a distaff, and spindle, or with other machines proper for the several kinds of working. Hemp, flax, nettle-thread, and other like vegetable matters, are to be wetted in spinning: silks, wools, &c. are spun dry, at least they do not stand in need of water; there is, however, a way of spinning, or reeling, silk as it comes off the cases or balls, where hot, and even boiling water is to be used. The vast variety and importance of these branches of our manufactures which are produced from cotton, wool, and flax, spun into yarn, together with the cheapness of provisions, and the low price of labour, in many foreign countries, which are the rivals of our trade, have occasioned many attempts at home to render spinning more easy, cheap, and expeditious. Mr. Arkwright carried the invention to a high degree of perfection; and every day adds some ingenious improvement to the machinery.

SPIRIT OF WINE, (Ger. *Weingeist, Spriet*. Du. *Wyngeest, Spriet*. Da. *Vingejst*. Sw. *Vinspiritus*. Fr. *Esprit de vin*. It. *Spirito di vino*. Sp. *Espéritu de vino*. Port. *Espirito de vinho*. Rus. *Wodka*,) is nothing more than brandy distilled a second time; and this after another rectification, is called *spirit of wine rectified*. The spirit of wine is useful for several purposes, especially in the hardware manufactures. *See title* ALCOHOL.

SPIRITS. All inflammable liquors, raised by distillation, are included under this general denomination; such as brandy, rum, geneva, &c. which will be found under their proper heads. The importation of all spirits is subject to the laws of customs, as the sale, moving, &c. of them are to those of excise. The strength of them is regulated by 48 Geo. 3. c.119., and the mode of ascertaining it by 56 Geo. 3. c. 140. For the different processes pursued in order to the producing spirituous liquors, *see* DISTILLATION.

SPLICING, in the sea language, is the untwisting the ends of two cables or ropes, and working the several strands into one another by a fidd, so that they become as strong as if they were but one rope, &c.

SPONGE, (Ger. *Schwamm, Saugeschwamm, Badeschwamm*. Du. *Spongie, Spons*. Da. and Sw. *Svamp*. Fr. *Eponge*. It. *Spugna*. Sp. *Esponja*. Port. *Esponga*. Rus. *Guba grezkaja*. Pol. *Gebka*. Lat. *Spongia*,) a plant of very irregular figure, generally to be met with in the shops in pieces only. Its texture is cavernous, and porous; its great elasticity, and its property of imbibing, and as readily parting with, a large quantity of water, render it useful. Sponge is to be chosen as light as possible, perfectly clean, and free from stone; of as pale a colour as may be, with small holes, and fine, and soft, to the touch. The greatest part of the sponge we use, is brought from Aleppo, and Smyrna. It grows in the Archipelago, at considerable depths, on the rocks about some of the islands there, and multitudes of people make a trade of diving for it. It is also common in the Mediterranean, and many other seas, though in general browner, or yellower, and not so fine as that of the Archipelago. It adheres in large masses to rocks and stones, sometimes to large shells, and is either round, flat, or hollow, like a funnel.

SPOONING, in the sea language, is said of a ship, which being under sail in a storm at sea, is unable to bear it, and is consequently forced to put right before the wind.

SPRATS. *See* SARDINES.

SPRING, in mechanics, denotes a thin piece of tempered steel, or other elastic substance, which, being wound up, serves to put several machines in motion by its elasticity, or endeavour to unbend itself; such is the spring of a clock, watch, &c.

The spring of a lock, gun, or pistol, is a piece of steel, violently bent; which, being set at liberty, beats back the bolt of the lock, or strikes down the cock.

SPRINGING OF A MAST, in the sea language, is when it cracks, but is not broken in any part of it; as the partners, hounds, &c.

SPRIT-SAIL, of a ship, is the sail which belongs to the bowsprit.

SPRUCE BEER, a cheap and wholesome liquor, which is thus made: Take of water sixteen gallons, and boil the half of it. Put the water thus boiled, while in full heat, to the cold part, which should be previously put into a barrel or other vessel; then add sixteen pounds of treacle or molasses, with a few table-spoonfuls of the essence of spruce, stirring the whole well together; add half a pint of yeast, and keep it in a temperate situation, with the bung-hole open, for two days, till the fermentation is abated. Then close it up, or bottle it off, and it will be fit for being drunk in a few days afterwards. In North America, and perhaps in other countries, where the black, and white, spruce-firs abound, instead of adding the essence of the spruce at the same time with the molasses, they make a decoction of the leaves and small branches of these trees, and find the liquor equally good. It is a powerful antiscorbutic, and very useful in long sea voyages.

SPRUCE-ESSENCE, or AMERICAN BEER ESSENCE, is extracted from the sprigs of young branches of several North American fir trees, particularly of the black Canadian fir.

SPUNGE. *See* SPONGE.

SPUNGING, in the cloth trade, is the damping of woollens, in order to free the surface of the stuff from an unpleasant gloss.

SQUILL, (GER. *Meerzwiebel.* DU. *Zeeajuin, Squille.* DA. *Skille, Strandlögrod.* SW. *Skilla, Hafslök.* FR. *Scille, Oignon marin.* IT. *Scilla, Cipolla marina.* SP. *Cebolla albarrana.* PORT. *Cebola alvarrăa.* RUS. *Luk morskii.* POL. *Cebula zamorska.* LAT. *Scilla, Squilla,*) or, as it is sometimes denominated, the sea-onion, is a plant, with a large, bulbous root; from which rise, first a naked stalk, bearing several hexapetalous white flowers, and afterwards large, green, lily-like leaves, with a remarkable rib in the middle of each. It grows spontaneously on sandy shores, in Spain, and in the Levant; whence we are annually supplied with the roots. They should be chosen large, plump, fresh, and full of a clammy juice: some are of a reddish colour, and others white; but no difference is observed in the qualities of the two sorts. To the taste this root is very nauseous, intensely bitter, and acrimonious; much handled, it ulcerates the skin. Taken internally, it serves as a powerful attenuant and aperient.

STAINING, in the manufactures, is the art of dyeing or tinging certain substances with different colouring matters. The following are the most approved modes of staining the substances to which this operation is most commonly applied.

For the staining of wood, sharp corrosive fluids must be used, such as sulphuric acid, aquafortis, or a solution of sulphat of iron, or copper, according to the nature of the wood, or to the state into which it has been put by means of art.

Wood may be stained red, by previously soaking it in alum water, and then putting it into a decoction of Brazil wood, in lime-water. It may be made blue with a somewhat diluted solution of indigo in sulphuric acid. It assumes a green colour in a decoction of verdigris, sal ammoniac, and vinegar; black in a decoction of galls, log-wood, sulphat of iron, filings of iron, and vinegar.

Quick lime slaked on common deal gives it a brown hue, more or less deep, according to the quantity and time it lies on; and this may be so managed as to make it finely veined. If, after this, it be well rubbed with linseed oil, in which alkanet has been boiled, and, lastly, varnished, it will make a very good imitation of mahogany. A solution of iron in aquafortis likewise makes a good stain for wood. So do gamboge and dragon's blood, dissolved in oil of turpentine.

For leather, on the contrary, these sharp corrosive substances must be avoided; because its durability will be destroyed by them. To give it a red colour, the skins, after being properly prepared, are dipped into a solution of tartar, and common salt, then put into a bath of madder, tartar, alum, and calcined oyster-shells, and sometimes also, at last, into a simple decoction of Brazil wood. Or the skins are steeped in alum-water, and afterward stained with a decoction of gum lac, Brazil wood, alum, and sal ammoniac. They acquire a blue colour by being rubbed over with a solution of indigo, and alum-water. They become yellow in a decoction of turmeric in lime-water; and green with sap-green dissolved in lime-water.

The above-mentioned baths may, in like manner, be used for horn, and ivory; beside which, the diluted solutions of mercury, iron, copper, and silver, may also be employed.

These latter liquors may likewise be laid upon all kinds of trinkets and toys made of agate. For the staining of marble, coloured resinous solutions in alcohol, or in ethereal oils, must be used; and, to promote the penetration of them into its substance, a little heat must be had recourse to. In the same manner, alabaster also may be stained with various colours, in particular red, with a decoction of Brazil wood, and alum; blue with elder-berries and alum; yellow with saffron, or turmeric, and other liquid colours of this kind. It is in a similar kind of staining, that the effects of common writing-ink consist.

STAMPS. As a mode of taxation, go-

vernment have enacted, that certain instruments shall not be valid, unless they are executed on paper bearing a stamp of a specified value, the imitation of which is punishable by death. These stamps are perpetually varying in amount, which may be ascertained from time to time by referring to any of the ephemeral Tables of Taxes. Stamps were first imposed for a revenue in the early part of the reign of William III. and the most recent statute of regulation is *55* Geo. *3.* c. 184. The revenue arising from stamps for one year, was, Jan. *5.* 1818, *6,549,808l.*

STANDARD. Gold and silver manufactures are to be assayed by the warden of the goldsmiths' company, in London, and marked: and work of silver is to be as fine as sterling, excepting the solder necessary.

Gold plate, made by goldsmiths, shall contain twenty-two carats of fine gold; and silver plate eleven ounces, and two pennyweights, in every pound troy; and no goldsmith shall sell any such plate until marked with the initials of the maker's christian and surname.

All plate which, when assayed, is discovered to be of a coarser alloy than the standard, may be broken and defaced; and all persons making plate are to enter their marks, names and places of abode, in the assay office, under a penalty.

STANDING, in the sea-language. Standing part of the sheet, is that part of it which is made fast to a ring at the ship's quarter. Standing part of a tackle, is the end of the rope where the block is fastened. Standing ropes, are those which do not run in any block, but are set tawt, or let slack, as occasion serves; as the sheet-stays, backstays, &c.

STAPLE signifies, primarily, a place of public sale, and even a town or city having such a place; and, secondarily, the principal goods brought to sale, or such as, not being liable to perish, are particularly adapted to be brought to the staple.

A *staple* article or commodity is synonimous with a *marketable* article.

Formerly there was a staple in this country, and a clerk of the staple, &c.; but this is now obsolete.

STARBOARD, the right-hand side of the ship.

STARCH. (Ger. *Amidam.* Du. *Amydon, Ameldonk.* Da. *Amdam.* Sw. *Stärkelse.* Fr. *Amidon.* It. *Amido, Amito.* Sp. *Amidon, Almidon.* Port. *Amido.* Rus. *Kruchmal.* Pol. *Krochmal.* Lat. *Amylum.*) Starch may be made from a variety of articles: potatoes, in particular, will yield a reasonable quantity; but the labour of attending grinding, or grating them down, is considerable. When the potatoes are grated down, they do not require to be laid in steep to ferment, after the manner of flour, but must be immediately strained through a sieve; and if the potatoes are of a good quality, the starch will settle to the bottom almost instantly; indeed, the operation of straining after the potatoes are grated down cannot be performed too quickly. The produce, however, even from the best, is far less than might be imagined.

Potatoe starch is not saleable in the shops, not having so long, and firm, a grain as starch from flour; but, if properly made, is preferable to all others for blue-makers, as it melts or dissolves so easily, and incorporates with the colour with far less trouble than any other substance whatever.

When starch is made from flour, the wheat is not ground so small, as when intended for sale, but ground with a broader flag or bran, as the meal, and starch are found to separate more readily from the bran. When laid in to steep, as much water must be used, as to wet completely the whole meal; in three, four, or five days, it will ferment, and in a few days more will settle, and all fermentation cease: after this, the stuff is fit to be what is called *washed out.*

The common time allowed to steep is from fourteen, to twenty days: as much depends on the temperature of the weather, the exact time cannot be ascertained; but it is much better to lie a few days longer, than to be washed out one day too soon. This operation is performed by the stuff being taken from the vats, and put into a strong round basket, which is set across a tub below a pump: one, or two, men keep going round the basket, stirring up the stuff with strong wooden shovels called *stirrers,* while another keeps pumping water till all the meal is completely washed from the bran, which is emptied into some convenient place to feed hogs: this operation is continued till the vats are emptied of the whole stuff, at the same time that it is strained through the basket into the tub underneath. As fast as the tub fills, it is taken out, and strained through hair-sieves, into what are sometimes called squares, by other frames. It is then suffered to rest twenty-four hours, when the water is drawn off the frame by plugs fixed at different depths. A thin stuff is then found to float above the starch, which is taken off by a tray made of a particular form for that purpose; this is called slimes, and is put into a cistern to feed hogs, by being mixed with the bran or grains: fresh water is then pumped into the squares, and the whole is wrought up with the stirrers, till it is completely incorporated with the water; it is then strained through a fine silk sieve, and suffered to rest and settle twenty-four hours, when the water is again drawn off, and some more slimes will be found floating, or at least in a loose and unsettled state, on the top of the starch; which being carefully removed, fresh water is again pumped on the starch, and the whole is wrought up as before; when it is again put into a silk sieve. It is now suffered

to rest for some days, — say four or five, — till the starch is once more settled, in a very firm state, at the bottom of the square. It is necessary to observe, if the starch is wanted to be what is commonly called Poland, that is, with the blue shade, during the last time of putting through the silk sieve, a certain quantity of the very best smalts must be mixed with the starch. If the smalts are very good, two pounds per hundred weight may do, and sometimes three pounds, according to the depth of blue wanted; if the best smalts are not used, however fine the colour may appear when in a damp state, it will entirely fly off in the stove, and leave the starch of a dingy hue.

When the starch is found to be completely settled, the water is again drawn off; and if any more slimes are still on the top, they are taken off as before, and the starch is now fit for boxing. It is necessary to observe, that the slimes taken off after the starch has been put through the silk sieve, are not put into the hog-wash, but are either mixed in some other operation, or again wrought up with water, and strained through the silk sieve; when a considerable part of them will be tolerably good starch.

The boxes may be made of different sizes; but they are commonly about four feet long, six inches deep, and twelve inches broad; they are bored full of holes, so that any remaining water may drain from the starch. Thin canvass is cut in such length, and breadth, as to line all the inside of the box, the intention of which is to bring the starch clean from the box after the water is fully drained.

The boxing is performed by digging the starch out of the square with a spade or shovel, and filling the boxes. The length of time for the starch being in the boxes can only be ascertained by the starch coming to a hard solid body, which is sometimes sooner, and sometimes longer. The starch is then taken from the boxes by turning them bottom uppermost on a table or dresser; it is then broken into pieces about four, or five, inches square, by laying a ruler, or round piece of wood, underneath the starch, giving the upper side a cut across with a knife; when a small press of the hand will break the starch into such pieces as are designed.

It is then set upon soft bricks, that is, bricks which have been only half burned in the kiln: the intention of this is to suck the water out of the starch; which, if not well done before putting into the stove, it will get *horny*, that is, the starch will be full of small pieces run together like pieces of horn, and will not dissolve afterwards: it is occasioned by the water drying, and incorporating with, the starch, which forms an insoluble substance; some starch-makers call it *cheesy*, as it likewise resembles the hard crust of Suffolk cheese, so that it will neither answer for blue-makers, nor for the purpose of the laundry.

When sufficiently dried on the bricks, it is put into the stove (which is nearly the same as a sugar-baker's), where it remains some time: the duration must depend on the judgment of the maker, and the degree of heat in the stove. It is then taken out, and set on a table or dresser, when all the sides are carefully scraped or pared with a thin knife; after which, it is tied up in paper the same as we see it in the shops; when it is again returned into the stove, and continued with a regular heat, night and day, till completely dry: it requires some days, but the length of time can only be ascertained by an experienced maker.

It may be necessary to observe, that from the first laying in the meal to steep, till the last operation of taking from the stove to be weighed, the manufacture is constantly under the survey of one or more officers of excise.

Every maker of starch for sale, must take out an annual licence with a duty of 10*l.* Starch exported is allowed a drawback.

STARCH-BLUE. *See* POWDER-BLUE.

STATUTES *of the Realm* are, in colloquial language, *generally* denominated *Acts of Parliament*, and not unfrequently are so called even in legal proceedings, and referred to by the same in statutes themselves. The *Statute Law*, is a term used to signify such part of the law of the land as has been made by statutes still in being; in contradistinction to the *Common Law*, which latter consists of those ordinances which had so remote a commencement, that their origin is lost in antiquity.

Statutes passed *in pari materiâ*, (i. e. on the same subject, and for the same object,) though distant in time, are as much as possible to be construed as one; but on criminal subjects, where the punishment awarded by the posterior statute, is less severe than that of the anterior one, in favour of mercy, the latter is generally construed to restrain the severity of the preceding one. 2 *Dick. Pract. Expos.* 922.

STAVES. *See* PIPE-STAVES.

STAY, in the sea-language, a strong rope fastened to the top of one mast, and to the foot of that next before it, towards the prow, serving to keep it firm, and prevent its falling aftwards or towards the poop. All masts, topmasts, and flag-staves, have their stays, except the sprit-sail topmasts. That of the main-mast is called the main-stay. The main-mast, fore-mast, and those belonging to them, have also back-stays to prevent their pitching forwards or overboard.

STEAM-BOAT. The number of inventions, and improvements, which have met the public eye on this subject, within the few last years, would fill a volume, if amply detailed: *that*, however, being incompatible

with our purpose, we shall only observe, that hitherto, the discovery of the power of steam *in this direction*, has, in this kingdom, rather been applied to the locomotion of persons, than to the purposes of commercial intercourse. Steam-boats seem to be especially desirable for transit on the rivers of America, where water conveyance forms a characteristic feature of the country, and where immense journies are to be performed through trackless wilds, to obtain easy communication between distant places. Accordingly, with the exception of some prior feeble attempts on the rivers of Scotland, these conveyances were *first* introduced into common use, and *that* on a large scale, and *within our time*, in America; viz. on the Ohio river: but the philosophers of that country have laid claim to the entire *invention* somewhat too precipitately; for, beside some earlier attempts in Scotland, to which we have alluded, by a patent of our King James I. granted to David Ramsay, and Thomas Wildgosse, we find, that a method of making boats "run upon the water in calms as fast, and in storms even faster, than boats *full sailed* in great winds," had been discovered by them. History does not inform us to what extent the experiment succeeded; but it seems a reasonable inference from the grant itself, that although much merit may be due to the practical *application*, an exclusive claim to the modern *invention* of a new theory on the subject, may perhaps be more problematical than has been suspected. There may indeed be some doubt whether steam was, or was not, the propelling power in the invention which was protected by the above-mentioned patent; but, as history is silent on this part of the subject, we are at least warranted in expressing a doubt whether it was not so.

The general construction of the steam vessel and its apparatus is as follows: the boat is long and narrow, with cabins at each end, and the engine in the centre between them. There is a projection along the sides, beyond the proper body of the vessel, and under them the paddle-wheels, which are somewhat like an undershot mill-wheel. These are kept in constant revolution by the machinery above. The boilers are of wrought sheet-iron, or of copper, and ought to be strong enough to resist the expansive force of the steam to twice, or three times, the amount of power in use; and having moreover valves so constructed, as easily to allow the escape of steam, without going through the engine, when the power of the steam within the boiler exceeds the maximum of working pressure. The engine is made on the condensing principle, feeds its own boiler, and pumps out any water in the vessel to such a degree, as to exceed the influx by any probable leak. If the qualities of the different parts of the machine be commensurate with the purposes to be performed, there can be no possible risk, and the advantages of the steam vessel, when united with security, are too obvious to stand in need of panegyric.

The advance of steam-boats, as at present constructed, is rapid; but that rapidity would be much increased, if the resistance which the paddle-wheels meet with from the water, in performing one half of their revolution; or, in other words, if the boards attached to the wheels, by which the weight of water impels the vessel forward during their descent through one half of their revolution, could be made to effect such a change of their situation, as to meet with little or no resistance from the water during the other, or *ascending* half of their revolution. Such a project has been in contemplation. Steam vessels are now minutely regulated and duties imposed by several recent acts.

STEAM-ENGINE. *See* ENGINE.

STEEL, (Ger. *Stahl*. Du. and Da. *Staal*. Sw. *Stål*. Fr. *Acier*. It. *Acciajo*. Sp. *Acero*. Port. *Aço*. Rus. and Pol. *Stal*. Lat. *Chalybs*,) is iron refined in the fire with certain ingredients, that render it white, and impart to it a harder, and finer, grain, than that of the original metal.

Iron is converted into steel, either by fusion, or cementation; the former method is employed for making steel immediately from the ore, or from the crude, cast metal; in the latter, bars of iron are placed in furnaces, with a stratum of charcoal between every two, till the pile is raised to a sufficient height; the whole is then closely covered to prevent the access of the air, when a strong fire is kindled, and uniformly continued during the whole process; the surface of the metal, manufactured in either way, generally exhibits numerous vesicles, whence it is called blistered steel; but these may be removed by repeated ignition between red-hot coals, and by forging.

The finest metal of this description is the Damascus steel, which is imported from Syria; but the process pursued in the Turkish manufactories is not accurately known in Europe: the German steel is made by breaking the blistered bars into small pieces, which are exposed to the strong fire of a furnace; these are next welded, and extended to the length of about eighteen inches, when they are doubled, welded the second time, and at length drawn to the requisite size and shape. The celebrated Brescian steel is obtained by roasting the iron-ore in strata, with layers of wood between; and when these are sufficiently smelted, the metal is taken out of the furnace, broken in pieces, picked, and washed in troughs of pure water; it is next conveyed to an oblong square cavity, termed the fluxing bed, which is strewed with a mixture of finely sifted ashes, and sand, that are carefully compressed; a stratum of charcoal is then laid on, the smelted metal is gradually added, and

at the end of three, or four, days the conversion is completed.

The best steel manufactured in Britain is known under the name of cast steel: it is prepared from the common blistered metal, which, being broken in pieces, is put into proper crucibles, with a flux; and, after the fusion is effected, the metal is cast into ingots, when it undergoes the operation of tilting, and is at length tempered by repeated heating, and immersion in water.

This useful article is subservient chiefly to the manufactures of sword-blades, knives, razors, and a variety of other utensils employed in the arts, and by mechanics.

STEEL-YARD, or STILYARD, (GER. *Schnellwaage.* DU. *Weeghaak, Boerebalans.* DA. *Bismer.* SW. *Pyndare.* FR. *Peson, Balance Romaine.* IT. *Stadera.* SP. *Romana.* PORT. *Balança Romana.* RUS. *Besmän.* POL. *Przezmian waga,*) is one of the most simple machines for ascertaining the weight of bodies by counterpoise.

The steel-yard consists of a lever of unequal arms; and in its most perfect form is constructed on the principles of the usual balance, to which, however, it is greatly inferior in point of minute accuracy: on the other hand the steel-yard is more compendious and convenient, nor does it admit of those subtle frauds which are daily practised with scales.

STEERAGE, on board a ship, that part of the ship next below the quarter deck, before the bulk-head of the great cabin, where the steersman stands.

STEERING, in navigation, the directing of a vessel from one place to another, by means of the helm, and rudder. He is held the best steersman who causes the least motion in putting the helm over to and again, and who best keeps the ship from making yaws, that is, from running in, and out. There are three methods of steering; 1. By any mark on the land, so as to keep the ship even by it. 2. By the compass, which is by keeping the ship's head on such a rhumb, or point of the compass, as best leads to port. 3. To steer as one is bidden or conned, which, in a great ship, is the duty of him that is taking his turn at the helm.

STEKAN, a liquid measure of Amsterdam.

STEM, of a ship, that main piece of timber, which comes bending from the keel below, where it is scarfed, as they call it, that is, pieced in; and rises compassing right before the forecastle. This stem it is which guides the rake of the ship, and all the butt-ends of the planks are fixed into it. This, in the section of a first-rate ship, is called the main-stem.

STENCILLING PAPER-HANGINGS. The figure, which all the parts of any particular colour make in the design to be painted, is to be cut out in a piece of thin leather, or oil-cloth, which pieces of leather, or oil-cloth, are called stencils; and being laid flat on the sheets of paper to be printed, spread upon a table, or floor, are to be rubbed over with the colour properly tempered, by means of a large brush.

The colour passing over the whole is consequently spread on those parts of the paper where the cloth, or leather, is cut away, and give the same effect as if laid on by a print.

This is, however, only practicable in parts where there are only detached masses, or spots of colours; for where there are small continued lines, or parts that run one into another, it is difficult to preserve the connection or continuity of the parts of the cloth, or to keep the smaller corners close down to the paper; in such cases, therefore, prints are preferable.

STEP of the mast and capstan, in a ship, is that piece of timber, whereon the masts or capstans stand at bottom.

STEREOTYPE PRINTING. The Chinese, and Japanese, first practised the art of printing by means of wooden blocks. The mode of stereotype printing is, first to set up a page, for instance, in the common way, and when it is rendered perfectly correct, a cast is taken from it, and in this cast the metal for the stereotype plate is poured. This, however, is a mode of printing more ingenious, than useful, for general purposes.

It may be useful for bibles, prayer-books, dictionaries, and school-books, which do not usually vary.

It is but justice, however, on this subject to observe, that an inconvenience in stereotype printing, arising from the uneven surface of the plates, which had been considered irremediable, has been removed by a recent invention, or adoption (we know not which) for casting plates of exactly equal thickness, by Mr. Ferguson of Newman-street, London.

STERLING, a term frequent in British commerce. A pound, shilling, or penny sterling, signifies as much as a pound, shilling, or penny, of lawful money of Great Britain, as settled by authority.

STERN of a ship, usually denotes all the hindermost part of her, but properly it is only the outmost part abaft.

STERN-FAST, denotes some fastenings of ropes, &c. behind the stern of a ship, to which a cable or hawser may be brought or fixed, in order to hold her stern to a wharf, &c.

STERN-POST, a great timber let into the keel at the stern of a ship, somewhat sloping, into which are fastened the after-planks; and on this post, by its pintle, and gudgeons, hangs the rudder.

STICK-LAC, (GER. *Sticklack, Stocklack, Stangenlack.* DU. *Stoklak, Houtlak.* DA. *Stoklak.* SW. *Stocklack.* FR. *Lacque en bâtons.* IT. *Lacca in bastoncini.* SP. *Laca en palillos.* PORT. *Laca em páos.* LAT. *Lacca in baculis, s. ramulis,*) is the white membranous sub-

stance found in the cells of the insects that yield gum-lac, or the wax adhering to some of the small branches of the tree, on which these insects are found; being the exuviæ of the young. *See* LAC.

STICKS, *Foot*, in printing, slips of wood that lie between the foot of the page, and the chase, to which they are wedged fast by the quoins, to keep the form firm, in conjunction with the side-sticks, which are placed at the side of the page, and fixed in the same manner by means of quoins.

STILL, the vessel employed in distilling spirituous liquors. *See* DISTILLATION and ALEMBIC.

STIRRUP of a ship, a piece of timber put upon a ship's keel, when some of her keel happens to be beaten off, and they cannot come conveniently to fit in a new piece; then they patch in a piece of timber, and bind it on with an iron which goes under the ship's keel, and comes up on each side of the ship, where it is nailed strongly with spikes, and this they call a stirrup.

STIVER, a copper coin current in Holland at 1*d*. and 1-20th sterling. There is a somewhat similar, though smaller copper money, of the same name, which passes in Sweden, at 7-18ths of a penny.

STOCK, a fund raised by a commercial company, or a principal sum or property in trade.

In book-keeping, *stock* denotes the owner or owners of the books.

STOCKS. *See* FUNDS.

STOCKINGS, (Ger. *Strümpfe*. Du. *Koussen*. Da. *Strömper*. Sw. *Strumpor*. Fr. *Bas*. It. *Calze*. Sp. *Medias*. Port. *Meias*, *Meas*. Rus. *Tschulki*. Pol. *Ponczochy*,) the clothing of the leg and foot. Anciently the only stockings in use were made of cloth, or of milled stuffs, sewed together; but since the invention of knitting, and weaving, stockings of silk, wool, cotton, thread, &c. the use of cloth stockings is obsolete. The modern stockings, whether woven, or knit, are a kind of plexuses, formed of an infinite number of little knots, called stitches, loops, or mashes, intermingled with one another. Knit stockings are wrought with needles made of polished iron, or brass, wire, which interweave the threads, and form the meshes the stockings consist of. This operation is called knitting, the invention whereof is commonly attributed to the Scots, on this ground, that the first works of this kind came from Scotland. It is added, that it was on this account that the company of stocking-knitters established at Paris, in 1527, took for their patron St. Fiacre, who is said to be the son of a king of Scotland.

It is said that the invention of knit silk stockings first came from Spain. William Rider was the first person who made stockings in England, and he, we are told, learned the art at the house of an Italian merchant, and knit a pair of worsted stockings, which he presented to William, Earl of Pembroke, in the year 1564. Woven stockings are at present manufactured on a machine made of finely polished iron, or steel. The structure of this machine is too complex for verbal description; we must therefore refer the curious, on this head, to the Cyclopedias, where the explanations are illustrated by engravings. The invention of the stocking loom is ascribed to William Lee, M. A. of St. John's College, Cambridge, so far back as the year 1589 by some; but by others to a student of Oxford. Since its first invention, the loom has of course received several improvements. By means of some additional machinery to the stocking-frame, the turned ribbed stockings are made, as well as those done with knitting-needles.

Nottingham and Leicester are the chief seats of the wove-stocking manufacture in this country. Knit-stockings are principally made in Scotland and Wales, and the northern counties of England.

STONE-WARE. (Ger. *Steingut*, *Steinzeug*. Du. *Steengoed*. Da. *Steentöj*. Sw. *Stenkäril*, *Stenporcellän*. Fr. *Gresserie*, *Poterie de grés*. It. *Vassellame di pietra*. Sp. *Loza de pietra*. Port. *Louça de pedra*.) Under this denomination are comprehended all the different artificial combinations of earthy bodies, which are applied to useful purposes. *See* PORCELAIN and POTTERY.

STOOPEN, a liquid measure of Holland.

STORAX, (Ger. *Storax*. Du. *Styrax*, *Storax*. Da. and Sw. *Storax*. Fr. *Styrax*, *Storax*. It. *Storace*, *Stirace*, *Storax*. Sp. *Estoraque*. Port. *Estoraque*, *Storaque*. Rus. *Stirax*. Pol. *Styrax*. Lat. *Styrax*, *Storax*,) the most fragrant of the solid resins, and indeed of all the known vegetable substances. It is obtained from a tree of the same name, said to grow most plentifully in Syria, Cilicia, and Pamphilia. America likewise produces storax-trees, but not that particular species which affords the officinal resin.

The fine storax, called red storax, or storax in the tear, is the pure native juice, flowing from incisions made in the trunk of the tree. This is very rarely to be met with. The common storax is supposed to be in part an artificial composition, mixed with a considerable portion of the genuine resin.

It seems probable, that the pure storax is the juice which concretes upon the tree, and which has lost in the drying its more subtle odoriferous parts; and that the common storax is the juice received immediately in vessels, and mixed with saw-dust enough to thicken it; the shops requiring, under the name of storax, a solid or consistent mass, and evaporation being found to dissipate its fragrance.

The storax-tree is said to grow spontaneously, not only in the eastern countries, but in Italy: whether it yields any resin there

we have no account. It scarcely bears the winters of our climate without shelter.

The common storax was formerly brought to us inclosed in reeds or canes, whence its name *styrax calamita:* at present we meet with it in large cakes or loaves, of a reddish brown colour, softish, and, as it were, unctuous to the touch, yet brittle and friable, and of an extremely pleasant sweet smell.

Though this odoriferous drug was formerly a familiar remedy, it has now no place in any of the officinal compounds, and its use seems to be limited to that of a perfume.

STORES. If any person who has the charge or custody of any of the king's armour, ordnance, ammunition, shot, powder, or habiliments of war, or of any victuals for victualling the navy, shall, to hinder his majesty's service, embezzle, purloin, or convey away the same to the value of 20s. or shall steal or embezzle any of his majesty's sails, cordage, or any other of his naval stores, to the value of 20s. he shall be adjudged guilty of felony without benefit of clergy. 31 Eliz. c. 4. and 22 Car. 2. c. 5.

Since those statutes, a prodigious number of others have been successively made on the same subject; 9 & 10 Will. 3. c. 4. and 41, confirmed and enlarged by 17 Geo. 2. c. 8. give justices the cognizance of these offences; and 4 Geo. 3. c. 30. extends it to the treasurer, comptroller, commissioners, and certain other officers of the navy. 39 & 40 Geo. 3. c. 89. prohibits any persons from being in possession of any stores of war or naval ordnance (except by authority under special circumstances) under penalty of transportation for 14 years. Then come statute 54 Geo. 3. c. 60. to extend the provisions of 9 & 10 Will. 3. and 39 & 40 Geo. 3. c. 89. to articles not comprised in the former ones; and 55 Geo. 3. c. 77. to extend them to all articles whatever under the care or controul of any officer in the service of his majesty, marked with any of the specified marks to denote their appropriation to the purposes of the navy, &c.—Lastly, 56 Geo. 3. c. 80. was passed to extend certain powers of the principal officers of the navy here, to those of a similar description resident in his majesty's foreign settlements.

STRANDED, among seamen, is said of a ship that is driven ashore by a tempest, or runs aground through ill steerage, and so perishes. Where any vessel is stranded, the justices of the peace are empowered to command the constables near the sea-coast to call assistance, in order to preserve the same if possible. *See* SALVAGE and WRECKS.

STRANDING of a ship. How it affects the insurer, and insured, in the marine law, &c. *see* INSURANCE, SALVAGE, &c.

STRAP, in a ship, is a rope spliced about any block, or made with an eye to fasten it any where, on occasion.

STRAW-HATS. (Ger. *Strohhüte.* Du. *Stroohoeden.* Da. *Halmhatte.* Sw. *Halmhattar.* Fr. *Chapeaux de paille.* It. *Capelli di paglia.* Sp. *Sombreritos de paja.* Port. *Chapeos de palha.*) *See* HATS.

STRIKE, a dry measure, usually employed in selling corn, and containing two bushels.

STRIKE, among seamen, is a word variously used. When a ship, in a fight, or on meeting with a ship of war, lets down or lowers her top-sails, at least half-mast high, they say she strikes, meaning she yields, or submits, or pays respect to the ship of war. Also, when a ship touches ground, in shoal-water, they say she strikes. And when a top-mast is to be taken down, the word of command is, strike the top-mast, &c.

STUBGEN, a liquid measure of some parts of Germany.

STUCCO is a generic term, and comprehends all the different kinds of drawings or coverings or coatings for walls, outer, as well as inner; but by custom and habit we generally apply this *generic* appellation of stucco to one only of the numerous *species* exclusively; viz. to that coating or covering for inner walls which is a very fine-grained pargeting, susceptible of a fine polish, of a variety of colours, and highly ornamental for rooms. Those *species* of stucco which are designed for the outside walls of fabricks, and are intended to imitate, and give to them the appearance of, stone, are composed of materials somewhat differing from that which we have been describing, and also from one another; and have been distinguished by a great variety of appellations, as we shall notice hereafter.

Stucco, then, as we usually apply the word, viz. to the inside finishing of rooms, is *properly* a composition of white marble pulverised, and mixed with plaister, or lime, the whole being sifted, and wrought up together with water. But in general, gypsum carefully selected, and well burnt, is taken for this purpose, and a suitable proportion of joiner's glue is added, in beating it up into mortar, with the colour intended to be given it previously ground with water. When the coating of plaister laid on in the usual way is dry, it may be polished, by rubbing first with pumice-stone, then with a whet-stone, and afterwards with tripoli. The last polish is given it by rubbing it with a piece of felt, or old hat, wetted with soap-suds, and afterwards with oil.

We now come to give some account of those species of stucco which have been usually applied to the outsides of fabricks, to give them the appearance of stone. We shall only notice those of somewhat recent date with any degree of particularity; although these have been distinguished by a great variety of appellations, some derived

from the names of the inventors, others from real, or supposed, resemblances to anterior discoveries in other countries, as, for example, Wark's, Emerton's, Rawlinson's, Semple's, Liardot's, Adams's, Loriot's cements, and others, of the former description; and of the latter, Tunisian cement, Dutch terras, Tournay cement, Roman cement, Grecian maltha, or Chio mastich, Tunisian mortar, Indian chunem, and others. Of all these, however distinguished by origin, or appellation, lime, and sand, mixed up with some fluid, as oil, milk, mucilage, water, &c. form the bases. On the characteristic *quality* of the lime, and of the sand, in a great degree depend the hardness and durability of the stucco; on the proper *proportions* of them respectively, also much; and on the tenacity of the fluid, something. Respecting the sorts of lime (of which there are innumerable varieties) best suited for the purpose of composing durable stucco, there seems still to be some difference of opinion among chemical enquirers; but one thing, at least, may without hazard be advanced; viz. that the soft chalky lime is the worst, and that the hard brown limes, if pure from a mixture of clay, are the best. Of sand, a proper selection is of the highest importance, as the sharper, and coarser, it is the better. The saline particles of sea sand render it highly objectionable, and the mixture of clay in much of the common pit-sand makes it scarcely less so. Neither of them can be even amended, but by washing to an extreme that cannot be encountered with convenience. Of the fluids which have been in use for the purpose of cementing the dry materials into a paste, oil, and water, have been the most common, and are indeed the only ones worth noticing; for milk, eggs, dissolved gums, blood, &c. &c. all of which have had their advocates, are inapplicable to fabricks upon a large scale.

Liardot's, *Adams's*, and some other compositions, which for a considerable period of the last century were in most esteem, were composed of the following ingredients, and all in nearly the following proportions: lime calcined and pounded 21 lb., oil 4 quarts, beer measure, mixed and beat up with 28 quarts of sand, beer measure.

The *Tunisian cement* is composed of three parts of lime, one of sand, and two of wood-ashes, and these ingredients are mixed up with oil, and water, alternately till they compose a paste of the desired consistency.

Dutch Terras is composed of basalt ground to a fine powder, and blue argillaceous lime, mixed up with water, and well beaten together.

Tournay cement, called *cedrée de Tournay*, is a mixture of coal-ashes, with blue argillo-ferruginous lime, and sand, well beaten up with water, left to dry, repeatedly levigated, moistened, and beaten.

The genuine *Roman cement*, it is no longer a doubt, consisted of the *pulvis Puteolanus*, now called *Puzzolene*, a ferruginous clay from Puteoli, calcined by the fires of Vesuvius, lime, and sand, mixed up with soft water. The only preparation which the Puzzolene underwent was that of pounding, and sifting; but they occasionally mixed up the ingredients with bullock's blood, and fat of animals, to give the composition more tenacity. It will be reasonably concluded, that the cements which have been recommended of late years under the title of Roman, have been imitations, more or less close, of this composition.

The *Maltha*, or *Mastich* of the Greeks, seems to have been a more simple composition than the cement of the Romans, when used for stucco on the outsides of fabricks, consisting only of lime, and sand, but rendered into a paste with milk, or some tenacious fluid of the kind which we understand by the term *size*.

The *Indian Chunem*, which is only a variety of the mastich, is composed of equal quantities of flint, lime, and pit-sand, slaked with water, well beaten, and suffered to remain for three, or four, days, then moistened and mixed up with oil, mucilage, whites of eggs, and butter-milk, and applied, as rapidly as possible, after being mixed.

The mastich stuccoes of the present day in this country derive their origin from those we have been describing, and are only variations of those compositions. The tenacity, and hardness, are much increased by an attention to the flinty quality of the lime, and by the continual addition, to the mass of composition, of small portions of that ingredient in its quick, or unslaked state, finely levigated. It has been suggested, and with great plausibility, that nothing contributes more to the hardness, and durability, of this description of stucco, than the sweepings or scrapings from a high road composed of coarse gravel, being one of the constituent parts of the mixture. Nor is this extraordinary, for coarse gravel being generally only a collection of small flints, the dust arising from such a road is merely a species of very strong lime pulverised in its natural state, by the trituration of wheel-carriages.

STUM, in the wine trade, denotes the unfermented juice of the grapes, after it has been several times racked off, and separated from its sediment.

STYRAX. *See* STORAX.

SUBSCRIPTION is primarily a writing put at the bottom of any instrument, or document; and that writing is generally the name of the person making it, with any addition which the particular occasion calls for.

In commercial language, it is commonly used for the share or interest which particular persons take in a public stock or trading company, by writing their names, and the shares they require, in the books or registers of it.

In the commerce of *books* particularly, the word has another signification. It means, in that instance, an engagement to take a certain number of copies of a book going to be printed; and a reciprocal obligation of the publisher to deliver the said copies on certain terms. The usual conditions of these subscriptions are, on the part of the publisher, to deliver the books cheaper to the subscriber than to another, by one-third, or one-fourth, of the price; and on the part of the latter, to advance half the money in hand, and to pay the remainder on the delivery of the copies. There are other senses, in which the word subscription is frequently used, to signify assent to certain propositions, but even in those cases, that assent is manifested by the writing of the person's name. So that, in truth, only a transfer, as it were, of the term from the operation signifying the assent, to the assent signified thereby.

SUBTRACTION is the second rule in arithmetic, and consists in deducting a smaller number from a larger, in order to ascertain the difference.

SUFFERANCE, *estate at*, is where one comes into possession of a tenement by lawful title, but keeps it after the expiration of his term without any title. As, if one take a lease for a year, and, after the year is expired, continue to hold the premises without any fresh authority. This sort of estate, however, may be destroyed by the owner making an actual entry on the premises, and ousting the tenant; but before such entry, he cannot maintain an action of trespass against the tenant, as he might against a stranger. However, by 4 Geo. 2. c. 28., in case any tenant for life, or years, or other person claiming under, or by collusion with, such tenant, shall wilfully hold over after the determination of the term, and *demand made in writing* for recovering possession of the premises, by him to whom the remainder, or reversion, of them shall belong; such person shall pay for the time that he continues, at the rate of double the yearly value of the premises detained.

SUGAR, (Ger. *Zucker*. Du. *Suiker*. Da. *Sukker*. Sw. *Socker*. Fr. *Sucre*. It. *Zucchero*. Sp. *Azucar*. Port. *Assucar*. Rus. *Sachar*. Pol. *Cukier*. Lat. *Saccharum*,) a solid, sweet substance, obtained from the sugar-cane; or, according to chemists, an essential salt, capable of crystallisation. It is of a sweet and agreeable flavour, and is contained, in a greater, or smaller, quantity, in almost every species of vegetable; but next to the sugar-cane is the American maple. The inhabitants of that country obtain it by boring a hole in the tree early in spring, from which issues a juice, from 20 quarts of which they get about a pound of sugar. The sugar of grapes has lately been made in France. This, as also that from the maple-juice, is produced by evaporation. The most abundant, however, is in the sugar-cane. It is cultivated with the greatest success in the East Indies, South America, and the West Indies.

The sugar-cane is a jointed reed, which terminates in leaves or blades, the edges of which are finely and sharply serrated. The body of the cane, though brittle, is strong, and, when ripe, is of a fine straw colour, inclinable to yellow. It likewise contains a soft pithy substance, which is replete with juice of a very agreeable taste. The general distance between each joint of the cane is from one to three inches in length, and from half an inch to an inch in diameter; and the general height (the flag part being excluded) is from three feet and a half, to seven feet. In very rich lands, too, the stool or root has been known to put forth upwards of one hundred suckers or shoots.

To bring a plant of this rank and succulent nature to perfection, no land can be too rich; and the ashy loam of St. Christopher's appears to be the best soil hitherto known, for the production of sugar of the finest quality, and in the largest proportion. The next to this in excellence is the soil which in Jamaica is called brick-mould. It is a deep, warm, and mellow hazel earth, which is easily worked, and which, in the wettest season, seldom requires trenching. In a very fine season, plant-canes (which are those of the first growth) have been known, in this soil, to yield two tons and a half of sugar per acre. The black mould of several varieties may be reckoned after this. The best is the deep black earth of Barbadoes, Antigua, and some other of the windward islands; but there is a species of this mould in Jamaica, that is perhaps not in the least inferior to it, which abounds with lime-stone, and flint, on a substratum of soapy marl. Black mould on clay is more common; and when properly pulverised and manured, becomes very productive, and may be said to be inexhaustible. But there are few soils that produce a greater return of refined sugar than a peculiar sort of land on the north side of Jamaica, and particularly in the parish of Trelawney. This land is generally of a red colour, is every where remarkable when first turned up for a glossy surface, and when wetted stains the fingers like paint. It appears to consist of a native earth or pure loam, with a mixture of clay and sand; and though deep, it is by no means heavy, and is naturally dry. Hence, as its fertility is destroyed when too much exposed to the burning influence of a tropical sun, the system of husbandry, where this soil abounds, chiefly depends on what is called ratoon canes. Ratoons are the suckers, that spring from the roots or stools of the canes that have been previously cut for sugar, and are generally ripe in twelve months. Plant-canes, or canes of the first

growth, are the immediate produce of the original germs placed in the ground, and require from fifteen, to seventeen, months to bring them to maturity. The first yearly returns from their roots are called first ratoons, the second year's growth second ratoons, and so on, according to their age. The common yielding too of this cane-land, on an average, is seven hogsheads of sixteen hundred weight to ten acres, which are cut every year.

Such planters as are not fortunately furnished with the means of grinding their canes by water, are at the cutting season frequently impeded by the failure or insufficiency of their mills; for though a sugar-mill is a very simple contrivance, yet great force is requisite to make it vanquish the resistance which it necessarily meets with. It principally consists of three upright iron rollers or cylinders, from thirty, to forty, inches in length, and from twenty, to twenty-five, inches in diameter; and the middle one, to which the moving power is applied, turns the other two by means of cogs. The canes, which are previously cut short, and tied into bundles, are twice compressed between these rollers; for after they have passed through the first, and second, rollers, they are turned round the middle one by a piece of frame-work of a circular form, which is called in Jamaica the dumb returner, and forced back through the second and third. By this operation they are squeezed completely dry, and sometimes even reduced to powder. The cane-juice is received in a leaden bed, and thence conveyed into a vessel called the receiver. The refuse, or macerated rind of the cane, which is called cane-trash, serves for fuel to boil the liquor.

The sugar is obtained by the following process: The juice or liquor runs from the receiver to the boiling house along a wooden gutter lined with lead. In the boiling house it is received into one of the copper pans or cauldrons called clarifiers. Of these there are generally three; and their dimensions are determined by the power of supplying them with liquor. There are water-mills that will grind with great facility sufficient for thirty hogsheads of sugar in a week. Methods of quick boiling cannot be dispensed with on plantations thus fortunately provided; for otherwise the cane liquor would unavoidably become tainted before it could be exposed to the fire. The purest cane juice will not remain twenty minutes in the receiver without fermenting. Hence, clarifiers are sometimes seen of one thousand gallons each. But on plantations that during crop-time make from fifteen, to twenty, hogsheads of sugar a week, three clarifiers of three, or four, hundred gallons each are sufficient. The liquor, when clarified, may be drawn off at once with pans of this size, and there is leisure to cleanse the vessels every time they are used. Each clarifier is furnished either with a siphon, or cock for drawing off the liquor. It has a flat bottom, and is hung to a separate fire, each chimney having an iron slider, which, when shut, causes the fire to be extinguished through want of air.

As soon as the stream from the receiver has filled the clarifier with fresh liquor, and the fire is lighted, the temper, which is generally Bristol white lime in powder, is stirred into it. This is done in order to neutralise the superabundant acid, and to get rid of which is the great difficulty in sugar making. Alkali, or lime, generally effects this; and at the same time part of it is said to become the basis of the sugar Mr. Edwards affirms, that it affects both the smell, and taste, of the sugar. It falls to the bottom of the pans in a black insoluble matter, which scorches the bottom of the vessels, and cannot without difficulty be detached from them. But in order that less of the lime may be precipitated to the bottom, little more than half a pint of Bristol lime should be allowed to every hundred gallons of liquor, and Mr. Bousie's method of dissolving it in boiling water previous to mixing it with the cane-juice should be adopted.

As the force of the fire increases, and the liquor grows hot, a scum is thrown up, which is formed of the gummy matter of the cane, with some of the oil, and such impurities as the mucilage is able to entangle. The heat is now suffered to increase gradually, till it nearly rises to the heat of boiling water. The liquor, however, must by no means be suffered to boil. When the scum begins to rise into blisters, which break into white froth, and generally appear in about forty minutes, it is known to be sufficiently heated. Then the damper is applied, and the fire extinguished; and if circumstances will admit, the liquor after this is suffered to remain a full hour undisturbed. In the next place, it is carefully drawn off, either by a siphon, which draws up the clear fluid through the scum, or by means of a cock at the bottom. In either case, the scum sinks down without breaking as the liquor flows; for its tenacity prevents any admixture. The liquor is received into a gutter or channel, which conveys it to the evaporating boiler, commonly called the grand copper; and if produced at first from good and untainted canes, it will then appear almost transparent.

In the grand or evaporating copper, which should be sufficiently large to receive the net contents of one of the clarifiers, the liquor is suffered to boil, and the scum as it rises, is continually taken off by large scummers, till the liquor becomes finer, and somewhat thicker. This operation is continued till the subject is so reduced in quantity that it may be contained in the next or second copper into which it is then ladled. The liquor is

now almost of the colour of Madeira wine. In the second copper the boiling and scumming are continued; and if the subject be not so clean as expected, lime-water is thrown into it. This addition not only serves to give more temper, but likewise to dilute the liquor, which sometimes thickens too fast to permit the feculencies to rise in the scum. When the froth in boiling arises in large bubbles, and is not much discoloured, the liquor is said to have a favourable appearance in the second copper. When, in consequence of such scumming and evaporation, the liquor is again so reduced, that it may be contained in the third copper, it is ladled into it, and so on to the last copper, which is called the teache. This arrangement supposes four boilers or coppers, beside the three clarifiers.

In the teache the subject undergoes another evaporation, till it is supposed boiled enough to be removed from the fire. This operation is usually called striking, *i. e.* ladling the liquor, which is now exceeding thick, into the cooler.

The cooler, of which there are generally six, is a shallow wooden vessel, about eleven inches deep, seven feet in length, and from five to six feet wide. A cooler of this size holds a hogshead of sugar. Here the sugar grains, *i. e.* as it cools it runs into a coarse irregular mass of imperfect crystals, separating itself from the melasses; and the more slowly it cools, the larger grained will be the sugar. From the cooler, it is taken to the curing house, where the melasses drains from it.

But here it may be proper to notice the rule for knowing when the subject is fit to be ladled from the teache to the cooler. Many of the negro boilers, from long habit, guess accurately by the eye alone, judging by the appearance of the grain on the back of the ladle; but the practice generally adopted is to judge by what is called the touch, *i. e.* taking up with the thumb a small portion of the hot liquor from the ladle, and, as the heat diminishes, drawing with the forefinger the liquid into a thread. This thread will suddenly break and shrink from the thumb to the suspended finger, in different lengths, according as the liquor is more or less boiled. A thread of a quarter of an inch long generally determines the proper boiling height for strong muscovado sugar.

The curing-house is a large airy building, provided with a capacious melasses cistern, the sides of which are sloped and lined with terras, or boards. A frame of massy joist-work without boarding is placed over this cistern; and empty hogsheads without headings are ranged on the joists of this frame. Eight or ten holes are bored in the bottoms of these hogsheads, and through each of the holes the stalk of a plaintain leaf is thrust six or eight inches below the joists, and long enough to stand upright above the top of the hogshead. Into these hogsheads the mass from the cooler is put, which is called potting; and the melasses drains through the spongy stalk, and drops into the cistern, whence it is occasionally taken for distillation. In the space of three weeks, the sugar becomes tolerably dry and fair. It is then said to be cured, and the process is finished.

Sugar thus obtained is called muscovado, and is the raw material whence the British sugar-bakers chiefly make their loaf or refined lump. There is another sort, which was formerly much used in Great Britain for domestic purposes, and was generally known by the name of Lisbon sugar. In the West Indies it is called clayed sugar; and the process of making it is as follows:

A quantity of sugar from the cooler is put into conical pots or pans, which the French call formes, with the points downward, having a hole about half an inch in diameter at the bottom, for the melasses to drain through, but which at first is closed with a plug. As soon as the sugar in these pots is cool, and becomes a fixed body, which is known by the middle of the top falling in, the plug is taken out, and the pot placed over a large jar intended to receive the sirup or melasses that drains from it. In this state it is left as long as the melasses continues to drop, when a stratum of clay is spread on the sugar, and moistened with water. This, imperceptibly oozing through the pores of the clay, dilutes the melasses, in consequence of which more of it comes away than from sugar cured in the hogshead, and the sugar of course becomes so much whiter, and purer. According to Sloane, the process was first discovered in Brazil, by accident: "A hen," says he, "having her feet dirty going over a pot of sugar, it was found under her feet to be whiter than elsewhere." The reason assigned why this process is not universally adopted in the British sugar-islands is, that the water which dilutes, and carries away, the melasses, dissolves and carries with it so much of the sugar, that the difference in quality does not pay for the difference in quantity. However, the French planters have been of a different opinion; in their West India islands, they have always had the apparatus for claying, and always carried on the system. By 57 Geo. 3. c. 43., and 58 Geo. 3. c. 34., bounties are granted on all sugars exported, which have been refined without claying.

Refined or lump-sugar, is that which, being entirely freed from impurities, appears perfectly white, and is sold to the public in conical loaves, whence it has likewise obtained the appellation of loaf-sugar. To produce this article the following is the process: Raw or muscovado sugar is dissolved in water, mixed with lime, clarified by means of bullock's blood, boiled down to a

proper consistency, skimming off the impurities as they rise to the top, and then poured into unglazed conical earthen vessels, where it is allowed to grain. The point of the cone is undermost, and perforated to allow the impurities to separate. The base of the cone is covered with moist clay; the water of which gradually filtres through the sugar, and displaces a quantity of impure liquid. The sugar thus purified is called loaf-sugar. When redissolved, and treated in the same way a second time, it is called refined sugar.

Sugar thus procured has a very strong sweet taste. When pure it has no smell. Its colour is white; and when crystallised it is somewhat transparent. It has often a considerable degree of hardness: but it is always so brittle that it can be reduced without difficulty to a very fine powder.

Double refined sugar is clarified by whites of eggs instead of blood, and fresh water instead of lime water.

The perfection of refined sugar, when formed into loaves or lumps, consists in whiteness, joined to a smallness of grain, in being dry, and somewhat transparent.

SUGAR-CANDY, (Ger. *Kandiszucker, Zuckerkand.* Du. *Kandy, Kandyzuiker,* Da. *Sukkercandi.* Sw. *Kandisocker, Sockerkandi.* Fr. *Sucre candi.* It. *Zucchero candi, o candito.* Sp. *Azucar piedra ò cande.* Port. *Assucar candi.* Rus. *Ledenez.* Pol. *Cukier lodowaty.* Lat. *Saccharum cantum, s. crystallinum,*) is a preparation of sugar, made by melting and crystallising it six or seven times over, to render it hard or transparent. It is of three kinds; white, yellow, and red. The white comes from the loaf, the yellow from the clayed, and the red from the muscovado sugar. The whole process of making sugar-candy is managed in strongly heated chambers, by the aid of vessels containing numerous threads, that intersect each other, and are fastened to the sides in various directions. The sugar thus treated, shoots into crystals around the threads.

SUGAR OF LEAD, or Saccharum Saturni. *See title* LEAD.

SULPHUR, or Brimstone, is a well known hard, brittle, inflammable substance, of an opake yellow colour. It is found more or less pure in the neighbourhood of volcanoes; where, most probably, it is always expelled from some previous state of combination, by the heat of subterraneous fires. It is a very common ingredient in a great variety of minerals and ores; but it is extracted for sale chiefly from a stone called pyrites.

In order to obtain sulphur from pyrites, this mineral ought to be exposed to a heat sufficient to sublime the sulphur, or to make it distil in vessels, which must be close to prevent its burning.

Sulphur is extracted from pyrites, at a work at Schwartzemberg, in Saxony, in the high country of the mines, and in Bohemia, at a place called Alten-Sattel.

The furnaces employed for this operation are described by Macquer. They are oblong, like vaulted galleries; and in the vaulted roofs are made several openings. These are called furnaces for extracting sulphur.

In these furnaces are placed earthen-ware tubes, filled with pyrites, broken into pieces of the size of small nuts. Each of these tubes contains about fifty pounds of pyrites. They are placed in the furnace almost horizontally, and have scarcely more than an inch of descent. The ends, which come out of the furnace five, or six, inches, become gradually narrower. Within each tube is fixed a piece of baked earth, in form of a star, at the place where it begins to become narrower, in order to prevent the pyrites from falling out, or choking the mouth of the tube. To each tube is fitted a receiver, covered with a leaden plate, pierced with a small hole, to give air to the sulphur. The other end of the tube is exactly closed. A moderate fire is made with wood, and in eight hours, the sulphur of the pyrites is found to have passed into the receivers.

Some sulphur is found quite pure, and in different forms, principally in the neighbourhood of volcanoes, in caverns, and in mineral waters. Such are the opake kind, called virgin sulphur; the transparent kind, called sulphur of Quito; and the native flowers of sulphur, as those of the waters of Aix-la-Chapelle. It is also found mixed with different earths. Here we may observe, that all those kinds of sulphur which are not mineralised by metallic substances, are found near volcanoes, or hot mineral waters, and consequently in places where nature seems to have formed great subterranean laboratories, in which sulphureous minerals may be analysed and decomposed, and the sulphur separated in the manner in which it is done in the small way in our works and laboratories. However this may be, certainly one of the best and most famous sulphur-mines in the world is that called Solfatara. The Abbé Nollet has published, in the Memoirs of the Academy, some interesting observations upon this subject, from which we shall make the following extract:

"Near Puzzoli, in Italy, is that great and famous mine of sulphur, and alum, called at present Solfatara. It is a small oval plain, the greatest diameter of which is about 400 yards, raised about 300 yards above the level of the sea. It is surrounded by high hills, and great rocks, which fall to pieces, and the fragments of which form very steep banks. Almost all the ground is bare and white, like marl; and is every where sensibly warmer than the atmosphere in the greatest heat of summer; so that the feet of persons walking there are burnt through

their shoes. It is impossible not to observe the sulphur there; for every where, may be perceived by the smell a sulphureous vapour, which rises to a considerable height, and gives reason to believe, that there is a subterraneous fire below, from which that vapour proceeds.

"Near the middle of this field, there is a kind of basin, three or four feet lower than the rest of the plain, in which a sound may be perceived when a person walks on it, as if there were under his feet some great cavity, the roof of which was very thin. After that, the lake Agnano is perceived, the waters of which seem to boil. These waters are indeed hot, but not so hot as boiling water. This kind of ebullition proceeds from vapours rising from the bottom of the lake, which, being set in motion by the action of subterranean fires, have force enough to raise all that mass of water. Near this lake there are pits, not very deep, from which sulphureous vapours are exhaled. Persons who have the itch come to these pits, and receive the vapours, in order to be cured. Finally, there are some deeper excavations, whence a soft stone is procured, which yields sulphur. From these cavities vapours exhale, and issue out with noise, which are nothing else than sulphur subliming through the crevices. This sulphur adheres to the sides of the rocks, where it forms enormous masses: in calm weather the vapours may be evidently seen to rise twenty-five, or thirty, feet from the surface of the earth.

"These vapours, attaching themselves to the sides of rocks, form enormous groups of sulphur, which sometimes fall down by their own weight, and render these places of dangerous access.

"When melted sulphur is gently heated, it flies off in yellow powder, which is called *flower of sulphur*, and is much used in medicine. This article is likewise employed in the making of gunpowder, and fulminating powder; for whitening silk and wool, and some other purposes."

For the foreign names of SULPHUR, *see* BRIMSTONE.

SULTANIN, an Egyptian gold coin, worth ten shillings British.

SUMACH. (Ger. *Schmack, Sumach.* Du. *Sumak, Smak.* Da. *Smak, Sumak.* Sw. *Sumack, Smack.* Fr. *Sumac, Roure, Roux.* It. *Sommaco.* Sp. *Zumaque.* Port. *Sumagre, Cumagre.* Rus. *Sumak.* Pol. *Garbarskie drzweko, Maçznika.* Lat. *Rhus.*) Common sumach (*rhus coriaria*) is a shrub that grows naturally in Syria, Palestine, Spain, and Portugal; in the two last it is cultivated with great care: its shoots are cut down every year quite to the root; and, after being dried, they are reduced to powder by a mill, and thus prepared for the purposes of dyeing, and tanning. The sumach cultivated in the neighbourhood of Montpellier, is called *rédoul* or *roudou.*

The infusion of sumach, which is of a greenish fawn-colour, soon becomes brown by exposure to the air: a solution of potash produces but little change on it while recent; acids brighten its colour, and turn it yellow; solution of alum renders it turbid, and produces in it a small quantity of yellow precipitate; the liquor remains yellow.

Acetat of lead produced immediately a considerable quantity of yellowish precipitate, the surface of which was brown; the liquor remained of a clear yellow.

Sulphat of copper produced a copious precipitate, of a yellowish green, which after some hours changed to a brownish green; the liquor remained clear and slightly yellow.

Common sulphat of zinc rendered the liquor turbid, darkened its colour, and produced a deep blue precipitate.

Pure sulphat of zinc did not deepen the colour nearly so much; only a small quantity of a brownish fawn-coloured precipitate was produced.

Sea-salt at first produced no sensible change; but after some hours, the liquor became somewhat turbid, and its colour was rendered a little more clear.

The Spanish sumach is exported in skins, and that of Sicily, (in which island the plant grows abundantly,) in bags. The prime quality of the Sicilian sumach comes from Alcamo; the inferior sorts are bought from Carini, Calatafini, Montreal, Termini, &c. The crop in Sicily is made in July and August.

Sumach may be considered of good quality, when its odour is strong, colour of a lively green, well ground, and free from stalks.

SUN-FLOWER, the *Helianthus* of botanists, has long been in esteem as an ornament to gardens and pleasure grounds; but is now more duly appreciated for its utility to the agriculturalist, and the manufacturer. It is said to be a native of South America, but has been found in most parts of the world; in different degrees of perfection, indeed, according to the strength of the soil, and the temperature of the climate. The seed of this plant should be sown very early in the spring, and in a rich soil, according to the drill-husbandry, and kept clean from weeds. These rules being observed, three or four quarts will serve for an acre of land, and the produce will be abundant. The best mode of harvesting the crop is, by pulling up the whole of the plants, even to their roots, which may be done most advantageously before the heads become very dry, to prevent the birds (all of which are extravagantly fond of the seed or grain) from committing depredations on them. They may be tied up in sheaves, and stacked like other corn, but are better housed. The only peculiar care, exclusively necessary for this kind of crop after it is ga-

thered, is to place the heads so as to be exposed to wind and sun, in order to prevent their being heated in the stack; and also to preserve them from the depredations of the birds, by nets, or other contrivances.

There is no part of this plant which may not be converted to some purpose of great utility and advantage.

First, of the *seeds or grain*. These may be threshed out like any other corn, and are excellent provender for horses, either whole, or bruised, or ground into coarse flour, and mixed with bran. They are also a cheap, substantial, and nourishing food for neat cattle, either whole, bruised, ground, or made into cake, after expressing the oil, of which more hereafter. Nothing can exceed them for feeding sheep, pigs, and poultry; being farinaceous, as well as oleaginous. Lastly, they afford an oil of an exquisite kind, peculiarly applicable to the use of the clothier, in softening and preparing the wool for the card and the loom; to that of the printer, for book-printing; and also to manufactories, and other edifices, for burning in lamps, where purity and brilliancy are required; being scarcely inferior to the spermaceti oil for that purpose.

Secondly, of the *fibrous parts* of the plant. These have been hitherto tried but on a very small scale; but have been found, so far as experiment has gone, to produce a material little, if at all, inferior to hemp. It is also reasonably conjectured, that these parts will not be inapplicable to the manufacture of paper.

Thirdly, of the *roots and stems*. These are of great utility wherever faggots are desirable; as for heating ovens, drying malt, placing at the bottoms of corn-stacks, and even for common fuel, &c. &c.

On the whole, we cannot but consider the application of this plant, to the purposes above enumerated, as a recent discovery of almost inestimable value to agriculture, manufactures, and domestic convenience.

SUPERCARGO, a person employed by merchants to go a voyage, and oversee their cargo, or lading, and dispose of it to the best advantage.

SURETY, is where one person becomes bound that another shall do a certain act, or pay a certain debt; and such surety is bound *personally* in default of his principal. But no man shall be answerable for the neglect, default, or miscarriage of another, unless the terms of such responsibility are committed to writing.

These engagements are of two sorts, viz. in civil, and in criminal, proceedings. In civil proceedings, the engagement of the surety is generally by an instrument, called a *bond*, that the principal shall pay a sum of money at a certain time, or perform some other conditions of a civil obligation entered into.

In criminal matters, the obligation of the surety is generally taken by a magistrate, for the appearance of the principal at some specified time before a court of criminal jurisprudence; and the instrument by which the obligation is adopted, is called a *recognizance*. In both cases, however, the principal is answerable in a pecuniary obligation for the performance of the condition by the principal; and the great difference between the two is, that in the civil process, the extent of the obligation is apparent on the face of the transaction from its commencement; but in the criminal process, the obligation to enforce appearance is, to a great degree, at the discretion of the magistrate.

SURVEYING, the art of, is that part of practical mathematics which teaches the method of ascertaining the limits and superficial contents of lands.

SWALLOW-WORT, (Ger. *Schwalbenwurzel*. Du. *Zwaluwwortel*. Da. *Svalerod*. Sw. *Tulkort, Rylort*. Fr. *Dompte-venin*. It. *Vintossico*. Sp. *Vencetosigo*. Port. *Hirundinaria*. Rus. *Tschortowa boroda*. Pol. *Jaskolcze Ziele*. Lat. *Hirundinaria*,) a hardy exotic plant, which is a native of the south of France, Spain, and Italy. In a fresh state, the root of this vegetable possesses a strong smell, resembling that of valerian.

The silk obtained from the seed-capsules of the Syrian swallow-wort is not only useful for stuffing pillows, spinning fine yarn, both by itself, and mixed with cotton-wool, and cod silk, or the loose filaments of the cocoons, but it affords a valuable material for manufacturing paper of a superior quality: its stalks may be advantageously employed as substitutes for hemp. In Canada, a brown sugar is extracted, by evaporating the juice of its flowers, and the young tops are eaten as asparagus.

SWEEP, in the sea-language, is that part of the mould of a ship, where she begins to compass in at the rung-heads: also, when the hawser is dragged along the bottom of the sea, to recover any thing that is sunk, they call this action sweeping for it.

SWEETS, in the wine trade, denotes any vegetable juice, whether obtained by means of sugar, raisins, or other foreign, or domestic, fruit, which is added to wines, with a design to improve them. Every maker of sweets for sale, must take out a licence, with a duty of 10*l.*; and every retailer of the same, a licence with a duty of 4*l.* 8*s.*

SWINE, is a generic term, comprehending the whole porcine race, of both sexes, and of all the different kinds. The hog is believed to have been an indigenous animal of Europe, but was certainly not known in America, till introduced there by Europeans. In both Asia and Africa, hogs have been common so far back as history extends. Among the great variety of kinds with which Great Britain and Ireland abound, it may be matter of some difficulty to decide which was the original one, but there is rea-

son to believe not the *best* for beauty, profit, or general utility. The chief characteristic distinctions among the different breeds of this animal, are in the ear and in the hair. The large pendulous ear, with coarse hair, generally indicates a tendency to magnitude of person, and, at the same time, to thickness of hide, and heaviness of bone; while the erect ear, and fine coat, are usually accompanied by light bone, and thin skin. In a commercial point of view, this animal is of so much importance, that too much attention cannot be given to the different breeds, and to the advantages arising from the mixture of them, or to what agriculturalists term *the crossing* them. This is not a place adapted to the discussion of agricultural subjects, further than they are necessarily connected with those results which are purely commercial; and therefore, all we think it right to add on this part of our enquiry, is the observation, that in time of war, our fleets and armies are, to a great degree, supported by the flesh of this animal; that it is, at all times, in great request as an article of home consumption; and in no small demand as one of foreign exportation. Ireland breeds, and cures, the largest swine, but they are far from being the best flavoured. In England, the counties of York, and Berks, are supposed to produce the best bacon; but whatever may have been the fact formerly, there is no doubt but this commodity of exquisite flavour may be procured in all parts of the island, where milk, corn, pulse, and potatoes, are to be obtained in plenty; for, though grass, hay, and oil-cake, will fatten an ox to the utmost of which it is susceptible, yet nothing but the articles enumerated will feed a hog, so that its flesh shall be solid, yet tender; its fat firm, yet soluble by mastication; and that it shall be capable of imbibing salt to a degree, that will be proof against putrefaction in all climates. *See title* BACON, *ante*.

SWIVEL, a sort of small cannon, much used on board merchant-ships, as a weapon of defence.

SWORD, (*Swords*, Ger. *Degen*. Du. *Degens*. Da. *Kaarder*. Sw. *Värjor*. Fr. *Epées*. It. *Spade*. Sp. and Port. *Espadas*. Rus. *Schpagi*. Pol. *Szpady*,) a weapon used either in cutting or thrusting; the usual weapon of fights hand to hand.

SWORD, *Broad*, an original weapon of Scotland, it is sometimes called a back sword, as having but one edge: it is basket-handled, and three feet two inches long.

SWORD, *Regulation*. The sword which is worn by British officers may be properly called a long cut-and-thrust.

Swords of every description are manufactured at Sheffield, and Birmingham; especially at the latter town, where they carry the temper of their blades to an extraordinary pitch of perfection.

SYRUP. *See* SIRUP.

T, THE nineteenth letter in the alphabet. As a numeral it stands for one hundred and sixty; and with a dash at top, $\overline{T}$ signifies one hundred and sixty thousand.

TABBY, a kind of rich silk, which has undergone the operation mentioned in the next article.

TABBYING, the passing a silk or stuff through a calender, the rolls of which are made of iron, or copper, variously engraven; which bearing unequally on the stuff, renders the surface unequal, so as to reflect the rays of light differently, making the representation of waves thereon.

TABLE, among the jewellers. A table-diamond, or other precious stone, is that whose upper surface is quite flat, and only the sides cut in angles: in which sense a diamond cut tablewise, is used in opposition to a rose-diamond.

TACAMAHACA, (Ger. *Takamahak*, *Hack und tack*. Du. *Takamahak*. Da. *Hak og tak*. Sw. *Tacamahac*. Fr. *Tacamacha*, *Gomme tamacha*. It. *Taccamaca*. Sp. and Port. *Tamacaca*. Lat. *Tacamahaca*,) a solid resinous substance brought from New Spain; it is said to be collected likewise in certain other provinces of America, and in the island of Madagascar. There are two sorts of it. The best is called tacamahaca *in shells*: this is concrete, somewhat unctuous and softish, of a pale yellowish or green colour, collected in a kind of shells made from the rind of certain fruits of the gourd kind, and covered over with leaves. Its smell is exceedingly fragrant and delightful, approaching to that of lavender, or ambergris; its taste resinous and aromatic. The kind commonly met with in shops, is in semi-transparent globules, of a whitish, yellowish, brownish, or greenish hue, and of a fragrant odour, less grateful, however, than that of the foregoing. It is principally employed in pharmacy as an ingredient in plasters.

TACK, in a ship, a great rope, having a wale-knot at one end, which is seized or fastened into the clew of the sail; so is reefed first through the chess-trees, and then is brought through a hole in the ship's side. Its use is to carry forward the clew of the sail, and to make it stand close by a wind; and whenever the sails are thus trimmed, the

main-tack, the fore-tack, and mizen-tack, are brought close by the board, and haled as much forward on as they can be.

TACK-ABOUT, in the sea-language, is to turn the ship about, or bring her head about, so as to lie the contrary way.

TACKLE, or TACKLING, among seamen, denotes all the ropes or cordage of a ship, used in managing the sails, &c. In a more restrained sense, tackles are small ropes running in three parts, having at one end a pendant and a block; and at the other end a block and a hook, to hang goods upon that are to be heaved into the ship or out of it.

TAEL, or LEAM, a small Chinese weight, equal to one ounce and two drachms.

TAFFETY, or TAFFETA, (GER. *Taft.* DU. *Taf.* DA. and SW. *Taft.* FR. *Taffetās.* IT. *Taffeta.* SP. *Tafetan.* PORT. *Tafeta.* RUS. *Tafta.* POL. *Kitayka,*) a fine smooth silken stuff, remarkable for its gloss or lustre.

The *taffetas noir lustre*, or black and glossed taffety, is what the English call alamode or mode: and the *non lustre* or *unglossed* of the former, *lustring.*

India furnishes very excellent taffetas, but they are by no means comparable to those of France or Italy, in point of durability and the excellence of the workmanship. Taffetas are of different qualities, according to the different places in which tney are manufactured, and from which places they obtain the various appellations of Lyonese, English, Italian, and Florentine taffetas, &c. In the manufacture of taffety the best kind of Italian silk is usually employed, and it is said, that the peculiar quality of the water used, has considerable influence upon the fabric; thus the admirably beautiful gloss of the Lyonese taffety, is generally attributed to a property resident in the water of the Sane, which the manufacturers of Lyons invariably employ.

TALC, a species of mineral, of which there are three varieties:

1. *Earthy Talc.* Its colour is greenish-white, passing into reddish-white, silver-white, pale apple-green, and bright grey. It is found disseminated, superficial, or in kidney-shaped masses. It has a glistening pearly lustre, and is composed of slightly agglutinated scaly particles.

It is found at Sylva, in Piedmont; near Freyberg, in Saxony; and at Meronitz, in Bohemia.

2. *Common Talc.* Its colours are greenish-white, leek-green, and reddish or yellowish white. It occurs in masses, disseminated, and, very rarely, crystallized; in minute hexagonal tables. It has a shining pearly lustre passing into semimetallic.

It abounds in the mountains of Tyrol, and Salsburg, whence it was brought to market to Venice, and thence received the name of Venetian talc.

3. *Indurated Talc.* Its colour is greenish-white, of different degrees of intensity, also snow-white, and yellowish-white. It occurs in masses. It has a bright shining lustre, somewhat pearly. It is found in the Alps, in Stiria, Austria, and Hungary; and it is also said, in Breadalbane, and the Shetland islands, in Scotland.

The Chinese make very splendid ornaments of talc, tinged of various colours. It is principally used in this country, in the manufacture of crayons, rouge, and for making silver sand for sprinkling on writing. Talc is one of the prohibited articles in the Russian tariff, under the name of Marien-glass.

TALLOW, (GER. *Talg.* DU. *Ongel.* DA. *Tælg, Talg.* SW. *Talg.* FR. *Suif.* IT. *Sevo, Sego.* SP. and PORT. *Sebo.* RUS. *Salo toplenoe.* POL. *Zoy.* LAT. *Sebum,*) a sort of animal fat, melted down and clarified, being used in making soap, and candles, in the dressing of leather, and by salt-boilers for the purpose of imparting a large grain to the salt. Tallow is either *yellow* or *white candle*, or *soap tallow.* Its goodness consists in its sweetness and purity.

It is an object of no small importance to purify or improve tallow. The tallow-chandlers clear it of fibrous matter and other gross impurities by careful melting, straining, and the like mechanical management. It is said also, that they improve its whiteness by the addition of alum, the efficacy of which we are much disposed to doubt. It is thought, too, that long keeping, and the action of the external air, improve its hardness; but these slow operations are ill calculated for a manufactory, in which the greatest part of the capital is vested in the raw material, and very little in the manufacturing process: if they increase the hardness of the tallow, they injure its colour; and candles kept too long do not burn so well.

Our chief importation of tallow is from Russia, and North America. *See* AMERICA; *and* RUSSIA, *article* EUROPE.

TALLOW-TREE, a tree growing abundantly in China, which produces a substance like our tallow, and which serves for the same purposes. This substance is inclosed in a stone or kernel, which is found in the pods produced by the tallow-tree. It is a white pulp, and has the exact consistence, colour, and smell, of Russian tallow. The only preparation it undergoes is being melted down, and mixed with a little oil to make it softer and more pliant.

TAMARINDS, (GER. and DU. *Tamarinden.* DA. *Tamerin.* SW. *Tamarind.* FR. *Tamarins.* IT. and SP. *Tamarindo.* PORT. *Tamarinho.* LAT. *Tamarindus,*) the fruit of the *tamarindus indica.* It is a pod resembling a beancod, including several hard seeds, together with a dark-coloured viscid pulp, of a pleasant acid taste: the

East India tamarinds are longer than the West India sort; the former containing six or seven seeds each, the latter rarely above three or four.

Tamarinds are prepared for exportation at Jamaica, in the following manner: the pods are gathered when fully ripe, the fruit is taken out of them, cleared from the shelly fragments, and placed in layers in a cask; boiling syrup, just before it begins to granulate, is then poured in till the cask is filled. The syrup pervades every part down to the bottom, and when cool, the cask is headed for sale. A better mode of preserving this fruit is with sugar, well clarified with eggs, till a transparent syrup is formed, which produces a pleasant flavour.

TAMLING, the Siamese name for that species of money, and weights, called *tael* by the Chinese. The former is about half as light again as the latter.

TAMBOUR, a species of embroidery. The tambour frame is an instrument of a spherical form, upon which is stretched, by means of a string and buckle, or other appropriate appendage, a piece of silk, muslin, linen, &c. which is wrought with a needle of a particular form, and by means of silver or gold, cotton or silk, into leaves, flowers, or other figures. The manner of working with this machine, was first introduced into this country by a society of Moravians, who excelled in its use, but it is now become so general, that it is no longer any exclusive source of profit to that society.

TAMMY, a species of woollen stuff, which is manufactured in the best possible manner in England. The wool of our own country is employed in this manufacture, in which the warp, and woof, are nearly equal. The material of the warp for 46 yards of this stuff ought to weigh from 10 lbs. to 10½ lbs. Exeter, and Norwich, are the chief seats of the manufacture of tammies, which we export to almost every part of the world with which we trade.

TAN. This substance exists in a number of vegetables, and in considerable proportion in oak-bark, and nut-galls. It may be obtained from the latter, by infusing them (in the state of coarse powder) in water, and evaporating the solution to dryness. A black matter remains, which is tan, mixed with a small proportion of extractive matter. It may be also precipitated from this solution by the mineral acids.

Tan is a brittle substance, of a brown colour; has a very astringent taste; is soluble in water, and alcohol. It unites with metallic salts, and with many of them forms precipitates; insoluble in water with sulphate of iron it produces a deep blue, which becomes black on exposure to the air; and is the basis of writing ink. The most important property it possesses, is that of forming an insoluble compound with *gelatine*, or animal glue. This is the principle of the important process of tanning leather. *See* TANNING.

TANGA, a money of account, used in the East Indies, especially at Goa, and on the Malabar coast. There are two sorts of this money, the *good*, and the *bad*, alloy. The former is one-third heavier than the latter.

TANNING is the art of converting the raw skins of animals into leather. The process which has long been used in this country is as follows: The leather tanned in England, consists chiefly of three sorts, known by the name of butts or backs, hides, and skins. Butts are generally made from the stoutest and heaviest ox-hides, and are managed as follows: after the horns are taken off, the hides are laid smooth in heaps for one or two days in the summer, and for five or six in the winter; they are then hung on poles in a close room, called a smoke-house, in which is kept a mouldering fire of wet tan; this occasions a small degree of putrefaction, by which means the hair is easily got off, by spreading the hide on a sort of wooden horse or beam, and scraping it with a crooked knife.

The hair being taken off, the hide is thrown into a pit or pool of water, to cleanse it from the dirt, &c. which being done, the hide is again spread on the wooden beam; and the grease, loose flesh, extraneous filth, &c. carefully scrubbed out, or taken off; the hides are then put into a pit of strong liquor, called ooze, prepared in pits kept for the purpose, by infusing ground bark in water; this is termed colouring; after which they are removed into another pit, called a scowering, which consists of water strongly impregnated with vitriolic acid, or with a vegetable acid prepared from rye or barley. This operation, (which is called raising,) by distending the pores of the hides, occasions them more readily to imbibe the ooze, the effect of which is to combine with the gelatinous part of the skin, and form with it leather. The hides are then taken out of the scowering, and spread smooth in a pit commonly filled with water, called a binder, with a quantity of ground bark strewed between each. After lying a month or six weeks, they are taken up; and the decayed bark and liquor being drawn out of the pit, it is filled again with strong ooze, when they are put in as before, with bark between each hide. They now ought to lie two or three months, at the expiration of which the same operation is to be repeated; they then remain four or five months, when they again undergo the same process, and after being three months in the last pit, are completely tanned; unless the hides are so remarkably stout as to want an additional pit or layer. The whole process in this manner requires from eleven, to eighteen, months, and sometimes two years, according to the substance of the hide and discretion

of the tanner. When taken out of the pit to be dried, they are hung on poles; and after being compressed by a steel pin, and beaten out smooth by wooden hammers, called battes, the operation is complete; and when thoroughly dry, they are fit for sale. Butts are chiefly used for the soles of stout shoes.

The leather which goes under the denomination of hides, is generally made of cow-hides, or the lighter ox-hides, which are thus managed: After the horns are taken off, and the hides washed, they are put into a pit of water, saturated with lime: where they remain a few days, when they are taken out, and the hair scraped off on a wooden beam, as before described; they are then washed in a pit or pool of water, and the loose flesh, &c. being taken off, they are removed into a pit of weak ooze, where they are taken up and put down (which is technically termed handling) two or three times a day, for the first week; every second, or third, day they are shifted into a pit of fresh ooze, somewhat stronger than the former, till at the end of a month, or six weeks, they are put into a strong ooze, in which they are handled once or twice a week with fresh bark for two, or three, months. They are then removed into another pit, called a layer, in which they are laid smooth, with bark ground very fine, strewed between every two hides. After remaining here two or three months, they are generally taken up, when the ooze is drawn out, and the hides put in again with fresh ooze, and fresh bark, where, after lying two or three months more, they are completely tanned; except a very few stout hides, which may require an extra layer: they are then taken out and hung on poles, and being hammered and smoothed by a steel pin, are, when dry, fit for sale. These hides are called crop hides: they are from ten, to eighteen, months in tanning, and are used for the soles of shoes.

Skins is the general term for the skins of calves, seals, hogs, dogs, &c. These, after being washed in water, are put into lime-pits, as before mentioned, where they are taken up, and put down, every third or fourth day, for a fortnight, or three weeks, in order to destroy the epidermis of the skin.

The hair is then scraped off, and the excrescences being removed, they are put into a pit of water impregnated with pigeon-dung, called a grainer, forming an alkaline ley, which, in a week, or ten days, soaking out the lime, grease, and saponaceous matter, (during which period they are several times scraped over with a crooked knife, to work out the dirt and filth,) softens the skins, and prepares them for the reception of the ooze. They are then put into a pit of weak ooze, in the same manner as the hides, and being frequently handled, are by degrees removed into a stronger, and still stronger, liquor, for a month or six weeks; when they are put into a very strong ooze, with fresh bark ground very fine, and at the end of two or three months, according to their substances, are sufficiently tanned; when they are taken out, hung on poles, dried, and are fit for sale. These skins are afterwards dressed and blacked by the curriers, and are used for the upper leathers of shoes, boots, &c.

The lighter sort of hides, called dressing hides, as well as horse-hides, are managed nearly in the same manner as skins; and are used for coach-work, harness-work, &c. *See titles* CURRYING, *and* LEATHER.

We have here however rather pointed out the process of tanning as it *used to be* performed, than as *it is;* for *now* the interest of money is so valuable, that a quick return supersedes most other considerations in trade, and expedites the process of manufacturing, not unfrequently to the detriment of the article. This is eminently the case in the art of tanning; for by the use of a wild plant called *tormentil,* and other strong astringents, both vegetable and mineral, the time necessary for the process is much shortened, but the article proportionably deteriorated.

TAONBAC, or Tombaqua, a mixture of gold, and copper, which the people of Siam set a greater value on than gold itself, considering it more beautiful.

TAPE, (Ger. *Band.* Du. *Lind, Band.* Da. *Baand.* Sw. *Band.* Fr. *Ruban de fil.* It. *Nastro.* Sp. *Cinta.* Port. *Fita.* Rus. *Lenta.* Pol. *Wstega,*) a sort of ribbon or narrow band, made either from flaxen, or cotton, thread. Tape is woven upon a small loom in the manner of linen, &c. and the only difference between it and linen, or calico, is, that its warp is narrower. Vast quantities of this article are manufactured in several parts of England, especially in Lancashire; there are likewise considerable manufactures of tape in Normandy, Holland, Flanders, and Germany. At Elbefeld, in the duchy of Juliers, in the latter country, there is a manufacture of tapes which, in point of extensiveness, and the excellence of its productions, stands unrivalled throughout Europe.

TAPESTRY, (Ger. *Tapeten, Tapezerey.* Du. *Tapyten, Kamerbehangzels.* Da. *Tapetsrie.* Sw. *Tapeter.* Fr. *Tapiscerie.* It. *Tapezzerie.* Sp. *Tapicerias, Tapices.* Port. *Tapecarias, Tapizes.* Rus. *Obur, Schpaleru.* Pol. *Obicie, Tzpalery,*) a kind of woven hangings, of wool, and silk, frequently raised and enriched with gold and silver, representing figures of men, beasts, landscapes, histories, &c.

Tapestry-work is distinguished by the artisans into two kinds, viz. that of high, and that of low, warp, though the difference is rather in the manner of working, than in the work itself, which is in effect the same in both, only the looms, and consequently

the warps are differently situated; those of the low warp being placed flat, and parallel to the horizon, and those of the high warp, on the contrary, erected perpendicularly.

TAPIOCA, a name given to white sago.

TAR. (Ger. *Theer*. Du. *Teer*. Da. *Tiære*. Sw. *Tjära*. Fr. *Goudron*. It. *Catrame*. Sp. *Alquitran*. Port. *Alcatrão*. Rus. *Degot*. *Smola shitkaja*. Pol. *Smola gesta*.) If the wood of the turpentine trees be exposed to the fire, in a vessel every where closed, except an aperture at the bottom, as for example in a retort with the neck placed lowermost, the resinous juice melts out by the heat, and at the same time contracts an empyreumatic smell and taste: in this state it is tar. Tar is prepared in different parts of Germany, Norway, Sweden, &c., from the pine, and the fir trees, and in some places from the larch, and the terebinth. The wood is inclosed in a large oven, to the quantity of ten, or more, loads at a time; this stands within another oven called the mantle, the space betwixt them receiving the fire; from the bottom of the inner over runs a gutter, by which the tar is conveyed off, in proportion as it melts out of the wood.

Tar is also obtained from the wood of the trunk, branches, and roots of the pine, heaped together, covered with turf, and set on fire to produce a close combustion, in the same manner as for making charcoal. The oily parts, which are disengaged, trickle down, and are received in a gutter, which serves to convey them to a tub. The most fluid part is sold under the name of *huile de cade*; and the thicker part is the tar used for paying, or painting the parts of shipping and other vessels. *See* PINE-TREE.

TARE, is an allowance for the outside package, that contains such goods as cannot be unpacked without detriment; or for the papers, threads, bands, &c. that inclose or bind any goods imported loose, or, though imported in casks, chests, &c. yet cannot be unpacked, and weighed net.

TARIF, or Tariff, a table or catalogue, containing the names of different sorts of merchandise, with the duties to be paid, as settled by authority, amongst trading nations. *See* DUTIES.

TARTAR is obtained in a state of impurity, incrusted on the bottoms and sides of casks in which wine has been kept. It is afterwards purified by dissolving it in boiling water, and filtering it while hot. On cooling, it deposits the pure salt in very irregular crystals. In this state it is sold under the name of crystals or cream of tartar. *See* ANGOL.

TAWING is the art or manner of preparing or dressing skins in white, to fit them or use in divers manufactures, particularly gloves, purses, &c.

All kinds of skins may be tawed, but it is chiefly those of sheep, goats, kids, and lambs, that are used to be dressed this way, as being those fittest for gloves. *See* TANNING.

TEA, (Ger. and Du. *Thee*. Da. *The*. Sw. *Thee*. Fr. *Thé*. It. *Té*. Sp. *Thē*, *Té*. Port. *Chá*. Rus. *Tschai*. Pol. *Herbata*, *Te*. Lat. *Thea*,) the dried leaves of the tea-plant, a commodity in general use in most parts of Europe, in the civilised parts of America, and in Asia.

The tea-plant is a native of Japan, China, and Tonquin, and has not, as far as we can learn, been found growing spontaneously in any other part of the world.

As China has not yet been explored, we cannot determine what number of species there are in *that* country; but as it is now common in the botanical gardens in *this*, it is evident that there are two species, or at least permanent varieties of it; one with a much longer leaf than the other, which our gardeners call the green tea, and the other with shorter leaves, which they call the bohea. The green is by much the hardiest plant, and with very little protection will bear the rigour of our winters. It is chiefly propagated in this country by layers.

This plant delights in valleys, and is frequent on the sloping sides of mountains and the banks of rivers, where it enjoys a southern exposure. It flourishes in the northern latitudes of Pekin, as well as round Canton; but attains the greatest perfection in the mild temperate regions of Nankin. It is said only to be found between the 30th and 45th degrees of north latitude.

In Japan it is planted round the borders of fields, without regard to the soil; but as it is an important article of commerce with the Chinese, whole fields are covered with it, and it is by them cultivated with care. The tea which grows in rocky ground is superior to that which grows in a light soil; and the worst kind is that which is produced in a clayey soil. It is propagated by seeds; from six, to twelve, are put into a hole about five inches deep, at certain distances from each other; of which, it is said, only about a fifth part vegetates.

The leaves are not fit for being plucked till the shrub is of three years' growth. In seven years it rises to a man's height; but as it then bears but few leaves, it is cut down to the stem, and this produces a new crop of fresh shoots the following summer, every one of which bears nearly as many leaves as a whole shrub. Sometimes the plants are not cut down till they are ten years old.

The first gathering commences at the end of February, or beginning of March. The leaves are then small, tender, and unfolded, and not above three or four days old; these are called *ficki-tsiaa* or "tea in powder," because it is pulverised; it is also called sometimes bloom tea. It is sold in China at 20*d*. or 2*s*. per pound. The labourers employed in collecting it, do not pull the leaves by handfuls, but pick them up one

by one, and take every precaution that they may not break them. However long and tedious this labour may appear, they gather from four, to ten, or fifteen, pounds a day.

The second crop is gathered about the end of March, or beginning of April. At this season part of their leaves have attained their full growth, and the rest are not above half their size. This difference does not, however, prevent them from being all gathered indiscriminately. They are afterwards picked, and sorted into different parcels, according to their age, and size. The youngest, which are carefully separated from the rest, are often sold for leaves of the first crops. Tea gathered at this season is called *too-tsiaa*, or "Chinese Tea," because the people of Japan infuse it, and drink it after the Chinese manner.

The third crop is gathered at the end of May, or in the month of June. The leaves are then very numerous, and thick, and have acquired their full growth. This kind of tea, which is called *ben-tsiaa*, is the coarsest of all, and is reserved for the common people. Some of the Japanese collect their tea only at two seasons of the year, which correspond to the second, and third, already mentioned; others confine themselves to one general gathering of their crop, towards the month of June; however, they always form afterwards different assortments of their leaves.

The finest, and most celebrated, tea of Japan, is that which grows near Ud-si, a small village situated close to the sea, and not far distant from Meaco. In the district of this village is a mountain, extremely well adapted for the culture of fine tea. It is inclosed by hedges and ditches, to prevent all access to it. The tea-shrubs that grow on this mountain, are planted in regular order, and are divided by different avenues and alleys. The care of this place is intrusted to people, who are ordered to guard the leaves from dust, and to defend them from the inclemency of the weather. Before collecting the tea, it is said, they abstain from every kind of gross food for some weeks, that their breath, and perspiration, may not in the least injure the leaves, which they do not touch but with very fine gloves. Other extraordinary things have been related respecting the process by which this select sort of tea is prepared, and preserved; but they rest on very equivocal authority, and therefore are omitted here.

When the tea-leaves have been collected, they are exposed to the steams of boiling water; after which they are put upon plates of copper, and held over the fire until they become dry and shrivelled, and appear such as we have them in Europe.

The mode of preparing tea, in the island of Japan, has been thus described:

The tea is prepared in public buildings destined for the purpose, where the proper instruments are furnished. The preparation consists in putting some pounds of fresh-gathered leaves into a large shallow pan, made of thin iron, and heated by an appropriate stove. They are shaken, and turned with the hands very quickly, in order that they may dry as equally as possible. This operation is continued till a little crackling is heard on the iron plate. The heat, in depriving the leaves of their juices, dissipates the narcotic and injurious qualities which they naturally possess. It is necessary to roast the leaves whilst quite fresh, because if kept some days, they turn black, and lose their value. The heat used should be such as the hand can scarcely bear.

In commerce, eight principal sorts of tea are distinguished, three of green and five of bohea; but it should be observed, the bohea tea of the traders is not the same which bears that name in China. The three sorts of green tea are, 1. The Imperial or Bloom Tea; the leaves of this are not rolled: they are of a bright-green colour, and have a very agreeable perfume. 2. The Haisven, or Hyson, so called from the name of an Indian merchant, who first brought it into Europe; the leaves of this are small and tightly rolled, and are of a bluish-green colour. 3. The Singlo, or Souglo, a name, like that of several other kinds, derived from the place where it is cultivated.

The five sorts of Bohea tea of commerce, best known, are, 1. The Souchong, which consists of large leaves not rolled, and of a colour inclining to yellow. This sort is divided into parcels of half a pound each, and is conveyed into Russia by the caravans. 2. The Sumlo, Camho, or Campoi, which has a violet smell, and gives a pale infusion. 3. The Congou, which has also large leaves, and gives a high-coloured infusion. 4. The Peko, which is known by little white flowers that are mixed with it. 5. The Bohea; the leaves of this are of a greenish-brown colour, and uniform throughout.

There is besides these a sort of tea brought from China, in round balls of different sizes, called China Balls, in which the leaves are glued together by some substance that does not alter the quality. There are also to be met with, balls of medicinal tea, composed of leaves which have imbibed a decoction of rhubarb. There are also several other varieties which it is not necessary to enumerate.

The first European writer who mentions tea is Giovanni Botero, an eminent Italian author, about the year 1590. "The Chinese (says he) have a herb out of which they press a delicate juice, which serves them for drink instead of wine; it also preserves their health, and frees them from all those evils which the immoderate use of wine produces among us."

Tea was introduced into Europe in the year 1610 by the Dutch East-India Company. It is generally said, that it was first

imported from Holland into England, in 1666, by the lords Arlington and Ossory, who brought it into fashion among people of quality. But it was used in coffee-houses before this period, as appears from an act of parliament made in 1660, in which a duty of 8*d.* was laid on every gallon of the infusion sold in those places. In 1666 it was sold in London for 60*s.* per pound, though it did not cost more than 2*s.* 6*d.* or 3*s.* 6*d.* at Batavia. It continued at this price till 1707. In 1715 green tea began to be used; and as great quantities were then imported, the price was lessened, and the practice of drinking tea descended to the lower ranks. In 1720 the French began to send it to us by a clandestine commerce. Since that period the demand has been increasing yearly, and it has become almost a necessary of life in most parts of Europe.

In 1766 the whole quantity of tea imported into Europe amounted to 17,000,000 ℔.; in 1785 it was computed at 19,000,000 ℔. Since that period it has increased to a degree that is astonishing, from the great increase of demand, particularly among the northern nations, where, till lately, it was only known as a luxury. The statutes, by which the importation of it into this country and the trade of vending it, are regulated, are much too numerous to be referred to. The exclusive importation of it, however, from China, is confined to the East India Company, by 53 Geo. 3. c. 135. See article *India Company, title* COMPANY.

Every person dealing in tea must not only take out a licence for that purpose, but must cause the words "*dealer in tea,*" to be placed over his door, under a penalty of 200*l.*; and *any* person purchasing of a dealer not having such inscription, &c. incurs a penalty of 10*l.* 19 Geo. 3. c. 69. The adulteration of tea is subject to a penalty of 100*l.* and forfeiture of the same, by 17 Geo. 3. c. 29. By 54 Geo. 3. c. 142. tea may be exported to British colonies without payment of any duty. It would be quite beside our purpose to cite the various authors who have written on the subject of tea, either in a botanical, a medical, or a commercial point of view. Their assumptions are frequently contradictory, and their inferences inconsistent: however, we may safely refer the reader for more scientific information, both botanical and medical, to "Lettsom on the Tea Tree," 1772.

TEAK, or Teck-Wood, is the produce of a tree growing in the kingdoms of Ava and Pegu, as well as on the coast of Malabar, where it is employed in the construction of the vessels fitted out at Bombay. The vessels built at Madras, and Calcutta, are likewise formed of teak-wood brought from Ava and Pegu. The English purchase immense quantities of teak-wood annually, at Rangoon, the principal port of the latter kingdom, for which they barter Indian commodities of almost every description. The importance of the traffic to which this wood gives rise, may readily be conceived, when it is asserted, that the total burden of the vessels belonging to Calcutta, which are formed of it, amounts to 40,000 tons. This is the only species of wood which can be advantageously employed in the contruction of the large Bengalese vessels; for it has been ascertained, that the indigenous wood of Bengal is scarcely serviceable at all in the Indian seas. By 54 Geo. 3. c. 66. teak-wood from the East Indies is allowed to be imported duty-free.

TEASEL or Teazell, (Ger. *Weberdistel. Kratzdistel, Karden.* Du. *Kaardendistel Kaardebollen.* Da. *Kardetidsel, Tidselkarder.* Sw. *Kardtistel.* Fr. *Chardon à carder.* It. *Cardo da cardare.* Sp. *Cardeucha, Cardo peinador.* Port. *Cardo penteador.* Rus. *Sukonnaja tschotka.* Pol. *Szczotka.* Lat. *Carduus fullonum,*) the manured or fullers' teasel.

This plant, which is cultivated in the north, and west, of England, is an article of considerable importance to clothiers, who employ the crooked awns of the heads for raising the knap on woollen cloths; for this purpose they are fixed round the periphery of a large broad wheel, against which the cloth is held while the machine is turned.

In choosing teasels, the preference should be given to those with the largest bur, and most pointed, which are generally called *male teasels.* They are mostly used in preparing and dressing stockings, and coverlets; the smaller kind, commonly called the fullers' or drapers' and sometimes the *female teasels,* are used in the preparation of the finer stuffs, as cloths, rateens, &c.

TECCALIS. *See* ABUCCO.

TELA, gold medals struck by every king of Persia at his coming to the crown. These telas are distributed among the people. Their weight is much the same as that of the German ducat. *See* CHERAFIS.

TELEGRAPH. Resembling the system of signals or beacons in all its essentials, but having the advantage of conveying *words* with rapidity to any visible distance, and from station to station, by thirty distinct signs, the telegraph was an invention of the French in 1794. By them it was applied to announce the approach of British cruisers along the coasts, and also inland to, and from, the armies on the frontiers; and by the British government, likewise, it was applied to similar purposes the next year, the first communication taking place in January 1796. An attempt had been made in 1687 to communicate in this way, and in fact the contrivance of signals twenty-two years before, though more complex, by means of flags, balls, guns, and colours, was in purpose, and to a certain degree in effect, the same thing, but differing as to adaptation for land or sea service. The antiquity

of signals or beacons, by fire, is well known along most of the coasts of England, not only from historical mention having been made of the general fact, and also of many of the hills or stations where they were erected, but is proved by the ancient mason-work still remaining, as also by not a few of the lanterns erected on the summits of churches near the sea. The system of fire-beacons, seaward, as well as from beacon to beacon, was in a tolerable state of intelligent communication, when it was put down by act of parliament, in aid of the revenue laws before the year 1800. In 1818 the original telegraph was superseded by an improvement upon its principle, by means of a simple instrument called a Semaphore, a single pillar supplied with numerous arms.

TELLURIUM, a metal discovered by Klaproth, in the year 1798, in an ore of gold found near Zalethna, in Transylvania. It is found in a metallic state. It is very brilliant, of nearly a white colour, easily fusible, and rises in vapour at an intense red heat; soluble in the nitric and nitro-muriatic acids. When it is heated in the atmosphere, it burns with a pale blue flame edged with green. It has not been employed in the arts.

TEMAN, a liquid measure used at Mocha, in Arabia Felix, containing ten memcedas.

TEMPERING, the preparing of steel and iron, so as to render them more compact, hard, and firm, or even more soft and pliant, according to their respective occasions. The metals are tempered by plunging them, while red-hot, into some fluid prepared for the purpose; sometimes pure water alone is used, and in fact locksmiths, &c. scarcely use any thing else.

Sometimes a composition of various juices, liquors, &c. is used, as vinegar, mouse-ear water, nettle, or Spanish radish water, and water oozing from broken glasses, soot, salt, oil, spirit of wine, sal ammoniac, &c.

TENDER, is an offer to pay a debt, or to perform a duty; in every plea of tender, where money is the specific thing demanded by the action, and the debt or duty is not discharged by the tender and refusal, money may be brought in without leave of the court; in all other cases, the leave of the court must be obtained before money can be brought into court.

A tender should be made by the principal; but if it is made by a servant, or by a stranger, on the behalf, and by the desire, of the party, it will be as valid, as if made by the party himself.

No tender is good, unless the party making it declares upon what account such tender is made; and it will not be sufficient for the party proposing to make the tender, to say he is ready to pay a debt, or to perform a duty; but he must make an actual offer to pay the one, and perform the other

An actual tender of money in a bag is a good tender; provided it can be proved that the sum proposed to be tendered, was actually in such bag at the time of the tender.

A tender of more than is due will be good for what is actually due.

If money tendered be once accepted, although some of it should be counterfeit or deficient in value, or although there should not be so much, as it was tendered for, the acceptor has no remedy, because it was his duty to have examined, and told, it before he accepted it.

A tender of a bank-note, as money, is not a legal tender, if it be specifically objected to as such; but the party to whom such bank-note is tendered, cannot hold the party to bail.

Every tender must be made before any action is commenced; and where a tender has, in fact, been made before a writ has been sued out, the court out of which such writ shall issue, will take care that the tender shall not be made void by anterior relation of the writ.

If money is to be paid, or goods are to be delivered, at a certain place, upon, or before, a day certain, a tender cannot be made before the last day appointed for the payment of such money, or the delivery of such goods.

TENON, in building, &c. the square end of a piece of wood, or metal, diminished by one-third of its thickness, to be received into a hole in another place, called a mortise, for jointing or fastening the two together. It is made in various forms, square, dove-tailed, for double mortises, &c.

TENT, a strong, sweet-flavoured red wine, made in the province of Andalusia, in Spain, where it is known under the name of Tinta Rota. It is an excellent stomachic. In Catalonia, another province of Spain, are made two species of wine called tinto de las montanas, or mountain tent, and matara; both of which are oftentimes sold by some dishonourable traders as rota tent.

TENTER, a railing used in the cloth manufacture, to stretch out the pieces of cloth, stuff, &c. or only to make them even, and set them square. It is usually about four feet and a half high, and for length exceeds that of the longest piece of cloth. It consists of several long pieces of wood, placed so that the lower cross piece of wood may be raised or lowered, as is found requisite, to be fixed at any height by means of pins. Along the cross pieces, both the upper, and under one, are hooked nails, called tenter-hooks driven in from space to space. It is made felony *sans* clergy, to steal cloth on the tenters in the night time, by 22 Car. 2. c. 5.; and having in possession any cloth stolen from the tenters, and not giving a good account of the manner of becoming possessed, is subjected to transportation by 15 Geo. 2. c. 27.

TEWEL, or Tewer, the taper pipe fixed in the back of a forge, into which is placed the bellows.

TFUOI, in the Chinese manufactory of porcelain, a word used to express a particular sort of varnish of that ware, with a violet colour and gold.

THRAVE, or Threave, *of corn*, twenty-four sheaves, or four shocks of six sheaves to the shock, though, in some counties, they only reckon twelve shocks to the thrave.

THREAD, (Ger. *Zwirn*. Du. *Garen*. Da. *Traad*. Sw. *Trăd*, *Twinntrăd*. Fr. *Fil*. It. *Refe*. Sp. *Hilo*, *Torzal*. Port. *Fio*, *Fiado*. Rus. *Nitki*. Pol. *Nici*,) a small line made up of a number of fine fibres of any vegetable, or animal, substance, such as flax, cotton, or silk; from which it takes its name of linen, cotton, or silk, thread.

Linen, and cotton, thread may be dyed of a durable and deep black by a solution of iron in sour beer, in which the linen is to be steeped for some time, and afterwards boiled in madder. *See the article* DYEING.

Thread may be easily bleached by the oxymuriatic acid. This acid whitens cloth remarkably well, but it is still more advantageous for bleaching thread. Vast quantities of cotton thread are made in several parts of Great Britain, but the most extensive manufactory for this article is established at Paisley near Glasgow, which however is so inadequate to supply the market, that abundance of cotton thread is annually imported from Germany, the Netherlands, &c.

THROWSTER, the mechanic whose business it is to prepare raw silk for the weaver, by cleansing, and twisting it.

TIBOSE, an East India coin, being one of the rupees current in the late territories of the Grand Mogul, and worth double the Gasna rupee.

TICAL. *See* BAAT.

TICK, or Ticking, (Ger. *Bührenzeug*. Du. *Bettetyk*. Da. *Burenverk*, *Dynevaar*. Sw. *Bolstervar*. Fr. *Tayes*. It. *Federa*. Sp. *Terliz para colchones*, *Cuasdros*. Port. *Trèz*, *Trespanno*. Rus. *Tik*. Pol. *Naspa*, *Nasypka*,) a sort of texture used for covering bedding. Ticking is make either from hemp, or flax, being woven in the loom in the same manner as linen, from which, however, it differs both in quality, and appearance, being coarse and stiff, though close, and presenting a surface marked with narrow, blue, and white, stripes alternately. Of this article considerable quantities are manufactured in different parts of Great Britain, and Ireland, and in great abundance in Germany, whence we import it occasionally.

TIDE-WAITERS, or Tidesmen, are inferior officers belonging to the custom-house, whose employment is to watch or attend upon ships, until the customs are paid; they get this name from going on board ships on their arrival in the mouth of the Thames, or other port, and so coming up with the tide.

TIERCE, or Teirce, a measure of liquid articles, as wine, oil, &c. containing the third part of a pipe, or forty-two gallons.

TIFFANY, a sort of transparent gauze, stiffened with gum, and pressed. It is much employed in the making of artificial flowers, &c. The best tiffany is made in this country; which is so excellent, that even the French eagerly purchase it, though its importation is prohibited in France.

TILES, (Ger. *Dachziegel*. Du. *Dakpannen*. Da. *Tagstene*. Sw. *Dakpannor*. Fr. *Tuiles*. It. *Tegole*, *Embrici*. Sp. *Tejas*. Port. *Telhas*. Rus. *Tscherepiza*. Pol. *Dachowki*,) a sort of thin brick, dried in a kiln, and used in covering and paving different kinds of buildings. The best brick earth only should be made into tiles.

The tiles for all sorts of uses may now be comprised under eight heads, viz.: 1. The plain tile for covering of houses, which is flat and thin. 2. The plain tile for paving which is also flat, but thicker; and its size nine, ten, or twelve inches. 3. The pan-tile, which is also used for covering of buildings, and is hollow, and crooked, or bent somewhat in the manner of an S. 4. The Dutch glazed pan-tile. 5. The English glazed pan-tile. 6. The gutter-tile, which is made with a kind of wings. 7. The hip, or corner tile. 8. The draining tile.

TILES, *plain*, are not laid in mortar, but pointed only on the inside, having been laid in rows, each row projecting over that below it, like slates, on the roofs of buildings.

TILES, *paving*, are made of a more sandy earth than the plain tiles; the materials for these last must be clay, of the stiffest texture. These are made thicker and larger than the common roof-tiles; and when care has been taken in the choice of the earth, and the management of the fire, they are very regular and beautiful.

TILES, *pan*, when of the best kind, are made of clay, like that of the paving-tiles; but the best sort of all is a pale-coloured loam that is less sandy; they have about the same degree of fire given them in the baking, and they come out nearly of the same colour. These tiles are laid in mortar, when they will not cover the building, so that no water can pass between them.

TILES, *pan*, *Dutch glazed*, get the addition of glazing in the fire. Many kinds of earthy matter running into a glassy substance in great heat, is a great advantage to them; preserving them much longer than the common pan-tiles.

TILES, *pan*, *English glazed*, are in general not so good as the Dutch ones under that denomination; but the process is nearly the same.

TILES, *Dutch*, for chimneys, are of a kind very different from all the rest. They

are made of a whitish earth, glazed, and painted with various figures, in blue or purple colour, and sometimes quite white; they are about 6.5 inches each way, and three quarters of an inch thick. They are little used at present, except for ornamental dairies.

TILES, *gutter*, are made of the same earth as the common pan-tiles, and only differ from them in shape; but particular care is taken in tempering and working the earth for these, for none are more liable to accidents. The edges of these tiles are turned up at the larger ends for about four inches. They are seldom used where lead is to be had.

TILES, *hip* or *corner*, are at first made flat, like pan-tiles of a quadrangular figure, whose two sides are right lines, and the ends arches of circles; the upper end concave, and the lower convex, the latter being about seven times as broad as the other; they are about 10.5 inches long; but before they are burnt are bent upon a mould in the form of a ridge tile, having a hole at the narrow end, to nail them on the hip-corner of the roof.

TILES, *ridge*, are used to cover the ridges of houses, and are made in the form of a semicylindrical surface, about 13 inches in length, and of the same thickness as plain tiles; their breadth at the outside measures about sixteen inches.

TILES, *draining*, are of modern invention, and compose aqueducts under ground, being made to fit into one another for that purpose. In favour of agriculture, these last mentioned, with such as are necessary appendages, are exempt from duty, by 55 Geo. 3. c. 176.; all the other kinds made in this country being subject to a duty of excise, as well as to statutable regulations respecting size, &c. cognizable by information, and summary conviction before justices of the peace.

TILLER *of a Ship*, a strong piece of wood fastened in the head of the rudder, and in small ships and boats called the helm.

In ships of war, and other large vessels, the tiller is fastened to the rudder in the gun-room; and to the other end there are ropes fastened, which pass upwards to the quarter-deck, where the ship is steered by means of a wheel.

TIMBER, (Ger. *Bauholz, Zimmer*. Du. *Timmerhout*. Da. *Tömmer*. Sw. *Timmer*. Fr. *Bois de charpente, Bois à bâtir*. It. *Legname da fabbricare*. Sp. *Madera de construccion, de fabrica, ò decarpinteria*. Port. *Madeira de construcção*. Rus. *Ströewoi Gess*. Pol. *Cembrowina*,) includes all kinds of felled and seasoned wood.

Of all the different kinds known in Europe, oak is the best for building; and even when it lies exposed to air and water, there is none equal to it. Fir-timber is, however, perhaps more generally useful than any other. It is used for flooring, wainscoating, and the ornamental parts of building within doors. Elm is the next in use, especially in England and France; it is very tough and pliable, and therefore easily worked, it does not readily split; and it bears the driving of bolts and nails better than any other wood.

Ash is chiefly used by wheelwrights and coachmakers, for shafts, naves, &c. Beech is also used for many purposes; it is very tough, and white, when young, and of great strength, but liable to warp very much when exposed to the weather, and to be worm-eaten when used within doors; its greatest use is for bedsteads, chairs, and other household goods. Wild-chesnut timber seems to have been much used in old buildings; but these trees are scarce at present; and this timber is now but little used. Walnut-tree is excellent for the joiner's use, it being of a more curious brown colour than beech, and not so subject to the worms. The poplar, abel, and aspen-trees, which are very little different from each other, are employed mostly by turners, &c. Sycamore is coming much into use for many of the domestic purposes, where its extreme lightness is its principal recommendation, such as ladies' work-boxes, picture-frames, &c.

Larch has recently been found to rival the oak, for all sorts of work under water, and is every day becoming of higher estimation, especially as its bark is little inferior to that of the oak for tanning. The goodness of timber not only depends on the soil, and situation, in which it stands, but likewise on the season wherein it is felled. As the sap and moisture of timber are certainly the causes of its perishing soon, it seems evident that timber should be felled when there is the least sap in it, viz. after the time that the leaves begin to fall.

After timber has been felled and sawed, it must be seasoned; for which purpose some advise it to be laid up in a very dry airy place, yet out of the wind, and sun, or at least free from the extremities of either; and that it may not decay, but dry evenly, they recommend it to be daubed over with cow-dung. It must not stand upright but lie all along, one piece over another, only kept apart by short blocks interposed, to prevent a certain mouldiness which they are otherwise apt to contract in sweating on one another: from which arises frequently a kind of fungus, especially if there is much sap. Others advise timber to be laid in some running stream, in order to extract the sap, and afterwards to dry it in the sun or air. Some again are for putting it in the earth, others in a heat; and some for seasoning with fire. The Venetians first found out the method of seasoning by fire, which is, done after this manner: they put the piece to be seasoned into a strong and violent flame, in which they continually turn it round by means of an en-

gine, and take it out when it is every where covered with a black coaly crust; when the internal part of the wood is so hardened that neither earth, nor water, can damage it for a long time afterwards.

Timber, under different views, is the subject of many statutable provisions in this kingdom. Its preservation is, to a certain degree, placed under the protection of the magistrates, and in that view 6 Geo. 3. c. 48. and 13 Geo. 3. c. 33. have declared what has come under the denomination of *timber*, by enumerating them in the following order: oak, beech, chesnut, walnut, ash, elm, cedar, fir, ash, lime, sycamore, birch; poplar, alder, larch, maple, and horn-beam. Cutting down, lopping, or otherwise damaging, or destroying these, subjects the offender to penalties, progressive in weight, according to the repetition of the offence. *See 2 Dick. Pract. Expos.* 1086.

Oak is prohibited from being felled, but at particular seasons, in order that the bark may be preserved for the manufacture of leather.

Besides there are several local provisions for the preservation and encouragement of the growth of timber, in the king's forests, which do not come within the scope of our design.

The following are the contents of the loads of different species of timber hewn and unhewn.

A load of timber, unhewed 40 feet.
A load of squared timber, 50 feet.
A load of one-inch plank, 600 square feet.
A load of 1½-inch plank, 400 square feet.
A load of 2-inch plank, 300 square feet.
A load of 2½-inch plank, 240 square feet.
A load of 3-inch plank, 200 square feet.
A load of 3½-inch plank, 170 square feet.
A load of 4-inch plank, 150 square feet.

TIN, (Ger. *Blech, Weissblech.* Du. *Blik, Blek.* Da. *Blik.* Sw. *Bleck.* Fr. *Fer blanc.* It. *Latta, Banda stagnata.* Sp. *Hoja de lata.* Port. *Folha de Flandes.* Rus. *Blächa, Shest.* Pol. *Blacha, Blacha pobielana,*) a metal, of which, what is not imported, is obtained principally from the county of Cornwall.

Tin is found in a native or pure state; though more frequently mixed with a large portion of arsenic, sulphur, and iron; the crude ore is first broken to pieces and washed, then roasted in an intense heat, which dissipates the arsenic, and afterwards fused in a furnace, till it be reduced to a metallic state.

Tin is the lightest, and most fusible, of all metals: it is of a greyish white colour, has a strong disagreeable taste, and when rubbed, emits a peculiar odour: it is also remarkably malleable, and when beaten into very thin plates, or tinfoil, is employed in covering looking-glasses: tin readily unites with copper, forming the compositions known by the names of bronze, and bell-metal: by immersing thin plates of iron into melted tin, they become coated, and are then termed block tin, or latten, which is manufactured into saucepans, canisters, culinary utensils, &c.

There are considerable tin-mines on the Malabar Coast, in the island of Banda, in Spain, and in the Spanish West Indies; both the latter are not worked. But mines which produce by far more tin than any of those, are the tin-mines of Cornwall, mentioned above. The tin of this whole county, which in Carew's time, (in the last century,) amounted only to 30, or 40,000*l.* yearly, has of late amounted to 180,000*l.* and 190,000*l.* sterling. Of this the Duke of Cornwall receives for his duty 4*s.* on every cwt. of coined white tin, about 10,000*l. per annum;* the bounders or proprietors of the soil about one-sixth at a medium clear, or about 30,000*l.* annually; the remainder goes to the adventurers in the mines, who are at all the charges of working.

The tin being divided among the lords, and adventurers, is stamped, and worked at the mill; and being thus dressed, is carried under the name of *black* tin to the melting-house, where it is melted by Welsh pit-coal, poured into blocks and bars, and carried to the coinage-town.

The coinage-towns are five towns appointed in the most convenient parts of the county of Cornwall, for the tinners to bring their tin to, every quarter of a year. These are Liskeard, Lestwithiel, Truro, Helston, and Penzance.

The total quantity of tin imported into Great Britain in the year ending 5th January, 1819, is 1456 cwt. 3 qrs.; of which 1398 cwt. 2 qrs. 14 ℔. were imported from the East Indies.

The total amount of all tin exported from Great Britain in the said year, was 34,043 cwt. 17℔. British tin, and 1381 cwt. 1 qr. 9℔. foreign tin.

Tin is consumed in large quantities by dyers, in the form of nitrate of tin. This salt added to the solutions of cochineal, archil, &c. gives a great brilliancy to their colour. Cochineal, alone, produces a dull crimson colour, but by the addition of nitrate of tin, it becomes a fine scarlet.

TINCAL, the rough or unrefined borax. *See* BORAX.

TINCTURE, an extract from some drug made in spirits, and usually produced by distillation. Thus we have tincture of myrrh, &c.

TIN-FOIL, (Ger. *Stanniol.* Du. *Stanniool.* Da. *Tinblad, Stanniol.* Sw. *Bladten, Stanniol.* Fr. *Tain, Teint.* It. *Stagnuolo.* Sp. *Estano en hojas para azogar, Hoja de estanho.* Port. *Folha de estanho.*) *See* FOIL.

TIN-GLASS. *See* BISMUTH.

TINSEL. (Ger. *Lahn.* Du. *Laan.* Da. *Lahn.* Sw. *Lan.* Fr. *Lame d'or ou*

d'argent. It. *Lustrino.* Sp. *Hojuela.*) *See* FOIL, and ORSIDEW.

TINNING, is the art of covering any metal with a thin coating of tin. Copper, and iron, are the metals most commonly tinned. The use of tinning these metals is, to prevent them from being corroded by rust; as tin is not so easily acted upon by the air, or water, as iron, and copper are.

What are commonly called tin-plates, or sheets, so much used for utensils of various kinds, are in fact iron plates coated with tin.

The principal circumstance in the art of tinning, is, to have the surfaces of the metal to be tinned perfectly clean and free from rust, and also that the melted tin may be perfectly metallic, and not covered with any ashes or calx of tin.

Tinning of iron. When iron plates are to be tinned, they are first scoured, and then put into what is called a pickle, which is sulphuric acid diluted with water; this dissolves the rust or oxyde that was left after scouring, and renders the surface perfectly clean. They are then again washed, and scoured. They are now dipped into a vessel full of melted tin, the surface of which is covered with fat, or oil, to defend it from the action of the air. By these means, the iron coming into contact with the melted tin in a perfectly metallic state, it comes out completely coated.

When a small quantity of iron only is to be tinned, it is heated, and the tin rubbed on with a piece of cloth, or some tow, having first sprinkled the iron with some powdered resin, the use of which is to reduce the tin that may be oxydated. Any inflammable substance, as oil, for instance, will have in some degree the same effect, which is owing to their attraction for oxygen.

Tinning of copper. Sheets of copper may be tinned in the same manner as iron. Copper boilers, saucepans, and other kitchen utensils, are tinned after they are made. They are scoured, then made hot, and the tin rubbed on, as before remarked, with resin. Nothing ought to be used for this purpose but pure grain tin; but lead is frequently mixed with the tin, both to adulterate its quality, and make it lie on more easily.

To whiten brass or copper by boiling. Put the brass or copper into a pipkin with some white tartar, alum, and grain tin, and boil them together. The articles will soon become covered with a coating of tin, which, when well polished, will look like silver. It is in this manner that pins, and many sorts of buttons, are whitened.

TIRE-SMITH, one who practises an ingenious branch of the smith's business, making the iron-work for all sorts of coaches.

TISSUE, is a term used to signify cloth interwoven with gold, or silver, or figured colours.

TITANIUM, a metal found in black sand, resembling gunpowder, in Cornwall, and upon examination it is found to possess the following properties:

Its colour is orange-red, and it has a good deal of lustre. As it has been only obtained in very small agglutinated grains, neither its hardness, specific gravity, nor malleability, has been ascertained. It is one of the most infusible of metals, requiring a greater heat to melt it than can be produced by any method at present known.

Oxyde of titanium was used to give a brown or yellow colour in painting on porcelain, before its nature was known; but it was found difficult to obtain from it an uniform tint, probably from its not being in a state of purity.

TOBACCO, (Ger. *Taback, Rauchtaback.* Du. *Tabak.* Da. and Sw. *Tobak,* Fr. *Tabac.* It. *Tabacco.* Sp. and Port. *Tabaco.* Rus. *Tabak.* Pol. *Tobaka.* Lat. *Tabacum, Petum,*) a plant, whose leaves are in such general request in most parts of the world, that it forms a most extensive, and important branch of commerce.

Tobacco requires a moderately strong, yet rich, compact, and deep, soil, and one that is not too much exposed to moisture; indeed, a fresh, unimpaired spot of land is best adapted to the culture of a plant which is greedy of succulence. The tobacco seed is sown in beds, and so soon as the plants appear about two inches above ground, and put forth at least six leaves, they are gently drawn, during damp weather, and carefully transplanted into a patch of land previously prepared for the purpose, being placed at the distance of three feet asunder. If this operation be carefully performed, the leaves will not undergo any alteration for the worse, but will recover their vigour in less than twenty-four hours. This plant demands continual attention.

The weeds which spring up around it must be carefully removed as they appear, its tops cut when it has grown to the height of two feet and a half. In order to prevent its attaining too great a height, suckers are to be carefully lopped off, and all the lower leaves, as well as those which appear likely to suffer by rottenness, or the attacks of insects, carefully removed, so as to let not more than eight, or ten, leaves at most remain upon the stem. One industrious labourer is capable of thus cultivating 2500 stalks, which ought to render a thousand pounds weight of tobacco. The tobacco is let to remain about four months in the ground. In proportion as it approaches to maturity, the bright vivid green of the leaves assumes a darkish hue, the leaves themselves appear to droop and emit an odour, the strength of which is daily augmented. When these symptoms are evident, and particularly when the odour is perceived at some distance from the plant, the tobacco is ripe, and may be cut down. The plants, when cut down, are placed in heaps on the land which pro-

duces them, and are left, for one night only, to sweat, or discharge their moisture, in the open air. On the following day they are deposited in sheds, so constructed as to admit the air on every side, and here they remain, hung at a distance from each other, till they become perfectly dry. They are next spread upon hurdles closely covered, and left to ferment for the space of a week, or a fortnight, after which the leaves are separated from the stalks, and are either put up in barrels, or made into bundles. Tobacco is cultivated in the East Indies, and in Africa; but little, if any, of the article is exported from those countries. In the Levant, Salonica is the grand market for tobacco, whither Syria, the Morea, and Peloponnesus, send what their inhabitants cannot consume. From this port it is sent into Italy, where it is chiefly used in smoking, after its pungency or caustic flavour has been corrected by a mixture with Dalmatian, or Croatian, tobacco. The tobacco of the two provinces of Dalmatia, and Croatia, is of an exceedingly good quality. The Hungarian tobacco is likewise very good, but it yields a disagreeable odour. In the Ukraine, as well as in Livonia, Prussia, and Pomerania, large quantities of this valuable vegetable are grown. The leaf of the tobacco cultivated in these territories, is broader than it is long, is very small, and its strength and odour are of the middling kind. With a view to its amelioration, the Russian government has lately caused some seed brought from Virginia, to be sown in the colonies of Sarratow, situated on the Volga. The experiment has not met with the success which might be expected. The tobacco of the Palatine is of itself very indifferent; but it has the rare quality of assuming the flavour of good tobacco whenever the latter is mixed with it. Holland likewise furnishes tobacco: that which grows in the province of Utrecht is of superior quality. The leaf of the Dutch tobacco is large, supple, and unctuous, well coloured, and is capable of communicating its odour to inferior kinds. The worst species of Dutch tobacco is that which is grown in Guelderland. The culture of tobacco was formerly prohibited in France, except in certain parts of that country, such as Pont de l'Arche, Normandy, Verton, Picardy, Montauban, Tonnein, Clerac, and Guyenne. Hainault, Artois, and Franche Comté, which were similarly privileged; but the soil of these provinces was decidedly hostile to the cultivation of the tobacco plant. Alsace produces very indifferent tobacco, but which may be advantageously mixed with any other tobacco of a good flavour. Almost immediately after their first discovery, the islands of the New World produced immense quantities of tobacco; but this species of cultivation soon ceded to that of more valuable productions, except in Cuba, which to the present day has continued to supply the Spanish nation with a great part of the tobacco which it consumes. The odour which this tobacco yields is extremely agreeable, and it is therefore generally employed by the Spaniards in making snuff, for the tobacco which they make use of in smoking is generally imported from the Caraccas. This tobacco is also held in high estimation in Holland. At an early period Brazil began to cultivate the tobacco plant, and the inhabitants have hitherto pursued this branch of agriculture with success. The Brazilian tobacco is highly esteemed on the western coasts of Africa, and has obtained good repute in some parts of Europe. It is so very sharp and pungent, that, were it not for the preparation which it undergoes, it could not be taken in the form of snuff. Its pungency is corrected, by each leaf being steeped in a decoction of tobacco and gum-copal. The leaves thus humected, are formed into rolls, and packed in hides, which have the property of preserving them in full perfection for almost any period. North America indubitably yields the finest tobacco in the known world; Virginia produces the best kind of American tobacco; and next to the produce of Virginia may be ranked that of Maryland. The American tobacco is mostly purchased by the Dutch, and the English, especially the latter.

The leaves of the tobacco-plant, taken internally, prove virulently emetic, cathartic, and narcotic: even in the common forms, in which they are employed in such immense quantities, they generally at first disorder the constitution, till habitual use, which subdues many noxious things, has rendered them perhaps innocent, and perhaps even necessary. Distilled in a retort, without addition, they yield an acrid empyreumatic oil, which has been found, from repeated trials, to be poisonous to sundry animals: it is probably on this oil that the effects of the smoke of tobacco depend; for when the plant is set on fire, its native qualities are destroyed.

The laws relative to the importation of tobacco, and the duties from time to time imposed, are continually fluctuating. The most recent provisions on the subject are by statutes 48 Geo. 3. c. 3. & 63. 1 Geo. 4. c. 75. and 1 & 2 Geo. 4. c. 109.: by these acts the duties on tobacco are placed under the management of the commissioners of excise, and various provisions are made for the better securing the same.

The following are the principal regulations for persons dealing in tobacco:

Manufacturers, before they begin to work, are to make entries at the excise office, under penalty of 200*l.*; to cause the words *Manufacturers of Tobacco* to be painted over their doors, in large legible characters; to permit officers to enter by day, or by night, with a constable, and are not to receive any

kind of tobacco without notice to the officer, to whom the manufacturer is to deliver a declaration, specifying the sorts into which the tobacco is to be manufactured.

Persons cutting walnut, hop, or other leaves, in imitation of, or mixing the same with any tobacco, or selling, or offering any such mixture to sale, or having the same in their custody, shall forfeit 200*l.* and all such leaves, &c.

Retail dealers in tobacco are those persons who sell tobacco in less quantities than four pounds, and are subject to similar regulations with manufacturers, as far as relates to permits, entry of officers, &c., in addition to which are the following:

Dealers in tobacco are to enter every day, in one book, all tobacco sold, or consumed, the preceding day, in quantities of four pounds, or upwards; and in another book, all sold in quantities under four pounds, on penalty of 100*l.*

Tobacco-dealers are not to have more than one entry-book in their possession at a time; are to leave their entry-books open for inspection of officers; to enter up the quantities sold each day; and to return such books on oath, in London, every six weeks; and every six months in the country, or sooner, if filled up, on penalty of 100*l.* for refusal, neglect, or false entry.

TOD, a weight by which the quantity of wool is estimated; and is equal to two stone, or 28 pounds.

TOMAN, or Tumein, a money of account used by the Persians; and is estimated at about 1*l.* 18*s.*, or 1*l.* 19*s.* sterling. The toman is also a weight used in Persia for weighing money, which in large payments is always received in this manner, and never counted. The toman weighs 50 abassis.

TOMBAC. *See* PINCHBECK.

TON, an English weight, containing 20 cwt.

TONNAGE, a custom or impost due for merchandise brought, or carried, in tons from, or to, other nations, after a certain rate in every ton.

The usual method of finding the tonnage of any ship is by the following rule: — Multiply the length of the keel by the breadth of the beam, and that product by half the breadth of the beam: and divide the last product by 94, and the quotient will be the tonnage.

Ship's keel 72 feet; breadth of beam 24 feet.

$$\frac{72 \times 24 \times 12}{94} = 120.6 \text{ tonnage.}$$

The tonnage of goods and stores is taken sometimes by weight, and sometimes by measurement; and that method is allowed to the vessel which yields the most tonnage. In tonnage by weight, 20 cwt. make one ton. In tonnage by measurement, 40 cubic feet are equal to one ton. All carriages, or other stones to be measured by tonnage, are taken to pieces, and packed in the manner which will occupy the least room on board ship. All ordnance, whether brass or iron, is taken in tonnage by its actual weight. Musket-cartridges in barrels or boxes; all ammunition in boxes: and other articles of great weight, are taken in tonnage according to their actual weight. *See* 13 Geo. 3. c. 74. and 26 Geo. 3. c. 60.

TONNAGE DUTIES OUTWARDS OR INWARDS.

A Tonnage Duty on all Ships or Vessels entering Inwards from, or Outwards for, the following Places (except in Ballast). 43 Geo. 3. c. 68.

	The Ton. s.	d.
Alderney - - -	0	6
Greenland Seas - -		
Guernsey - - -		
Jersey - - -		
Labradore, Coast of - -		
Man, Isle of - -		
Newfoundland, or Islands thereof, Cape Breton, and St. John's		
Sark, Isle of - -		
Southern Whale Fishery -		
Africa, any place there not otherwise described - - -	1	0
America, British Colonies therein, United States of, or any part thereof not otherwise described -		
Europe, places in (except Ireland), if not otherwise described -		
Gibraltar, or any other place within the Streights thereof - -		
Russia, or any port or place within the Baltic Sea - -		
Cape of Good Hope - -	2	6
East Indies, or any port or place within the limits of the East India Company's trade - -	3	0

London Port or Dock Duty, payable by all Vessels entering Inwards from, or Outwards for, the following Places (except in Ballast.) 39 Geo. 3. c. 69.

	The Ton. s.	d.
Alderney, Guernsey, Jersey, Sark, or Man - -	0	2½
Antwerp - - -		
Brabant, Bremen, or any other part of the Netherlands - -		
Denmark - - -		
France, within Ushant -		
Germany, Hambro', Holstein, or any part of Germany bordering on the German Ocean - -		
Holland - - -		
Ireland - - -		
Norway or Lapland, on this side the North Cape - -		

Courland - - -	
Finland - - -	
Prussia or Poland - -	
Lapland, beyond the North Cape	
Livonia - - -	0 4
Russia, without or within the Baltic	
Sea - - -	
Sweden, or any country or place	
within the Baltic -	
American States, or British Colonies	
in North America - -	
Azores - - -	
British Colonies in North America	
or East Florida - -	0 5
France, between Ushant and Spain	
Madeira, or Canary Islands -	
Portugal and Spain without the Me-	
diterranean - -	
Adriatic Sea - -	
Africa, or West Indies -	
East Indies, or China - -	
France, Spain, or other places within	
the Mediterranean - -	0 7
Gibraltar - - -	
Greenland - - -	
Louisiana - - -	
Mexico, or South America -	

TOPAZ. (Ger. *Topas.* Du. *Topaas.* Da. and Sw. *Topas.* Fr. *Topase.* It. *Topazio.* Sp. *Topacio.* Port. *Topazio.* Rus. *Topas.* Pol. *Topazyn.* Lat. *Topasius.*) The name topaz has been restricted by Mr. Hauy to the stones called by mineralogists occidental ruby, topaz, and sapphire; which, agreeing in their crystallisation and most of their properties, were arranged under one species by M. Romé de Lisle. The word topaz, derived from an island in the Red Sea, where the ancients used to find topazes, was applied by them to a mineral very different from ours. One variety of our topaz they denominated crysolite.

The colour of the topaz is various, which has induced mineralogists to divide it into the following varieties:

1. Red topaz, of a red colour, inclining to yellow; called Brazilian or occidental ruby.

2. Yellow topaz, of a golden-yellow colour, and sometimes also nearly white; called occidental or Brazil topaz. The powder of this and the following variety, causes syrup of violets to assume a green colour.

3. Saxon topaz. It is of a pale wine yellow colour, and sometimes grayish-white.

4. Aigue marini, of a blueish or pale-green colour.

5. Occidental sapphire, of a blue colour, and sometimes white.

The topaz is found in several parts of the East Indies, in Ethiopia, Arabia, Peru, and Bohemia. The Oriental topazes are most esteemed, whose colour borders on the orange; those of Peru are softer, but their colour is much the same; the yellow of those of Bohemia is blackish, they are softest of all, and their polish is the coarsest. This gem is easily counterfeited; and there are factitious topazes, to the eye not inferior to the real ones.

TOPGALLANT, or Topsail, in a ship, is the highest sail on the mast.

TORNADO, or Turnado, a sudden and vehement gust of wind from all points of the compass, frequent on the coast of Guinea.

TORTOISE-SHELL, (Ger. and Du. *Schildpad.* Da. *Skildpaddeskal.* Sw. *Sköldpadda.* Fr. *Ecaille de tortue, Caret.* It. *Tartaruga.* Sp. *Carey, Coucha.* Port. *Fartaruga, Coucha.* Rus. *Kost tscherepachowaja.* Pol. *Skorupa zolwia.* Lat. *Testudinis testa,*) the shell of the testaceous animal called a tortoise; used in inlaying, and in various other works, as for snuff-boxes, combs, &c. Mr. Catesby observes, that the hard strong covering which incloses all sorts of tortoises, is very improperly called a shell; being of a perfect bony contexture, but covered on the outside with scales, or rather plates of a horny substance; which are what workmen call tortoise-shell.

There are two general kinds of tortoises, viz. the land, and sea, tortoise, *testudo terrestris* and *marina.* The sea-tortoise, again, is of several kinds; but it is the *testudo imbricata of Linnæus* alone, which furnishes that beautiful shell so much admired in Europe.

The whole spoils of the tortoise consist in thirteen leaves or scales, eight of them flat, and five a little bent. Of the flat ones, there are four large ones, sometimes a foot long, and seven inches broad. The best tortoise-shell is thick, clear, transparent, of the colour of antimony, sprinkled with brown and white. When used in marquetry, &c. the workmen give it what colour they please by means of coloured leaves which they put underneath it.

Working and joining of tortoise-shell. — Tortoise-shell, and horn, become soft in a moderate heat, as that of boiling water, so as to be pressed, in a mould, into any form, the shell, or horn, being previously cut into plates of a proper size. Two plates are likewise united into one by heating and pressing them; the edges being thoroughly cleaned, and made to fit close to one another. They are conveniently heated for this purpose by applying a hot iron above, and beneath, the juncture, with the interposition of a wet cloth to prevent the shell from being scorched by the irons: these irons should be pretty thick, that they may not lose their heat before the union is effected. Both tortoise-shells, and horns, may be stained of a variety of colours, by means of the colouring-drugs commonly used in dyeing, and by various metallic solutions. *See title* HORN.

TOUCH-NEEDLES, amongst assayers, are little bars of gold, silver, and copper,

combined together in all the different proportions and degrees of mixture; the use of which is to discover the degree of purity of any piece of gold, or silver, by comparing the mark it leaves on the touchstone, with those on the bars. The metals usually tried by the touchstone are gold, silver, and copper, either pure or mixed with one another, in different degrees and proportions by fusion. In order to find out the purity or quantity of baser metal in these various admixtures, when they are to be examined, they are compared with those needles, which are mixed in a known proportion, and prepared for this use. The metals of these needles, both pure and mixed, are all made into laminæ or plates, one-twelfth of an inch broad, and a fourth part of their breadth in thickness, and an inch and a half long; these being thus prepared, a mark indicating its purity, or the nature and quantity of the admixture in it, is to be engraved on each.

The method of using the needles, and the stone, is this: The piece of metal to be tried ought first to be wiped well with a clean towel, or piece of soft leather, that you may the better see its true colour; for, from this alone an experienced person will, in some degree, judge beforehand what the principal metal is, and how, and with what, debased. Then choose a convenient part of the surface of the metal, not over large, and rub it several times very hardly and strongly against the touchstone; that in case a deceitful crust or coat should have been laid upon it, it may be worn off by the friction: this, however, may be more readily done by the grindstone, or small file. Then wipe a flat, and very clean, part of the touchstone, and rub against it over and over the substance, till you have, on the flat surface of the stone, a thin metallic crust, an inch long, and about the eighth of an inch broad; this done, look out the needle that seems most like the metal under trial, wipe the lower part of this needle very clean, and then rub it against the touchstone as you did the metal, by the side of the other line, and in a direction parallel to it. When this is done, if you find no difference between the colours of the two marks made by your needle and the metal under trial, you may, with great probability, pronounce that metal and your needle to be of the same alloy, which is immediately known by the mark engraved on your needle. But if you find a difference between the colour of the mark given by the metal, and that by the needle you have tried, choose out another needle, either of a darker, or a lighter, hue than the former, as the difference of the touchstone directs; and by one, or more, trials of this kind, you will be able to determine which of your needles the metal answers, and thence what alloy it is of, by the mark of the needle. If this experiment fail, it is clear that the alloy is extraordinary, and not to be determined by the comparison of your needles.

TOUCH-STONE. (Ger. *Probierstein.* Du. *Toetssteen.* Da. *Provesteen.* Sw. *Probersten.* Fr. *Pierre de touche.* It. *Pietra di paragone.* Sp. *Piedra de togue.* Port. *Pedra do tocar.*) The black basaltes is used for examining the precious metals by the touch, and hence it has obtained the name of touch-stone. *See* BASALTES, and the foregoing article.

TOW, (Ger. *Heede, Werg.* Du. *Hede.* Da. *Blaar.* Sw. *Blär.* Fr. *Etoupe.* It. *Stoppa.* Sp. *Estopa.* Port. *Estopa, Sacudura.* Rus. *Paklä.* Pol. *Zgrzebie,*) flax or hemp beaten, and combed into filaments. It is here to be observed that the flax and hemp used for this purpose are but the refuse of such parts of those articles as are employed in the manufacture of cloth, &c. tow being principally applied to the caulking of ships, and to such like coarse purposes.

TOWAGE, the hauling or drawing of a ship, or barge, &c. by men, or beasts, or by another ship or boat fastened to her, in order to her entering a port, or ascending a river, with the greater facility.

TOYS, (Ger. *Spielzeug, Speilsachen.* Du. *Speelgöed.* Da. *Dukketöj, Poppentöj.* Sw. *Barnlekor, Lekdon.* Fr. *Jouets, Bimbelots.* It. *Trastulli.* Sp. *Dijes, Juguetes de ninnos.* Port. *Brinços de criança, Dixes.* Rus. *Igrushki.* Pol. *Dziecinne igraszki,*) a term which includes every trifling article made expressly for the amusement of children. These articles, of such seeming frivolousness in the estimation of the merely casual observer, employ numberless hands, and give bread to hundreds of families in London and its vicinity, besides occasioning a considerable trade between Great Britain, and Holland. From the latter country we did procure all sorts of toys on much more reasonable terms than we can afford to manufacture them at home. It is said that the toys in which the Dutch deal are, for the most part, made in Germany. Lately these articles have been made in much greater abundance in England.

TRADE. For a general definition of the term, *see* COMMERCE.

For an enumeration of the different branches of trade exercised in the British dominions, and the capitals necessary for beginning to exercise them, *see Appendix.*

TRADE WINDS, or Monsoons. Trade winds are so numerous in every quarter of the world, that our limits will not admit of our even enumerating them. It will be sufficient for our purpose to observe, that they are certain winds which regularly blow in ascertained directions for given periods, in different parts of the world; and are taken advantage of in the course of commerce and navigation. These winds prevail especially in the Indian Seas, and there take

the name of Monsoons. For more particular and philosophical information we must refer the reader to the Cyclopædias, and to books dedicated especially to geography and navigation.

TRAGACANTH. *See* GUM DRAGON.

TRAIN-OIL, (Ger. *Thran.* Du. *Thraan.* Da. and Sw. *Tran.* Fr. *Huile de poisson.* It. *Olio di pesce.* Sp. *Grasa, Aceite de pescado.* Port. *Azeite de peixe.* Rus. *Salo worwannoe, Worwan.* Lat. *Oleum piscinum,*) a general name for different sorts of fish-oil; such as whale, seal, cod, pilchard, oil, &c. which *see* under their proper heads. *See also* FISHERY.

Train-oil is used by leather-dressers, soap-boilers, &c. for burning, &c. Cod-oil is used by curriers, &c. &c. *see that article.*

TRAM, in weaving silk, is formed by twisting two or more threads of raw silk slack, which is also called the shoot, and forms the breadth of the piece.

TRANSFER, the act whereby one party makes over or assigns his right, interest, or property to another. *See* ASSIGN, and ASSIGNMENT.

TRANSITU, *Stoppage in.* Where a person has consigned goods by land or water-carriage to another, who may be in insolvent circumstances, the consignor or the person sending the goods, may countermand their delivery, and *stop them in their passage,* which is termed *stopping in transitu.*

To obtain this remedy, the goods must not be out of the *actual,* or *constructive, possession of the owner;* for, if there be any act denoting a complete transfer, or any act of ownership executed by the consignee, the property will be completely vested in such consignee, or, in case of bankruptcy, in his assignees.

TRANSOM, among builders, denotes the piece that is framed across a double-light window.

TRANSOM, in a ship, a piece of timber which lies athwart the stern, between the two fashion-pieces, directly under the gun-room port.

TRASSEL, an Arabian weight, fifteen of which make the Bahar of Mocha, equal to 420 lbs.

TRAY, a well-known article, of indeterminate size, employed for various purposes, more especially for holding tea-equipage, when it is denominated a tea-tray. Trays are made of various substances, particularly silver, mahogany, oak, iron and *papier mache,* japanned or varnished over. Of these, the japanned trays are, at the present day, in the greatest repute, and give rise to the most considerable trade. The *papier mache* trays are far superior to the iron trays; first, because they are lighter, and more elegant, than the latter, and secondly, because they are more durable; their varnish, or surface, not being impaired or broken by contact with hot liquors, which is not the case with iron-trays. These articles are chiefly manufactured at Birmingham; and some of the paper-trays are so highly finished, and so tastefully adorned with paintings, as to fetch from ten, to thirty, guineas each. Vast quantities of these trays are exported to the continent of Europe, and to North America, where they never fail to meet with good markets. *See* JAPANNING.

TREACLE. (Ger. *Theriak.* Du. *Teriakel, Driakel.* Da. *Teriak.* Sw. *Theriak.* Fr. *Thériakue.* It. and Sp. *Triaca.* Port. *Triaga.* Rus. *Teriak.* Pol. *Dryakiew. Teriake.* Lat. *Theriaca.*) *See* MOLASSES.

TREADLES, of a loom, that part on which the feet tread or act to put the machine in motion.

TREE-MAKER, the mechanic who forms the wooden part of saddles; so named from the tree or chief part of the saddle frame.

TRET, an allowance made for the waste; or dirt, that may be mixed with any commodity. It is usually four pounds, in every hundred and four pounds weight, or the 126th part of the whole.

TRILLION, in arithmetic, a billion of billions.

TRIM, *of a Ship,* her best posture, proportion of ballast, and hanging of her masts, &c. for sailing. To find the trim of a ship, is to find the best way of making her sail swiftly, or how she will sail best. This is done by easing of her masts and shrouds; some ships sailing much better when they are slack, than when they are tawt or fast; but this depends much upon experience and judgment, and the several trials and observations which the commander and other officers may make aboard.

TRINITY-HOUSE, is a house situated on Great Tower Hill, that belongs to a company or corporation of seamen, who have power, by the king's charter, to correct the faults of sailors, to take cognizance of those that destroy sea-marks, to take care of divers other things belonging to the navigation and the seas, &c. &c. *stat.* 8 *Eliz.* 13. 35 *Eliz.* 6.

TRIPOLI, or Rotten-stone, (Ger. and Du. *Tripel.* Da. *Tripel, Tripelse.* Sw. *Trippel,* Fr. *Tripoli.* It. *Tripolo.* Sp. *Tripoli.* Port. *Pedra tripe.* Rus. *Trepel.* Pol. *Trypola, Trypla.* Lat. *Tripela,*) is known by its quality of rubbing or wearing hard bodies, and making their surfaces shine; the particles of the tripoli being so fine as to leave even no perceptible scratches on the surface. Tripoli tastes like common chalk, and is sandy between the teeth. Its colour is generally yellow. It is brought to us from Tripoli in Barbary, whence its name. There is a species found in Derbyshire, which is in common use here among the workmen, for all sorts of fine grinding and polishing, and is also sometimes used by lapidaries for cutting of stones.

TROUBAHOUACHE, called also *moncha*, or *monka*, a measure used by the inhabitants of Madagascar, for their husked rice, containing nearly six pounds of that grain.

TROY-WEIGHT, one of the most ancient of the different kinds used in Britain. The ounce of this weight was brought from Grand Cairo in Egypt, about the time of the crusades, into Europe, and first adopted in Troyes, a city of Champagne, whence the name. The pound English troy contains 12 ounces, or 5760 grains. It was formerly used for every purpose; and is still retained for weighing gold, silver, and jewels; in some degree for compounding medicines; for experiments in natural philosophy; and for comparing different weights with each other.

TROY-WEIGHT, *Scots*, was established by James VI. in the year 1618, who enacted, that only one weight should be used in Scotland, viz. the French troy stone of 16 pounds, and 16 ounces in the pound. The pound contains 7600 grains, and is equal to 17 oz. 6 dr. avoirdupois. The cwt. or 112 lb. avoirdupois, contains only 103 lb. 2½ oz. of this weight, though generally reckoned equal to 104 lb. This weight is nearly, if not exactly, the same as that of Paris, and Amsterdam; and is generally known by the name of Dutch weight. Though prohibited by the articles of union, it is still used in weighing iron, hemp, flax, most Dutch, and Baltic, goods, meal, butchers'-meat, unwrought pewter, and lead, and some other articles.

TRUFFLES, (Ger. *Trüffel*. Du. *Tartuffels*. Da. *Tröfler*. Sw. *Häräplen*. Fr. *Truffes, Trufles*. It. *Tartufi, Tartuffolé*. Sp. *Criadillas ò Turmas de tierra*. Port. *Tortulhos*. Pol. *Tartufole, Tubera*,) a kind of vegetables, not unlike mushrooms. Some of them are very large, many being found to weigh from a pound, to a pound and a quarter. They grow principally in Germany, Italy, and several parts of France. Truffles, when dried, are used in ragouts; but they are said to be extremely difficult of digestion, and consequently very unwholesome as an article of food.

TRUNNIONS, or Trunions, *of a piece of ordnance*, are those knobs or bunches of the gun's metal, which bear her up on the cheeks of the carriage; and hence the trunnion-ring is the ring about a cannon, next before the trunnions.

TRUSS, a bundle, or certain quantity, of hay, or straw. Fifty-six pounds of *old hay* make a truss, whereas sixty pounds of *new hay* go to the truss. Thirty-six trusses, either of new, or old, hay, go to the load. Of straw, thirty-six pounds make the truss, and thirty-six trusses the load.

TRUSSES, in a ship, are ropes made fast to the parrels of a yard, either to bind the yard to the mast when the ship rolls, or to hale down the yards in a storm, &c.

TRUST, is a right to receive profits of land, and to dispose of the land in equity. And one holding the possession and disposing of it at his will and pleasure, are signs of trust. *Chan. Rep.* 52.

A trust is but a new name given to an use, and invented to evade the statute of uses. 21 *Vin.* 493.

What is a declaration of trust, and when a trust shall be raised.—By stat. 29 C. 2. c. 3. all declaration or creation of trust shall be manifested by some writing signed by the party, or by his last will in writing, or else shall be void. And by sect. 9. of the same act, assignments of trust shall be in writing, signed by the party assigning the same, or by his last will, or else shall be of no effect.

What shall be deemed a trust by implication.—By 29 Car. 2. all declarations of trusts were to be made in writing; but in the said act there is a saving with regard to trusts resulting by implication of law, which are left on the footing whereon they stood before the act; now a bare declaration by parole before the act, would prevent any resulting trust. 2 *Vern.* 294.

If a man purchases land in another's name, and pays the money, it will be a trust for him that paid the money, though no deed is made.

TRUSTEE, one who has an estate, or money, put or trusted in his hands, for the use of another. Where two, or more, persons are appointed trustees, if one of them only receives all, or the greater part of, the profits of the lands, &c. and is in arrear, and unable to satisfy the person to whom he is seised in trust, the other, in that case, shall not be answerable for more than comes to his hands.

TSIN, a name given by the Chinese to a stone used in their manufacture of porcelain ware.

This is of a deep blue colour, considerably resembling Roman vitriol, and is found in lead mines, and supposed to contain some particles of lead; its effects being the same in the porcelain, as those of ceruse or white lead, in making the other colours penetrate into the substance of the vessels.

The deep violet colour which appears so beautiful in China ware, is usually made with this stone, which is found about Canton, and Pekin, but chiefly the latter. The painters in enamel melt this stone, and use it considerably; they make many beautiful works by laying it upon silver; but it is too apt to come off by time.

TUN, or Ton, originally signifies a large vessel or cask of an oblong form, biggest in the middle, and diminishing towards its two ends, girt about with hoops, and used for stowing several kinds of merchandise, for convenience of carriage; as brandy, oil, sugar, skins, hats, &c. This word is also used for certain vessels of extraordinary bigness, serving to keep wine for several years.

TUN, is likewise a certain measure for liquids; as wine, oil, &c. The tun of wine contains two pipes, or two hundred and fifty-two gallons; and the tun used in the measurement of spirits, cider, perry, and vinegar, is precisely the same.

The tun of oil is 236 gallons, and the ton weight is 20 cwt.

TUNNY. (Ger. *Tunfisch*, *Thunfisch*. Du. *Thonyn*. Da. *Tanteie*. Sw. *Spansk makrill*. Fr. *Thon*. It. *Tonno*. Sp. *Atun*. Port. *Atum Tom*. Lat. *Thynnus*.) *See* Tunny, *article* FISHERY.

TURKEY-COMPANY. *See* COMPANY.

TURKOISE, or Turquoise. (Ger. *Türkiss*. Du. *Turkois*. Da. *Turkis*. Sw. *Turkos*. Fr. *Turquoise*. It. *Turchina*. Sp. *Turquesa*. Port. *Turqueza*. Rus. *Birusa*. Pol. *Turkus*. Lat. *Turkosa*.) This was formerly ranked among the gems, and employed in various articles of jewellery; but, though it is still considered as of some value, of late years it is less esteemed.

The turquoise comes chiefly from Persia. Its specific gravity is 3.127. Colour light green, or blue; surface smooth and polished; hardness such as slightly to scratch glass: difficult to pulverise, and of a greenish-grey when reduced to powder: its fracture polished.

TURMERIC. *See* CURCUMA.

TURNING, the art of forming hard bodies, as wood, ivory, or iron, into a round or oval shape, by means of a machine called a lathe.

The lathe should be fixed in a place very well lighted; it should be immoveable, and neither too high, nor too low. The puppets should neither be so low as to oblige the workman to stoop in order to see his work properly, nor so high that the little chips, which he is continually driving off, should come into his eyes. *See* LATHE.

The piece to be turned should be rounded (if it is wood) before it is put on the lathe, either with a small hatchet made for the purpose, or with a plane, or with a file, fixing it in a vice, and shaving it down till it is every where almost of an equal thickness, and leaving it a little larger than it is intended to be when finished off. Before putting it on the lathe, it is also necessary to find the centre of its two end surfaces, and that they should be exactly opposite to each other, that when the points of the puppets are applied to them, and the piece is turned round, no side may belly out more than another. To find these two centres, lay the piece of wood to be turned upon a plank; open a pair of compasses to almost half the thickness of the piece, fix one of the legs in the plank, and let the point of the other touch one of the ends of the piece, brought into the same plane with the plank on which the compasses are fixed, and very near the fixed leg. Describe four arcs on that end, at equal distances from each other, at the circumference of the end, but intersecting one another within: the point of intersection is the centre of the end. In the same manner must the centre of the other end be found. After finding the two centres, make a small hole at each of them, into which insert the points of the puppets, and fix the piece so firmly as not to be shaken out, and yet loose enough to turn round without difficulty.

The piece being thus fixed, it is necessary in the next place to adjust the cord, by making it pass twice round the piece, and in such a manner, that the two ends of the cord, both that which is fixed to the spang, and to the footboard, come off on the side on which the turner stands, that the piece may move against the edge of the cutting-tool and be turned. If the lathe is moved by a wheel, the manner of adjusting the cord needs no direction.

If the workman does not choose to be at the trouble to find the two centres of the piece in the manner described above, let him lay, as nearly as he can, the centre of one end upon the point of the left-hand puppet, and then let him push forward the right-hand puppet, striking it with a mallet till its point is as near as can be in the centre of the other end of the piece; and then fixing the right-hand puppet by a gentle blow of the mallet on the key, let him turn round the piece to see by the eye if the centres have been properly found. If any part of it bellies out, let him strike that part gently with the mallet till it goes properly; then let him strike one of the puppets pretty smartly to drive the points into the piece, and afterwards fix the puppet by striking the key. If the workman cannot judge by the eye whether the piece be turning properly round its centres, or not, he should apply gently the point of an instrument called a triangular graver, leaning it on the rest, and it will mark by a line the place where the piece is out of its centre; and by striking upon this line with a mallet, the piece can easily be placed properly. The rest, of which we have just spoken, ought to be placed upon the two arms of the lathe, and fixed with screws as near the piece as the workman pleases.

The piece being fixed between the two points of the puppets, the cord adjusted, and the rest fixed as near the work, as possible, without touching it; the workman is now to take a gouge of a proper size in his left hand, and hold it by the handle a little inclined, keeping the back of the hand lowermost. With his right hand, the back of which is to be turned upwards, he is to grasp it near the end on this side of the rest; then leaning the gouge on the rest, he is to present the edge of it a little higher than the horizontal diameter of the piece, so as to form a kind of tangent to its circumference; then putting the right foot on the footboard, and turning round the wheel, and holding

the gouge firmly on the rest, the piece will be cut neatly. In the same manner are the chisels, formers, and other instruments to be used, taking care that the wood shall be cut equally, and that the instrument shall not be pushed improperly, sometimes stronger than at others; and taking care also, that the instrument used do not follow the work, but that it is kept firmly in the hand without yielding.

The young turner ought to endeavour to acquire the management of the gouge and the chisel, which are the instruments by far the most frequently used, and the most necessary in this art: by them, almost entirely, are the soft woods turned; as for hard woods and other things, as box, ebony, horn, ivory, and the metals, they are hardly ever turned, except by shaving off. In that case gravers are to be used with square, round, or triangular mouths. They should be held horizontally while applied to the material, and not obliquely as directed for the gouge and the chisel.

After the work is completely turned, it is next to be polished. Soft woods, as pear-tree, hazel, and maple, ought to be polished with shark-skin, or Dutch rushes. There are different species of sharks; some of which have a greyish, others a reddish, skin. Shark-skin is always the better to be a good deal used; at first it is too rough for polishing. The Dutch rush is the *equisetum hyemale* of Linnæus, which grows in moist places among mountains. It is remarkable for having flinty particles in the substance of its leaves, which render it so useful in polishing. It has a naked, simple, and round, stem, about the thickness of a writing pen. The oldest plants are the best. Before using them they should be moistened a little, otherwise they break in pieces almost immediately, and render it exceedingly difficult to polish with them. They are particularly proper for smoothing hard woods, as box, lignum-vitæ, ebony, &c. After having cleaned the piece well, it should be rubbed gently, either with wax, or olive-oil, then wiped clean, and rubbed with its own raspings, or with a cloth a little worn. Ivory, horn, silver, and brass, are polished with pumice-stone finely pounded and put upon leather or a linen cloth a little moistened: with this the piece is rubbed, as it turns round in the lathe; and to prevent any dirt from adhering to any part of it, every now and then it is rubbed gently with a small brush dipt in water. To polish very finely, the workmen make use of tripoli, and afterwards of putty, or calx of tin. Iron, and steel, are polished with very fine powder of emery; this is mixed with oil, and put between two pieces of very tender wood, and then the iron is rubbed with it. Tin, and silver, are polished with a burnisher, and that kind of red stone called in France *sanguine dune*. They may be polished also with putty, putting it dry on shammy-skin, or with the palm of the hand.

To succeed in turning iron, it is necessary to have a lathe exceedingly strong in all its parts, and exceedingly well fixed. The puppets should be short, and the rest well fixed very near the work; the back of the rest should be two or three lines lower than the iron to be turned.

The lathe, and other instruments, being prepared, it is necessary to determine the length, and thickness, of the iron to be turned, according to the design which is to be executed, and to make a model of it in wood a little thicker than it ought to be; then one exactly like this is to be forged of the best iron that can be procured; that is, it must not be new, but well prepared, and well beaten with hammers; it must have no flaws, nor cracks, nor pimples. New iron, which has not been well beaten, often contains round drops of cast iron, called by the workmen grains, which blunt the edges of the gouges, chisels, and other instruments used for cutting; break them, or make them slide. The iron being forged according to the model, it should be annealed, that is, heated red hot, and allowed to cool slowly on the coals till the fire goes out of itself. Some people, to soften the iron, cover it over with clay, and allow it to cool. The iron cylinder being thus made, it is next to be put upon the lathe, finding the centres as formerly directed, and boring a small hole in them, that the iron may not escape from the points.

The points should be oiled, from time to time, to prevent their being excessively heated, and spoiled while the iron is turned. A crotchet is then to be applied to the iron to be turned a little above its centre, pretty gently, and by this means the inequalities of the cylinder will be taken off. Other instruments are then to be applied to mould the iron according to the model; and whenever any of them grow hot, they are to be plunged into a bason of water lying beside the workman. If the iron, after being properly turned, is to be bored like a gun barrel, one of the puppets is to be removed, and another substituted in its place, having a square hole through it, into which the collar of the iron is to be fixed firmly, so as not to shake; then borers are to be applied, like those which locksmiths use to bore keys; and beginning with a small one, and afterwards taking larger ones, the hole is to be made as wide and deep as necessary; great care must be taken to hold the borers firm to the rest, otherwise there is danger of not boring the hole straight. The borer must be withdrawn, from time to time, to oil it, and to clean the hole. Since it is difficult to make a hole quite round with borers alone, it is necessary to have also an instrument a good deal smaller than the hole, one of the sides of which is sharp, very well tempered, and a little hollow in the middle. This instru-

ment being fixed in a pretty long handle, is to be applied with steadiness to the inner surface of the hole, and it will entirely remove every inequality that may have been there before its application.

For turning ovals, a lathe of somewhat a different construction is used. The axis or spindle, having on it the pulley, over which the band-cord passes, for turning the lathe, is fixed between the two puppets so as to turn round easily; one end of it passes through one of the puppets, and to it is firmly fixed a circular plate of brass, so that it turns round along with the spindle. Upon this plate two brazen segments of circles are fastened, the circumferences of which correspond to the circumference of the plate; their cords are parallel, and equally distant from the centre of the plate, so that they leave a distance between them. They have a groove in each of them; in these grooves another plate is placed, which exactly fills up the space between the two grooves, but is shorter than the diameter of the larger circular plate on which it is laid. This plate is made to slide in the grooves. To its centre is annexed a short spindle, on which the piece of wood to be turned, is fixed. When the lathe is set a going, the circular plate moves round, and carries the piece along with it; the plate of brass, on which the piece is placed, being fixed loosely in the grooves already described, slides down a little every time that the grooves become perpendicular to the floor (and there are particular contrivances, to prevent it from sliding down too far); and by these two motions combined, the circular one of the large plate, and the straight one of the small, the circumference of the piece of wood to be turned necessarily describes an oval; and gouges, or other tools being applied in the usual manner, supported on the rest, it is cut into an oval accordingly. The small plate may be made to slide, either more or less, in the grooves; and by this contrivance, the transverse diameter of the oval, or rather ellipse, may be made longer or shorter, at pleasure. Another, and still more simple method, if possible, of turning ovals, is this: Take two ovals of metal, exactly of the size of the oval which you intend to make; fix them firmly on the spindle of the lathe, so as to turn round with it; fix between them the wood to be turned, and then it is easy, by the help of chisels, and other tools, to cut it, as the lathe goes, into exactly the figure of the external ovals. Or an oval may be formed by placing the wood, or whatever is to receive that shape, obliquely on the lathe. There are several other ingenious methods of turning; but our bounds do not permit us to enter upon them.

TURNSOL, (Ger. *Turnesol, Tornesol.* Du. *Tournesol.* Da. *Tornesol, Jarvelap.* Sw. *Tornisoll.* Fr. *Tournesol en drapeaux.* It. *Tornasole.* Sp. *Tornasol, Iirasol.* Port. *Tornasol,*) a valuable dyeing drug, which is prepared chiefly in the village of Grand Garlargues, near Montpellier, from the *croton tinctorum,* L. in French called *marelle.*

Toward the latter end of July, or early in August, the flowering tops of this plant are expeditiously collected and bruised; when the dark green sap is expressed into stone vessels, with the addition of urine; linen, or woollen, rags are next dipped into this liquor, and immediately dried in the sun, after which they are suspended for seven, or eight, hours, over casks containing stale urine, quick lime, and alum, till they acquire a blue, or dark violet, colour, and if necessary, are again immersed in the juice, dried, and treated as before; thus prepared, they are packed, and sold by the French, under the name of *tournsols en drapeaux:* these blue shreds are chiefly employed for tinging wines, linen, and paper: when infused with distilled water, they afford an excellent test for the detection of acids; for, on pouring a little of this solution into any liquor containing an acid, it will instantly turn red.

TURPENTINE, (Ger. *Turpentin.* Du. *Terpentyn.* Da. and Sw. *Terpentin.* Fr. *Terebinthine.* It. and Sp. *Trementina.* Port. *Terebenthina.* Rus. *Skipidar.* Pol. *Terpentyna.* Lat. *Terebinthina,*) a resinous juice extracted from several species of trees. The true turpentine tree is found in Spain and the southern parts of France, as well as in the island of Chio, and in the Indies. It is a middling sized ever-green, with leaves like those of the bay, bearing purplish, in perfect flowers; and on separate pedicles, hard unctuous berries, like those of the juniper. It is extremely resinous; and unless the resin is discharged, it decays, produces fungous excrescences, swells, bursts, and dies; the prevention of which consists wholly in plentiful bleeding both in the trunk and branches. The juice is the *Chio* or *Cyprus Turpentine* of the shops. This sort is quite of a thick consistence, of a greenish colour, clear and transparent, and of scarcely any taste, or smell.

The kind now called *Venice Turpentine* is no more than a mixture of eight parts of common yellow, or black, rosin, with five parts of oil of turpentine. The resin or gum which exudes from the larch-tree is occasionally denominated Venice turpentine. This has a strong smell, and a hot disagreeable taste, it is less viscid than any of the other turpentines, and generally of a clear whitish, or yellowish, cast.

The *Strasburg Turpentine* is extracted from the silver fir. It possesses an agreeable aromatic odour, and an uncommonly bitter taste, is neither so thick as the former species, nor so thin as the latter, but it is clearer, and less tenacious than either, being commonly of a yellowish brown colour; it is imported from Germany.

The *common Turpentine* is prepared from different sorts of the pine, and is quite thick, white, and opaque. The process of making it is as follows. In the spring, when the sap runs most freely, the bark of the pine is pared off, to make the sap run down in a hole at the bottom, cut to receive it. As it runs down it leaves a track of white matter, like cream, but rather thicker. This is widely different from all kinds of rosin and turpentine in use, and is generally employed in the making of flambeaux, instead of white bees-wax. The matter, that is received in the hole at the bottom of the tree, is taken up with ladles, and put into a large basket. A great part of this immediately runs through, and is the common turpentine. It is received in stone or earthen pots, and is not otherwise prepared for sale. Although considerable quantities of turpentine are prepared in Great Britain, they are insufficient to supply the market, on which account abundance of the article is imported from America, and the Baltic.

Turpentine is of considerable utility in pharmacy, and is much used by farriers, &c. as a stimulant application to wounds.

TURPENTINE, *Oil of*, (Ger. *Terpentinöl*. Du. *Terpentynolie*. Da. *Terpentinolja*. Sw. *Terpentinaljo*. Fr. *Eau de raze, Huile de terebenthine, Huile d'étherée*. It. *Acqua di rasa*. Sp. *Aguarras*. Port. *Aguaras*. Rus. *Skipidarnoe masslo*. Pol. *Oley Terpentinowy*,) is the essential oil drawn from turpentine by distillation: there are two sorts of this oil; the best red, and the second white, and both esteemed excellent balsams for the cure of wounds, though they are more frequently used by painters than by apothecaries. It is of great use as a remedy for burns or scalds; the part injured is to be well bathed with it, or a poultice formed with bread and oil of turpentine, and applied to the injured part.

The essential oil of the common turpentine is said to be used by distillers in the preparation of gin; it is also employed by house-painters, and also for the different varnishes in the floor-cloth, umbrella, and many other manufactures.

Oil of turpentine should be chosen clear like fair water, and of a strong and penetrating odour. It is subject to great adulteration, and is so highly inflammable, that great precaution ought to be observed in approaching it with fire.

TUTENAG, Indian zinc, or a mixed metal composed chiefly of zinc: it is formed into blocks of about twenty pounds each.

TUTTY, (Ger. *Ofenbruch*. Du. *Ovenbreuk*. Da. *Ovnbrud*. Sw. *Ugngods*. Fr. *Cadmie des fourneaux*. It. *Turzia*. Sp. *Tucia, Tutia*. Port. and Lat. *Lapis Tutiæ*,) an argillaceous ore of zinc, found in Persia. The better sorts of tutty are in semicylindrical concave pieces, like the bark of a tree; ponderous and somewhat sonorous; moderately compact, and generally not easy to break; of an ash or mouse-grey colour, often with yellow or green variations, pretty smooth on the inside, full of cavities or protuberances on the outside. The entire, compact, grey pieces are preferred; the broken, powdery, crumbly, yellow, or reddish, rejected. Boecler relates, that tutty has a sharp taste, but no such taste is perceptible in ours.

It is used with us as an absorbent application in diseases of the eyelids; in India, as a cosmetic for destroying superfluous hairs.

TYPE, among letter-founders and printers, is the same with letter. For the mode of casting types, *see* LETTER-FOUNDER; for the foreign names of the article, *see* PRINTING-TYPES.

U or V, THE twentieth letter of the alphabet. In numerals V stands for five, and with a dash at top thus, $\bar{V}$ signifies 5000.

VAL, a small Indian weight, used for weighing dollars, or pieces of eight, each of which ought to weigh 73 vals. It is also used for weighing gold ducats, which must weigh nine vals, and 5-16ths of an Indian carat, and whatever is wanting of these weights in either, must be made good by the vender.

VALERIAN, *Valeriana*, a plant, of which there are 31 species, only four of which are natives of Britain, the *officinalis*, the *olitoria*, the *rubra*, and the *dioica*; of these only the officinalis is useful. The root of this plant is perennial: the stalk is upright, smooth, chancled, round branched, and rises from two, to four, feet in height; the leaves on the stem are placed in pairs upon short broad sheaths; they are composed of several lance-shaped, partially dentated, veined, smooth pinnæ, with an odd one at the end, which is the largest; the floral leaves are spear-shaped and pointed; the flowers are small, of a white or purplish colour, and terminate the stem and branches in large bunches. It flowers in June, and grows commonly about hedges, and woods. It was first brought into estimation in convulsive affections, by Fabius Columna, who relates that he cured himself of an epilepsy by the root of this plant. The advantages

said to be derived from this root in epilepsy, caused it to be tried in several other complaints termed nervous, particularly those produced by increased mobility, and irritability of the nervous system, in which it has been found highly serviceable. The root in substance is most effectual, and is usually given in powder from a scruple, to a drachm; its unpleasant flavour may be concealed by a small addition of mace.

VALONIA, (Ger. *Ackerdoppen*. Du. *Akerdoppen*. Fr. *Avelanède*. It. *Vallonea, Valonia,*) the husks of the acorn, generally were mixed with that fruit, though this diminishes its value. It is brought to us from Italy, and the Levant, and used as a dyeing ingredient.

VALUE, the price or worth of any thing. *Intrinsic* value denotes the proper, real, and effective, worth of any thing, and is chiefly used with regard to money; the popular value whereof may be raised, and lowered, at the pleasure of the prince, but its real or intrinsic value, depending wholly on its weight, and fineness, is not at all affected by the stamp or impression thereon.

VALUE, *in bills of exchange*. The words "*value received*," though usually inserted in bills of exchange, and promissory notes, are nevertheless not essential to the validity of negotiable instruments, unless in particular cases; for value received is as much implied upon the face of every negotiable instrument, as if these words had been actually expressed. *Chitty, on bills, &c.* 50. By 9 & 10 Will. 3. c. 17. & 3 & 4 Ann. c. 9. s. 4. the holder cannot recover interest, and damages, against the drawer and indorser in default of acceptance or payment, unless the bill contain the words *value received*; on this account, therefore, it is at all times advisable to insert these words. *See* BILLS OF EXCHANGE.

VAN DIEMEN'S LAND. An island 100 miles long, 50 broad, separated from New Holland by a streight 30 leagues wide, situate at the southern extremity of New Holland, between 40° 42′ and 43° 43′ of south latitude, and between 145° 31′ and 148° 22′ of east longitude.

Derwent, Heron, and Tamer, large rivers.

Ports — Derwent, Davy, Macquane, Dalrymple, and Oyster Bay, very fine harbours. It has now copper, alum, coals, slate, lime-stone, asbestos, and basaltes.

Hobart Town, seat of government.

A mountain, supposed 6000 feet above the level of the sea, called Table Mountain, so named after that of the Cape of Good Hope. — *W. C. Wentworth's Statistical Account of this Colony.*

VANE, in a ship, &c. a thin slip of some kind of matter, placed on high in the open air, turning easily round on an axis or spindle, and veered about by the wind, to shew its direction or course.

VANILLA, (Ger. *Vanilje*. Du. *Banilje*. Da. *Vaniller*. Sw. *Baniller*. Fr. *Vanille*. It. *Vainiglia*. Sp. *Vainilla, Vainica*. Port. *Vainilha, Baonelha*. Lat. *Vanilla*.) There are 124 species of the vanilla plant, one of which produces this fruit, which is used in making chocolate. It is a native of Mexico, and also of some parts of the East Indies. It is a parasitic plant, the leaves of which greatly resemble the vine, and are about eighteen inches long, and three inches broad. The flowers are of a white colour, intermixed with stripes of red, and yellow. When these fall off they are quickly succeeded by the pods, which at first are green, but afterwards, as they ripen, become yellow, and are gathered for use. The pods of the best vanilla are long, slender, and well filled with seeds. If opened when fresh, the cavity of the pod is found to contain a humid substance that is black, oily, and balsamic, of such a strong smell, that it frequently causes head aches, and even a sort of temporary intoxication.

The season for gathering the pods begins about the end of September, and lasts till the end of December. They are dried in the shade; and when dry, and fit for keeping, they are rubbed externally with a little oil, cocoa, or calba, to render them supple, or to preserve them the better, and to prevent them from becoming too dry or brittle. The use of this fruit is only for perfuming chocolate. In New Spain it is reckoned unwholesome, and therefore never used: but in England, and other countries of Europe, it is a constant ingredient, and perhaps its noxious qualities may be corrected by the sea air. In those countries where they grow, the plants are very easily propagated by cuttings. In this country they require to be kept in a stove, and also to be placed near some American tree, round which they may climb for support.

The high perfume of the vanilla is easily extracted by spirit of wine; a short infusion in this menstruum, serves to give it a very rich and highly-flavoured tincture, and the remaining vanillas, when the liquor is thoroughly pressed from them, have no smell. When analysed, the vanilla yields a very large portion of an aromatic essential oil, a moderate quantity of an acid phlegm, and a small portion of an urinary liquor, and fixed salt.

VARI, a small weight used among the ancient inhabitants of Madagascar, equal to half a dragme marc; here is likewise the sompe, saccare, nanqui, and nanque; all used for weighing gold and silver only.

VARIATION, in navigation, is the deviation of the magnetical needle in the mariner's compass, from the true north point, towards either the east, or west: or it is an arch of the horizon, intercepted between the meridian of the place of observation, and the magnetic meridian.

VARNISH, (Ger. *Firniss*. Du. *Vernis*.

Da. *Fernis.* Sw. *Fernissa.* Fr. *Vérnis.* It. *Vernice.* Sp. *Barniz.* Port. *Verniz.* Rus. *Olifa.* Pol. *Pokost.* Lat. *Vernix,*) a thick, viscid, shining liquor, used by painters, gilders, and various other artificers, to give a gloss and lustre to their works; as also to defend them from the weather, dust, &c.

Varnish ought to possess the following properties: it must exclude the action of the air, because wood and metals are varnished to defend them from decay and rust. It must resist water, for otherwise the effect of the varnish could not be permanent. It ought not to alter such colours as are intended to be preserved by this means. It is necessary, therefore, that a varnish should be easily extended, or spread over, the surface, without leaving pores or cavities; that it should not crack, or scale, and that it should resist water.

Varnishes should be carefully kept from dust, and in very clean vessels; they should be laid as thin and even, as possible, with a large flat brush, taking care to lay the strokes all one way. A warm room is best for varnishing in, as cold chills the varnish, and prevents it from lying even.

Varnishes are polished with pumice-stone, and tripoli. The pumice-stone must be reduced to a very fine powder, and put upon a piece of serge moistened with water: with this the varnished substance is to be rubbed equally, and lightly. The tripoli must also be reduced to a fine powder, and put upon a clean woollen cloth moistened with olive-oil, with which the polishing is to be performed. The varnish is then to be wiped with soft linen, and, when quite dry, cleaned with starch or Spanish white, and rubbed with the palm of the hand, or with a linen cloth.

Fat Oil Varnish. Fixed, or fat oil, will not evaporate, nor will it become dry of itself. To make it dry it must be boiled with metallic calces or oxides. Litharge is generally used for this purpose. Oil so prepared is called drying oil. To accelerate the drying of oil-varnish, oil of turpentine is added. Gum-copal, and amber, are the substances principally employed in oil-varnishes; the copal being whitest, is used for varnishing light; the amber for dark colours. It is best to dissolve them before mixing with the oil; because, by so doing, they are in less danger of being scorched, and, at the same time, the varnish is more beautiful. They should be melted in an iron pot over the fire; they are in a proper state for receiving the oil when they give no resistance to the iron spatula, and when they run off from it drop by drop.

To make oil varnish, pour four, six, or eight, ounces of drying oil, among sixteen ounces of melted copal, or amber, by little and little, constantly stirring the ingredients at the same time with the spatula. When the oil is well mixed with copal, or amber, take it off the fire; and when it is pretty cool, pour in sixteen ounces of the essence of Venice turpentine. After the varnish is made it should be passed through a linen cloth.

Oil-varnishes become thick by keeping; but when they are to be used it is only necessary to pour in a little Venice turpentine, and to put them a little on the fire. Less turpentine is necessary in summer than in winter; too much oil hinders the varnish from drying, but when too little is used, it cracks, and does not spread properly.

White varnish for clock-faces, &c. Take of spirit of wine (highly rectified) one pint, which divide into four parts, then mix one part with half an ounce of gum-mastich, in a phial; one part of spirit, and half an ounce of gum-sandarach, in another phial; one part of spirit, and half an ounce of the whitest parts of gum-benjamin. Then mix and temper them to your mind. It would not be amiss to add a little bit of white resin, or clear Venice turpentine, in the mastich bottle: it will assist in giving a gloss. If your varnish proves too strong and thick, add spirit of wine only; if too hard, some dissolve mastich, if too soft, some sandarach or benjamin. No other rule can be given, unless the quality of the gums and the spirit could be ascertained. When you have brought it to a proper temper, warm the silvered plate before the fire, and with a flat camels' hair pencil stroke it all over till no white streaks appear.

Black varnish for coaches and iron work. This varnish is composed of asphaltum, resin, and amber, melted separately, and afterwards mixed; the oil is then added, and afterwards the turpentine, as already directed. The usual proportions are, twelve ounces of amber, two of resin, two of asphaltum, six of oil, and twelve of turpentine.

A varnish for rendering silk water, and air, tight. To render the linseed oil drying, boil it with two ounces of sugar of lead, and three ounces of litharge, for every pint of oil, till the oil has dissolved them; then put a pound of bird-lime, and half a pint of the drying-oil, into a pot of iron or copper, holding about a gallon; and let it boil gently over a slow charcoal fire, till the bird-lime ceases to crackle; then pour upon it two pints and a half of drying oil, and boil it for an hour longer, stirring it often with an iron or wooden spatula. As the varnish, in boiling, swells much, the pot should be removed from the fire, and replaced when the varnish subsides. While it is boiling, it should be occasionally examined, in order to determine whether it has boiled enough. For this purpose, take some of it upon the blade of a large knife, and after rubbing the blade of another knife upon it, separate the knives, and when, on their separation, the varnish begins to form threads between the two knives, it has boiled enough, and should be removed from the fire. When it is almost cold, add about an

equal quantity of spirit of turpentine; mix both well together, and let the mass rest till the next day; then, having warmed it a little, strain and bottle it. This varnish should be laid upon the stuff when perfectly dry, in a lukewarm state; a thin coat of it upon one side, and about twelve hours after, two other coats should be laid on, one on each side, and in twenty-four hours the silk may be used.

Blanchard's varnish for air-balloons. Dissolve elastic gum (caoutchouc, or Indian rubber,) cut small, in five times its weight of spirit of turpentine, by keeping them some days together: then boil an ounce of this solution in eight ounces of drying linseed oil, for a few minutes, and strain it. Use it warm.

Essential oil varnish. The essential varnish consists of a solution of resin in oil of turpentine, or other essential oil. This varnish being applied, the turpentine evaporates, leaving the resin behind. It is commonly used for pictures.

Spirit varnishes. When resins are dissolved in alcohol, commonly called spirit of wine, the varnish dries very speedily, but is subject to crack. This fault is corrected by adding a small quantity of oil of turpentine, which renders it brighter, and less brittle when dry.

A varnish for toilet boxes, cases, &c. Dissolve two ounces of gum mastich, and eight ounces of gum-sandarach, in a quart of alcohol; then add four ounces of Venice turpentine.

A varnish for wainscot, cane-chairs, &c. Dissolve in a quart of spirit of wine, eight ounces of gum-sandarach, two ounces of seed-lac, and four ounces of resin; then add six ounces of Venice turpentine. If the varnish is to produce a red colour, more of the lac, and less of the sandarach should be used, and a little dragon's blood should be added. This is a very strong varnish.

A varnish for violins and other musical instruments. Put four ounces of gum-sandarach, two ounces of lac, two ounces of gum-mastich, an ounce of gum-elemi, into a quart of alcohol, and hang them on a slow fire till they are dissolved, then add two ounces of turpentine.

A varnish for employing vermilion for painting equipages. Dissolve in a quart of alcohol six ounces of sandarach, three ounces of gum-lac, and four ounces of resin, afterwards six ounces of the cheapest kind of turpentine; mix it with a proper quantity of vermilion when it is to be used.

Seed-lac varnish. Take spirit of wine one quart, put it in a wide-mouthed bottle, add to it eight ounces of seed-lac, that is large-grained, bright, and clear, free from dirt and sticks; let it stand two days or longer, in a warm place, often shaking it. Strain it through a flannel into another bottle, and it is fit for use.

Shell-lac varnish. Take one quart of spirit of wine, eight ounces of the thinnest, and most transparent, shell-lac, which, if melted in the flame of a candle, will draw it out in the finest, and longest, hair; mix and shake these together, and let them stand in a warm place for two days, and it is ready for use. This varnish is softer than that which is made from seed-lac, and therefore is not so useful, but may be mixed with it for varnishing wood, &c.

To dissolve gum-copal in spirit of wine. Dissolve half an ounce of camphor in a pint of alcohol, or spirit of wine, put it into a circulating glass, and add four ounces of copal in small pieces, set it in a sand-heat, so regulated that the bubbles may be counted as they rise from the bottom; and continue the same heat till the solution is completed.

Camphor acts more powerfully upon copal, than any other substance. If copal be finely powdered, and a small quantity of dry camphor rubbed with it in the mortar, the whole becomes, in a few minutes, a tough coherent mass. The process above described will dissolve more copal, than the menstruum will retain when cold. The most economical method will therefore be, to set the vessel which contains the solution by for a few days; and when it is perfectly settled, pour off the clear varnish, and leave the residuum for a future operation. This is a very bright solution of copal; it is an excellent varnish for pictures, and may perhaps be found to be an improvement in fine japan works; as the stoves used in drying those articles may drive off the camphor entirely, and leave the gum copal pure, and colourless, upon the work.

Varnish, among medalists, signifies the colours antique medals have acquired in the earth.

The beauty which nature alone is able to give to medals, and art has never attained to counterfeit, enhances the value of them; that is, the colours, with which certain soils in which they have a long time lain, tinge the metals; some of which are blue, almost as beautiful as the turquoise; others with an inimitable vermilion colour; others with a certain shining polished brown, vastly finer than Brazil figures.

The most usual varnish is a beautiful green, which hangs to the finest strokes without effacing them, more accurately than the finest enamel does on metals. No metal but brass is susceptible of this; for the green rust that gathers on silver alway spoils it, and it must be got off with vinegar or lemon juice.

Falsifiers of medals have a false or modern varnish, which they use on their counterfeits, to give them the appearance of being antique. But this may be discovered by its softness, it being softer than the natural varnish, which is as hard as the metal itself. Some deposit their spurious metals in the earth

for a considerable time, by which means they contract a sort of varnish, which may impose upon the less knowing; others use sal ammoniac, muriat of ammonia, and others burnt paper, &c.

Gilt varnish is made of linseed oil, sandarach, aloes, gamboge, and litharge of gold.

China varnish is made of gum-lac, colophony, mastich, and spirit of wine.

A varnish for brass, to resemble gold. Take two quarts of spirits of wine, and put it into a glass bolt-head; add to it one ounce of gamboge, two ounces of lac, and two ounces of gum mastich; set this in a sand-heat for six days, or else near a fire, or you may put the body of the bolt-head frequently into warm water, shaking it two or three times a day; then set it over a pan of warm small coal dust. Before you lay this varnish over the metal, take care that it has been well cleaned, varnish it over thinly with this varnish, and it will appear of a perfect gold colour. Set it in a declining oven to harden, and it will not rub off.

VAT, *see* FAT.

VEER, a sea-term variously used. Thus, veering out a rope, denotes the letting it go by the hand, or letting it run of itself. It is not used for letting out any running rope except the sheet. Veer is also used in reference to the wind, for when it changes often they say it veers about.

VEIN, among miners, is that space which is bounded with woughs, and contains ore, spar, canck, clay, chirt, croil, brown-hen, pitcher-chirt, cur, which the old mineralogists and alchemists denominated the mother of metals, and sometimes soil of all colours. When it bears ore it is called a quick vein; when no ore it is called a dead vein.

VELLUM, (Ger. *Velin. Feines pergament.* Du. *Velin.* Da. *Kalvskinds pergament. Velin.* Sw. *Velin, Kalfskins, pergament.* Fr. *Velin.* It. *Pergamenta fina.* Sp. *Pergamino fino Vitela.* Port. *Pergaminho fino de vitella,*) a kind of fine parchment. It is made of calf-skin extended and drawn to a proper thinness when green; and parchment is made of sheep-skins in like manner. *See* PARCHMENT.

VELVET, (Ger. *Sammet.* Du. *Fluweel.* Da. *Flüjel.* Sw. *Sammet* Fr. *Velours.* It. *Velluto.* Sp. *Terciopelo.* Port. *Velludo.* Rus. *Barchat.* Pol. *Aksamit,*) a rich kind of stuff, all silk, covered on the outside with a close, short, fine, soft shag, the other side being a very strong close tissue. The nap or shag, called also the velveting, of this stuff, is formed of part of the threads of the warp, which the workman puts on a long narrow-channelled ruler or needle, which he afterwards cuts, by drawing a sharp steel tool along the channel of the needle to the ends of the warp.

There are various kinds of velvets; *Plain,* that is, uniform and smooth, without either figures, or stripes.

Figured velvet, that is, adorned and worked with divers figures, though the ground is the same with the figures, that is, the whole surface velveted.

Ramaged or branched velvet, representing long stalks, branches, &c. on a satin ground, which is sometimes of the same colour with the velvet, but more commonly of a different one. Sometimes, instead of satin, they make the ground of gold and silver.

Shorn velvet, is that, wherein the threads, that make the velveting, have been ranged in the channelled ruler, but not cut there. Striped velvet is that, wherein there are stripes of different colours running along the warp, whether these stripes are partly velvet, or all velveted.

Cut velvet is that, whereon the ground is a kind of taffety, or *gros de tours,* and the figures velvet.

Velvets are likewise distinguished, with regard to their different degrees of strength and goodness, into velvets of four, three, and two, threads, and a thread and a half. The first of those, where there are eight threads of shag, or velveting, to each tooth of the reed; and the second has only six, and the rest four. All velvets, both worked and cut, shorn and flowered, are to have their warp and shag of organzine, spun and twisted, or thrown in the mill; and their woof of silk well boiled, &c. Florence, Genoa, and some other cities of Italy, are most noted for the manufacture of velvet. There are cotton velvets manufactured in imitation of the silk ones, principally at Manchester and Bolton.

VELVERET, (Ger. *Manchester.* Du. Da. and Sw. *Manchester.* Fr. *Velours de coton.* It. *Velluto di cotone.* Sp. *Terciopelo. de algodon.* Port. *Velludo de algodão,*) a species of cotton velvet, chiefly manufactured at Manchester, and in its neighbourhood. *See* VELVET.

VENDOR and VENDEE. The vendor is the person who sells, and the vendee the person who buys.

VENEERING, Vaneering, or Fineering, a kind of marquetry or inlaying, whereby several thin slices or leaves of fine woods of different kinds, are applied and fastened on a ground of some common wood. There are two kinds of inlaying; the one which is the most common and more ordinary, goes no farther than the making of compartments of different woods; the other requires much more art, in representing flowers, birds, and similar figures.

The first kind is properly called veneering; the latter is more properly called marquetry. *See* MARQUETRY.

The wood used in veneering is first sawed out into slices or leaves, about a line in thickness; *i. e.* the twelfth part of an inch.

In order to saw them, the blocks or planks are placed upright, in a kind of sawing-press. These slices are afterwards cut into narrow slips, and fashioned divers ways, according to the design proposed; then the joints having been exactly and nicely adjusted, and the pieces brought down to their proper thickness, with several planes for the purpose, they are glued down on a ground or block, with good strong English glue.

The pieces being thus jointed and glued, the work, if small, is put in a press; if large, it is laid on a bench covered with a board, and pressed down with poles or pieces of wood, one end of which reaches to the ceiling of the room, and the other bears on the board.

When the glue is dry, it is taken out of the press, and finished; first with little planes, then with scrapers, some of which resemble rasps, which take off the dents, &c. left by the planes.

After it has been sufficiently scraped, they polish it with the skin of a dog-fish, wax and a brush, or polisher of shave-grass; which is the the last operation.

VERDEGRIS, or Verdegrease, (Ger. *Grünspan*. Du. *Spaansch groen*. Da. *Spansk grönt*. Sw. *Spank gröna*. Fr. *Verdde-gris, Verdet*. It. *Verderame*. Sp. *Cardenillo, Verdete, Verde-gris*. Port. *Verdete, Verdegris, Cardinilho*. Rus. *Jar*. Pol. *Gryszpan*. Lat. *Ærugo, Viride æris*,) is an acetat of copper, useful in the arts as a pigment. The principles on which it is formed are these:

Acetic acid attacks copper very slowly in open vessels, converts it into an oxide, and dissolves it; but in close vessels no action takes place. This acid readily combines with the oxide of copper, and forms with it an acetat. This salt was known by the ancients; and various ways of preparing it are described by Pliny. It is usually obtained by exposing plates of copper to the action of vinegar, till they are converted to a blueish green powder, and then dissolving this powder in acetite acid, and crystallising it.

Acetat of copper crystallises in four-sided truncated pyramids. It has a beautiful blueish green colour. Its specific gravity is 1.779: its taste is disagreeably metallic, and, like all the compounds into which copper enters, it is poisonous. It is very soluble in water; alcohol likewise dissolves it. When exposed to the air, it effloresces. By distillation it gives out acetic acid. It is much used as a paint; and crystallised acetat of copper is a frequent ingredient in dyeing compounds. Verdegris is formed in great quantities at Montpelier. A particular account of the process followed in that place has been published by M. Chaptal. And a Mr. Jacob Zink obtained, in 1812, a patent for the manufacture of this article. The materials of which it is to be made consist of pure copper, acid, and alkali. Of these are made, 1st, a saturated solution of oxyde of sulphate of copper; 2dly, a solution of either vegetable or mineral alkali; which two, when properly mixed and combined, will produce the superior verdegris for which a patent is claimed. The solution of oxyde of sulphate of copper, is made in a copper vessel, capable of containing eight hundred gallons; which vessel is to be placed in a still larger one of iron, standing over a furnace, and the vacant space between the two is to be filled with sand. Twelve pounds of pure copper, cut small or granulated, are to be put into the copper with thirty pounds of sulphuric acid, and a fire to be lighted in the furnace; when the materials are hot, about eight pounds of water are to be added, and the whole to be boiled together till the calcination is effected. This prepared oxyde is to be removed, and another portion to be manufactured, and then continued till there be enough to saturate eight hundred gallons of water, in which it is to be dissolved: in this way, the first solution is prepared. The other is simply that of one hundred and fifty pounds of alkali being dissolved in about three hundred gallons of water: by the mixture of these two articles, in proper proportions, the requisite substance is obtained. Still, however, it requires to be freed first from the water it contains: it is then to be cleaned and purified, and last of all to be made perfectly dry: the method of performing this is described in the specification to which the reader is referred.

VERDITER, or Verdeter, (Ger. *Bergblau, Kupferblau*. Du. *Bergblaauw*. Da. *Biergblaat*. Sw. *Bergblätt*. Fr. *Cendres bleues*. It. *Azzurro di montagna*. Sp. *Verde-Tierra*. Port. *Verdemontanha azul*. Rus. *Golubez, Medndia lazur*. Lat. *Cæruleum montanum*,) a kind of mineral substance, used by painters, &c for a blue; but more usually mixed with a yellow for a green colour. Verditer, according to M. Savary, ought to be made of the *lapis armenus*; or at least of an earthy substance much like it, brought from the mountains of Hungary, &c. only prepared by powdering it, and cleansing it by lotion.

The method of making verditer with us is as follows; into 100 lbs. of whiting, the refiners pour the copper-water, and stir them together every day for some hours, till the water grows pale; then they pour that away, set it by for other use, and pour on more of the green water, and so till the verditer be made; which being taken out, is laid on large pieces of chalk in the sun, till it be dry and fit for market.

VERJUICE, (Ger. *Agrest*. Du. *Verjus*. Da. and Sw. *Agrest*. Fr. *Verjus*. It. *Agresto*. Sp. *Agraz*. Port. *Agraço*. Lat. *Agresta Omphacium*,) a liquor obtained from grapes or apples, unfit for wine or cyder; or

from sweet ones, whilst yet acid, and unripe. Its chief use is in sauces, ragouts, &c. though it is also an ingredient in some medicinal compositions, and is used by the wax-chandlers to purify their wax. It takes its name from a large sort of grape, called *verjus*, or *bourdelos*. Verjuice, and vinegar, are subject to the laws of excise, and were newly regulated by 58 Geo. 3. c. 65.

VERMICELLI, (Ger. *Nudeln*. Du. *Meelneepen, Proppen*. Da. and Sw. *Nudler, Vermicelli*. Fr. *Vermicelli*. It. *Vermicelli, Tagliolini*. Sp. *Aletrias*. Port. *Aletrias, Fideos*. Rus. *Lapscha*,) an Italian mixture, prepared of flour, cheese, yolks of eggs, sugar, and saffron; and reduced into little long pieces, or threads like worms, by forcing it with a piston through a number of little holes in the end of a pipe made for that purpose. It is much used in Italy, and other countries, in soups, broths, &c. Allowed to be imported from our American colonies, free of duty, by 7 Geo. 3.

VERMILION, (Ger. *Vermiljon*. Du. *Vermiljoen*. Da. *Vermillion*. Sw. and Fr. *Vermillon*. It. *Vermiglione*. Sp. *Vermillon*. Port. *Vermelhäo*,) a very bright and beautiful, red colour, in great esteem among the ancients, under the name of *minium*. There are two kinds of it, the one natural, the other factitious. The natural is found in some silver mines, in the form of a ruddy sand, which is afterwards prepared and purified by several lotions, &c. The artificial is made of mineral cinnabar, ground, and mixed with aqua-vitæ and urine, and afterwards dried. It is of great use with miniature and oil painters. *See* CINNABAR.

VICE, (Ger. *Schraubstock*. Du. *Schroesstok*. Da. *Skruvstikke*. Sw. *Skrufstäd*. Fr. *Etau*. It. *Morsa*. Pol. *Szrubstak*,) in smithery, and other arts employed in metals, is a machine, or instrument, serving to hold fast any thing for working upon, whether it is to be filed, bent, riveted, &c. To file square, it is absolutely necessary that the vice should be placed perpendicular, with its chaps parallel to the work-bench.

VICE, *Hand*, a small kind of vice serving to hold the lesser works in, that require often turning about. Of these there are two kinds: the broad-chapped hand-vice, which is that commonly used; and the square-nosed hand-vice, used for filing small round work.

VICE is also a machine used by the glaziers to draw lead into flat rods, with grooves on each side to receive the edges of the glass.

VIDONIA, a white-wine, the produce of the island of Teneriffe, very much resembling Madeira, but of a tart flavour, and a quality inferior to the last-mentioned wine. *See* WINE.

VINE, *Vitis*, a noble plant, or shrub, of the creeping kind, famous for its fruit, or grapes, and for the liquor they afford. *See* WINE.

VINEGAR, (Ger. *Essig*. Du. *Azyn*. Da. *Ædike*. Sw. *Attika*. Fr. *Vinaigre*. It. *Aceto*. Sp. and Port. *Vinagre*. Rus. *Ukzus*. Pol. *Ocet*. Lat. *Acetum*,) the product of that species of fermentation of vegetable matter, termed the *acetous fermentation*, is a peculiar acid (*see* ACID, *acetic*,) which, in combination with the various substances contained in the liquor from which it is produced, constitutes what is commonly termed vinegar.

It may be obtained by fermentation from all substances which contain saccharine matter. The best is procured from wine; and large quantities are annually made in the wine counties of France. The circumstances, in which acetous fermentation takes place, are, a temperature between 70 and 80 degrees, the addition of some fermenting substance, and exposure to the air.—The practice recommended by Boerhaave, is generally followed: Two large hogsheads are prepared, by fixing about a foot from the bottom, a grating of rods, on which vine branches are to be placed. The wine to be fermented is poured into the vessels; the one is to be filled to the top, and the other only one-half. Fermentation begins in the vessel which is half full; when it is completely begun, fill it up from the other vessel, the fermentation is interrupted in the filled vessel, and it commences in the one which is not full. When this has continued for a little time, it is filled up from the other vessel, in which the fermentation again commences, and is interrupted in the other. Thus the process is carried on, by alternately emptying, and filling, the vessels, till vinegar is formed, which generally requires a period of from 12, to 15, days. Vinegar is generally of a yellowish colour, an acid taste, and an agreeable smell. The specific gravity varies from 1.005 to 1.0251. It varies considerably in colour, specific gravity, and other properties, according to the substances from which it has been obtained.

Vinegar of four Thieves, a composition so called, because, during a plague at Marseilles, four persons attended the sick for the purpose of robbery, without being affected with the disease, which they attributed to the use of this composition.—The following is the receipt given for the preparation of it, by one of them, who saved himself from the gallows by making it known: Take of lavender, rosemary, rue, sage, and mint, of each a handful, white-wine vinegar, one gallon, digest in a water-bath for eight days.

The 58 Geo. 3. c. 65. recites, that the duties imposed on vinegar had been much evaded, and that large quantities had been sent out, without the officers of excise having any account thereof; and also, that vinegar, or acetous acid, made under the denomination of pyrolygneous acid, has been lately brought into consumption, of great strength, without payment of duties. It then pro-

ceeds to enact, that the old duties shall cease, and that instead thereof, certain new duties shall be paid, as well for every gallon of acetous acid, or vinegar, prepared, or preparing for sale, in Great Britain, or imported from Ireland, as from foreign countries, respectively. That the duties shall be levied as former duties, and drawbacks allowed in like manner. s. 1, 2, 3. (*see* App.) Liquors of all kinds made into vinegar, or acetous acid, to be subject to the duties, and the persons preparing them to be deemed vinegar-makers: but not to extend to pyroligneous acid, extracted from wood, or tar, for sale, in its crude, impure, and unrectified state; or any white-lead, sugar of lead, verdigris, iron liquor, acetate of lime, soda, or alumine, or any acetous acid made, purified, &c. for the sole purpose of compounding such articles. s. 6.

Vinegar for sale made from malt, and pyrolygneous acids, shall be made in distinct places, no less than 300 feet asunder, under a penalty of 500*l*.

On all questions that may arise, "whether vinegar, or acetous acid," proof to be on the owner. s. 27.

The statute contains various other provisions necessary for accomplishing the object for which it was passed, irrelevant to the purposes of general information, and too technical to be epitomized with safety to those whose callings subject them to its penalties.

VIOLIN. *See* FIDDLE.

VITRIOL. (Ger. *Vitriol.* Du. *Vitriool.* Da. Sw. and Fr. *Vitriol.* It. *Vitriuolo.* Sp. and Port. *Vitriolo.* Rus. *Kuparos.* Pol. *Koperwas.* Lat. *Vitriolum.*) *Sulphat of iron*, formerly called *green vitriol*, has a fine green colour. Its crystals are transparent rhomboidal prisms, the faces of which are rhombs with angles of 79° 50′ and 100° 10′, inclined to each other at angles of 98° 37′ and 81° 23′. It has a very strong styptic taste, and always reddens vegetable blues. Its specific gravity is 1.8399. It is soluble in about two parts of cold water, and in $\frac{3}{4}$ths of its weight of boiling water. It is insoluble in alcohol.

The *blue*, or *sulphat of copper*. Sulphuric acid does not attack copper while cold, but at a boiling heat part of the acid is decomposed, the copper is oxidized, and combines with the remainder of the acid. But recourse is seldom had to this process, as the sulphat of copper is found native abundantly, dissolved in mineral waters connected with copper mines. From these waters it is often obtained by evaporation, or it is formed by burning native sulphuret of copper, or by moistening that substance, and exposing it to the air. By either of these methods, the sulphur is acidified, and the sulphat of copper formed. This salt appears to have been known to the ancients. In commerce it is distinguished by the name of blue vitriol, and sometimes by that of blue copperas, and among the dyers by simply that of bluestone.

The *white*, or *sulphat of zinc*. This salt was discovered at Rammelsberg in Germany, about the middle of the 16th century. It is usually formed for commercial purposes from sulphurated zinc, or blende, as it is called by mineralogists.

This ore is roasted, which converts the sulphur into an acid; it is then dissolved in water, and concentrated so much, that, on cooling, it crystallises very rapidly, and forms a mass not unlike loaf-sugar. This salt is usually called white vitriol. It is almost always contaminated with iron, and often with copper and lead. Hence the yellow spots which are visible on it, and hence also the reason that its solution in water lets fall a dirty-brown sediment. It may be easily purified by dissolving it in water, and putting into the solution a quantity of zinc-filings; taking care to agitate it occasionally. The zinc precipitates foreign metals, and takes their place. The solution is then to be filtered, and the sulphat of zinc may be obtained from it in crystals, by proper evaporation.

VITRIOL, *Oil of*. *See* ACID, *Sulphuric*

ULLAGE, signifies so much of a cask, or other vessel, as it wants of being full.

ULTRAMARINE, (Ger. *Ultramarin.* Du. *Ultramaryn.* Da. and Sw. *Ultramarin.* Fr. *D'outremer, Bleu d'outremer.* It. *Oltramarino.* Sp. *Ultramar.* Port. *Azzul d'ultramarinho.* Rus. *Ultramarin.* Pol. *Ultramaryna.* Lat. *Ultramarinum*,) a very fine blue powder made from the blue parts of lapis lazuli. It has the uncommon property of neither fading, nor becoming tarnished, on exposure to the air, or a moderate heat, and on this account is much used in painting. *See* AZURE.

UMBER, or Umbre, (Ger. Du. Da. and Sw. *Umbra.* Fr. *Ombre.* It. *Umbria, Terra d'ombre.* Sp. and Port. *Sombra.* Rus. Pol. and Lat. *Umbra*,) among painters, &c. a kind of dry dusky-coloured earth, which, diluted with water, serves to make a dark-brown colour.

UMPIRE, and UMPIRAGE. When two arbitrators cannot agree, it is customary to appeal to some third person to decide between them; in which case such person is denominated the *umpire*, and his decision is called the *umpirage*. *See title* AWARD.

UNDERWRITER is an insurer who *underwrites*, or subscribes his name to, policies of insurance on ships, merchandise, &c. for a certain sum, for which he receives a premium, and consequently takes the risk on himself, so far as the sum he insures. By 1 & 2 Geo. 4. c. 75. certain acts are continued and amended for preventing frauds, &c. on underwriters and others, and certain defects in the adjustment of salvage, under 12 Anne, are remedied. *See* INSURANCE.

URANIUM, is the name of a metal, discovered by Klaproth in the year 1786, in a mineral called uranite, which is found in

Bohemia, and in some parts of this country. Uranium, in colour, somewhat resembles iron, but of considerable lustre; it is hard and brittle; fuses with great difficulty, and does not tarnish by exposure to the atmosphere at its usual temperature. It is capable of forming a black and yellow oxide; the latter imparts to porcelain a permanent deep orange-yellow colour. Klaproth by different proportions of its oxides, gave the following bright colours to glass: brown, apple-green, and emerald-green. By dissolving the yellow oxide in nitric acid, he procured beautiful transparent green crystals. When dissolved in acetic acid it produced topaz-yellow crystals. These properties will render it highly useful in painting, and the manufacturing of glass and porcelain.

USANCE is the time of *one, two,* or *three* months after the date of a bill of exchange, according to the custom of the places between which the exchange runs. Double, or treble, usance, is double, or treble, the usual time, and half usance is half the time. Where it is necessary to divide a month, the half usance, notwithstanding the difference in the length of the month, contains fifteen days. *Mar.* 93. The usances are calculated exclusive of the date of the bill. Bills of exchange drawn at usance are allowed the usual days of grace, and on the last of the three days the bill should be presented for payment. *See* BILLS OF EXCHANGE.

USQUEBAUGH, a strong compound liquor, chiefly taken by way of dram: it is made in the highest perfection at Drogheda in Ireland. The following are the ingredients, and the proportions in which they are to be used:—Best brandy one gallon; raisins stoned, one pound; cinnamon, cloves, nutmeg, and cardamoms, each one ounce, crushed in a mortar; saffron half an ounce; rind of one Seville orange; one pound of brown sugar-candy. Shake these well every day for at least fourteen, and it will, at the expiration of that time, be ready to be fined for use. There is a *green* usquebaugh, manufactured by substituting stalks of angelica for the saffron; white for brown sugar-candy; and the brandy in its original uncoloured state for that which is in common use. The green, however, is not so rich in flavour, and is considered inferior, as a stomachic, to the yellow usquebaugh.

USURY, consists in taking more than five per cent. for the loan of money, when the obligation to repay is absolute; but where there is any risk there is no fixed rate of interest, and therefore there can be no action for usury.

By the 12 Anne. st. 2. c. 16. No person upon any contract shall take for the loan of any money, wares, &c. above the value of 5*l.* for the forbearance of 100*l.* for a year; and all bonds and assurances for payment of any money to be lent upon usury, whereupon or whereby there shall be reserved or taken above five pounds in the hundred, shall be void; and every person who shall receive by means of any corrupt bargain, loan, exchange, chevizance, shift, or interest of any wares or other things, or by any deceitful way, for forbearing or giving, day of payment for one year, for their money or other things, above 5*l.* for 100*l.* for a year, &c. shall forfeit treble the value of the money or other things lent.

To the restrictions contained in this act there are only two exceptions: first, in the case of money lent upon the security of lands in Ireland, or the Plantations, where interest after the rate of 6 per cent. per ann. is allowed by the 14 Geo. 3. c. 79.

Secondly in the case of annuities for lives granted on personal security, where the contingency of the borrower's death makes an additional compensation requisite. These were first regulated by 17 Geo. 3. c. 26., but are regulated anew by 53 Geo. 3. c. 141.

So that if there be an agreement to pay legal interest, and a premium be paid down for the loan over and above the interest, such agreement is usurious and void.

But the penalty is not incurred if the premium itself do not exceed legal interest, nor till more than legal interest has been actually received. Wherefore it is the usual practice for bankers, and others, when they discount a bill, to retain the discount, or premium, for discounting at the rate of five per cent. per ann. for such interest may be as lawfully received before hand for forbearing, as afterwards for having forborne. *Doug. R.* 235.

It has been said, however, that this practice is only applicable to bills, notes, and other negotiable instruments, but not to bonds. But *Quære de hoc. Chitty*, 54.

If a bill of exchange or note be given in consequence of an usurious contract, it is absolutely void, even in the hands of an innocent person who might have taken it in the regular course of business, without notice of usury. *Doug. R.* 728. But this is altered by 58 Geo. 3. c. 93.

So in case of gaming debts. Every bill or promissory note, where the consideration, or any part, is money lent for gaming, or upon an usurious contract, is void in the hands of an indorsee, even for a valuable consideration and without notice. 1 *T. R.* 153.

But it is not any defence that the bill was accepted for a gaming debt, if it be indorsed over for a valuable consideration to an innocent third person, by whom the action is brought. *Edwards* v. *Dick*, 4 *B. & A.* 212.

And any contract reserving a greater advantage to the lender than legal interest, however, disguised; as if part be under the appellation of interest, and the remainder in the rent of a house, or other thing clearly and plainly exceeding the legal compensation. But if one lend another a sum conditioned to receive double on non-payment of the

principal at a certain day, this is not usury; because the borrower may discharge himself by paying the principal.

Neither, where *the whole* depends upon a contingency, is the contract usurious; but if the principal be secured, and the interest *only* be hazarded, it may be usurious. *Cro. J.* 580.

It is lawful for a country banker, in discounting bills, to take over and above the five per cent. interest or discount, a sum under the name of commission for his trouble. *Winch* v. *Fenn.* 2 *T. R.* 52.

But a London banker cannot legally take any thing above discount, under any appellation, or pretence, whatsoever.

Nor will any shift or contrivance to give a London transaction the appearance of a country one answer the purpose.

And the sum taken for commission by a country banker, must be a reasonable one, according to the general usage, but no other advantage; as for instance, instead of giving cash for bills, after deducting discount at 5 per cent. and reasonable commission, he must not give other bills at two, or three, days' sight, for the additional time gained is worth so much money, and makes the contract usurious, and not only the consent, but even the request of the person paying the discount, will not get rid of the usury. *Parr* v. *Eliason* 1 *E. R.* 92.

W, The twenty-first letter of our alphabet.

WAD, or Wadding, in gunnery, a stopple of paper, hay, straw, old rope-yarn, or tow, rolled firmly up like a ball, or a short cylinder, and forced into a gun upon the powder to keep it close in the chamber; or put up close to the shot to keep it from rolling out, as well as, according to some, to prevent the inflamed powder from dilating round the sides of the ball, by its windage, as it passes along the chase, which it was thought would much diminish the effort of the powder. But from accurate experiments made at Woolwich, it has not been found to have any such effect.

WAFERS (Ger. *Oblaten.* Du. *Ouwels, Obli.* Da. *Oblater.* Sw. *Oblater, Munlåk.* Fr. *Oublies.* It. *Ostie, Bollini.* Sp. *Obleas.* Port. *Obreas.* Rus. *Oblatii.* Pol. *Oplatki.* Lat. *Nubeculi,*) for sealing letters, &c. are made thus: Take very fine flour, mix it with white of eggs, isinglass, and a little yeast; mingle the materials; beat them well together; spread them, the batter being made thin with gum-water, on even tin plates, and dry them in a stove, then cut them out for use. To colour them, tinge the paste with brazil or vermilion for red; indigo or verditer, &c. for blue; saffron, turmeric, or gamboge, &c. for yellow.

WAGES, the recompense paid to servants and labourers for work. By statutes passed in the reigns of Queen Elizabeth, and King James I., justices were authorised to fix the rates of wages in their respective districts; but by 53 Geo. 3. c. 40., these statutes are repealed, and personal labour, like most other commodities, by the liberality and wisdom of modern times, is left to find its own level at the best market. Hence wages differ greatly in different situations, as well as in different occupations. It is sufficient in this place to notice, that beside the general laws for the regulation of masters and servants, and the interpretation of the contracts between them (for which *see title* MASTER *and* SERVANT), there is scarcely a manufacture executed in the kingdom, to the wages earned in which there is not a correspondent statute applicable, especially the following. In the

Silk trade — 13 Geo. 3. c. 68. — 32 Geo. 3. c. 44. — 51 Geo. 3. c. 7.

Cloth trade — 10 Ann. c. 16. — 1 Geo. 1. c. 15. — 29 Geo. 2. c. 33.

Cotton and linen trade. — 1 Ann. c. 18. — 13 Geo. 3. c. 23. — 44 Geo. 3. c. 87.

Leather trade — 13 Geo. 2. c. 8. — 22 Geo. 2. c. 27.

Hat, and fur trade — 22 Geo. 2. c. 27 — 13 Geo. 3. c. 23.

Lace trade — 19 Geo. 3. c. 49.

Clock and watch trade — 27 Geo. 2. c. 7.

Paper trade — 36 Geo. 3. c. 111.

Iron, steel, and cutlery trade — 57 Geo. 3. c. 115.

Coal trade — 57 Geo. 3. c. 122.

Beside these which specifically apply to the respective occupations enumerated, 39 & 40 Geo. 3. c. 106., relates to wages in all trades whatever; and see 1 Geo. 4. c. 93.

WAKE, *of a Ship,* is the smooth water a-stern when she is under sail. This shows the way she has gone in the sea, whereby the mariners judge what way she makes. For if the way be right astern, they conclude she makes her way forwards; but if the wake be to leeward a point or two, then they conclude she falls to the leeward of her course. When one ship, giving chase to another, is got as far into the wind as that other, and sails directly after her, they say she has got into

her wake. A ship is said to stay to the weather of her wake, when, in her staying, she is so quick, that she does not fall to leeward upon a tack, but that, when she is tacked, her wake is to the leeward, and it is a sign she feels her helm very well, and is quick of steerage.

WALE, or WALES, in a ship, those outermost timbers in a ship's side on which the sailors set their feet in climbing up. They are reckoned from the water, and are called her first, second, and third wale, or bend.

WALES, *New South*. *See* HOLLAND, *New*.

WALNUT TREE. A well known tree, bearing a nut which is used for various culinary, and other purposes. When green, and just previous to the shell beginning to harden, it forms a delightful pickle, immersed in vinegar. Boiled in sugar, at the same period, it is a mild cathartic of certain operation, and well adapted to children. Ripe, and deprived of the thick spungy coat in which it is enveloped, it is an agreeable article in a dessert: and this very spungy coat, or husk, is not valueless, for it makes catsup or ketchup equally good with that extracted (as is the usual practice) from the whole young nuts in their green state. The wood of this tree was much used before the introduction of mahogany, in making furniture; but its aptness to be worm-eaten has occasioned its being in a great measure superseded. It still, however, is preferred to every other wood for the stocks of firelocks of every description. It is much to be lamented that the length of time before a walnut tree begins to bear fruit (about 20 years) operates as such a discouragement to the planting of them, that their numbers are much upon the decline.

WAREHOUSE. A receptacle for wares and merchandise.

WAREHOUSING SYSTEM. Formerly, when goods were imported, the amount of the duties of customs and excise was required to be immediately paid. By a succession of statutes, viz. 43 Geo. 3. c. 132. — 45 Geo. 3. c. 87. — 46 Geo. 3. c. 137. — 49 Geo. 3. c. 106. — 50 Geo. 3. c. 64. — 52 Geo. 3. c. 142. & 57 Geo. 3. c. 116. the system which this article embraces, and by which permission is given to importers (on certain conditions) to postpone the periods for payment of these duties, on the placing their respective commodities in warehouses furnished by the government for that purpose, was commenced and matured. This system cannot be compressed within our limits; but the following catalogues will exhibit all the information desirable in an elementary work. The laws relating to warehoused goods are amended by a late stat. 1 & 2 Geo. 4. c. 105.; and *See title* EXCISE.

A LIST of the WAREHOUSING and BONDING PORTS in ENGLAND and SCOTLAND, distinguishing the several Species of Goods allowed to be Warehoused or Bonded at each Port.

ENGLAND.

LONDON	West India Docks.....A.
	London Docks.....B. and original goods in E.
	At approved places under bond.....C. D. and Goods added to E.
ROCHESTER	Wine and Spirits in Table B.
DOVER	Goods in Table B. and Timber and Wood in Table C.
NEWHAVEN	Wine and Spirits in Table B.
PORTSMOUTH	Goods in Tables A. and B. and Hemp, Iron in Bars, Timber and Wood in Table C. and Hides in TABLE D.
SOUTHAMPTON	Spirits in Table A.
	Wine and Spirits in Table B.
	Goods in Table C. D. and E.
COWES	A. and B. and Timber and Deals in Table C.
POOLE	Goods in Tables A. B. and C.
WEYMOUTH	Wine and Spirits in Table B.
EXETER	Goods in Table B.
DARTMOUTH	A. B. C. and D.
PLYMOUTH	A. B. C. D. and E.
FALMOUTH	A. and B.
BRISTOL	A. B. C. D. and E.
GLOUCESTER	Wine and Spirits in Table B.
COLCHESTER	
IPSWICH	
YARMOUTH	.....B.
	Hemp and Iron in Table C. and Goods in Table E.
LYNN	Wine and Spirits in Table B.
BOSTON	
GRIMSBY	Goods in Tables A. B. C. D. and E.
HULL	A. B. C. D. and E.
STOCKTON	C. except Timber.
SUNDERLAND	A. and B.

ENGLAND — *continued, viz.*

NEWCASTLE	A. B. C. D. and E.
WHITEHAVEN	A. B. and C.
LANCASTER	A. and B.
LIVERPOOL	A. B. C. and E.
CHESTER	Wine and Spirits in Table B.

SCOTLAND.

ABERDEEN	Goods in Tables A. and B. Brimstone, Hemp undressed, Iron in Bars, Timber, Wood in Table C. Almonds, Barilla, Currants, Cotton Wool, Figs, Gum Arabic, Gum Senega, Linen plain of all sorts, except Sailcloth, Oil of Olives, Raisins of all sorts... in Table E.
DUMFRIES	Wine in Table B.
DUNDEE	Goods in Tables A. B. C. D. and E.
GRANGEMOUTH	Hemp, Iron, Pitch, Rosin, Staves, Tar, Tallow, Tow, Timber, Turpentine, and Wood ..... in Table C. Flax in Table E.
GREENOCK LEITH PORT GLASGOW	Goods in Tables A. B. C. D. and E.

EAST INDIA GOODS.

The following Ports have been privileged for the import of East India Goods pursuant to the 53 Geo. 3. c. 155.

LONDON,	HULL,
BRISTOL,	GREENOCK,
LIVERPOOL,	PORT GLASGOW.

TOBACCO AND SNUFF

May be imported into and warehoused in the following Ports, by 29 Geo. 3. c. 68; 31 Geo. 3. c. 47.; and 54 Geo. 3. c. 124.

ENGLAND.	SCOTLAND.
LONDON,	PORT GLASGOW,
BRISTOL,	LEITH
LIVERPOOL,	GREENOCK.
LANCASTER,	
COWES,	
FALMOUTH,	
WHITEHAVEN,	
HULL,	
NEWCASTLE UPON TYNE,	
PLYMOUTH.	

TABLES of ARTICLES that may be Warehoused or Bonded in Great Britain before Payment of Duty, by 43 Geo. 3. c. 132; 45 Geo. 3. c. 87; 50 Geo. 3. c. 64; and 52 Geo. 3. c. 142.

TABLE A.

Articles not imported by the East India Company.

Cocoa Nuts	Coffee	Sugar
Cortex Angusturæ	Cassia Fistula	Roco or Annatto.

Articles imported from the West Indies.

Cotton Wool	Mahogany	Rum
Ginger	Melasses	Wine
Indigo	Pimento	

Prize Goods enumerated in this Table.

TABLE B.

Articles not imported by the East India Company or from the West Indies.

Rice	Brandy	Prize Goods enumerated in this Table.
Tobacco	Geneva and other Spirits	
Wine		

Table C.

Articles not imported by the East India Company or from the West Indies.

Brimstone
Cork
Hemp undressed
Iron slit or hammered into rods, and iron drawn or hammered under three fourths of an inch square
Iron in bars
Kelp
Linseed
Mahogany
Marble Blocks
Pitch
Rape Seed
Rosin
Staves
Tallow
Tar
Timber
Tow
Turpentine
Wood.

Table D.

Articles not imported by the East India Company or from the West Indies.

Hides.
Skins and Furs, *viz.* Indian Deer Skins, half dressed or shaved.
——————— Other Skins and Furs not tanned, tawed, or in any way dressed.
Spermaceti Oil, Head Matter, Train Oil, and all other Fish Oil, Blubber, and Whale Fins of British fishing.

Table E.

Articles not imported by the East India Company or from the West Indies.

Alkermes
Almonds, of all sorts
Amber Beads
Anchovies
Anniseed
Arrow Root
Ashes
Balsam, of all sorts
Barilla
Bees' Wax
Bristles undressed
Cantharides
Carpets, Turkey
Catlings, or Lutestrings
Chip Hats
Citrate of Lime
Clover Seed
Cochineal
——— Dust
Coral Beads
Cotton Wool
——— Yarn
Currants
Elephants' Teeth
Essence of Bergamot
——— of Lemon
——— of Spruce
..... of the produce of, and imported from, any British colony, &c. in America
Euphorbium
Feathers for Beds
Figs
Flax
Ginseng
Granilla
Gum Arabic
—— Copal
—— Guiacum
—— Senega
Hams
Harp Strings
Hones
India Rubbers
Indigo
Isinglass
Jalap
Jesuits' Bark
Jet
Juniper Berries
Juice of Lemons, Limes, or Oranges
Lamp Black
Linen, plain, of all sorts, except Sail-cloth
Linseed Cakes
Liquorice Powder
Manna
Melasses
Mercury
Mohair Yarn
Oil of Almonds
— of Amber
— of Anniseed
— of Bay
— of Cajaputa
— of Carraway
— of Cassia
— of Castor
— Chemical Oil, not otherwise enumerated
— of Cinnamon
— of Cloves
— of Jessamine
— of Juniper
— of Lavender
— of Linseed
— of Mace
— of Marjoram
— of Nutmegs
— of Olives
— of Oranges
Oil, Palm
— Perfumed Oil not otherwise enumerated
— of Pine
— Rock Oil
— of Rosemary
— of Rosewood
— Salad
— of Sassafras
— of Spike
— of Thyme
— of Turpentine
— Walnut Oil
Opium
Orange Flower Ointment
——————— Water
Pearl Barley
Pictures
Pitch, Burgundy
Pots, Melting
Prunes
Quicksilver
Radix Serpentaria, or Snake Root
Rags
Raisins, of all sorts
Rape Cakes
Rhinehurst
Rhubarb
Saccharum Saturni
Saffron
Sal Ammoniacus
—— Gem
—— Limonum, or Acetosella
—— Prunelle
—— Succini
Saphora
Sarsaparilla
Sena
Silk, Raw.
—— Thrown
—— Waste

TABLE E. — *continued, viz.*

Smalts	Tapioca	Verdigris
Straw Hats	Tar, Barbadoes	Vermilion
Succus Liquoritia, or Liquorice Juice	Tornsal	Zaffar and Cobalt.
	Toys	

And also all Goods unmanufactured, except goods imported from any place within the limits of the charter granted to the East India Company.

A LIST, showing at one View every Article that may be Warehoused or Bonded in Great Britain before payment of Duty, distinguishing in which of the preceding Tables the same is classed. (*a*)

	Table
Alkermes	E
Almonds	E
Amber Beads	E
Anchovies	E
Angusturæ Bark	A
Annatto or Roco	A
Anniseed	E
Arrow Root	E
Ashes	E
Berries, Juniper	E
Balsam of all sorts	E
Barbadoes Tar	E
Barilla	E
Bark, Angusturæ	A
Beads, Amber	E
——— Coral	E
Bees' Wax	E
Blubber of British fishing	D
Brandy	B
Brimstone	C
Bristles, undressed	E
Buck Wheat (*b*)	
Bugle.	
Burgundy Pitch	E
Cantharides	E
Carpets, Turkey	E
Cassia Fistula	A
Catlings	E
Chip Hats	E
Citrat of Lime	E
Clover Seed	E
Cobalt	E
Cochineal	E
Cochineal Dust	E
Cocoa Nuts	A
Coffee	A
Coral Beads	E
Corn.	
Cortex Angusturæ	A
Cotton Wool from the West Indies	A
——— Wool, not from the West Indies	E
——— Yarn	E
Cork	C
Currants	E
Deer Skins, Indian, half dressed or shaved	D
East India Goods.	
Elephants' Teeth	E
Essence of Bergamot	E
——— of Lemon	E
——— of Spruce	E
Essence of Spruce, of the produce of, and imported from, any British colony, &c. in America	E
Euphorbium	E
Feathers for Beds	E
Figs	E
Fish Oil	D
Flax	E
Furs, not tanned, tawed, or in any way dressed	D
Geneva and other Spirits	B
Ginger, from the West Indies	A
Ginseng	E
Goods Unmanufactured. See at the end of this title.	
Granilla	E
Gum Arabic	E
—— Copal	E
—— Guiacum	E
—— Senega	E
Hams	E
Hats, Chip	E
—— Straw	E
Harp Strings	E
Head-matter of British Fishing	D
Hemp undressed	C
Hides	D
Hones	E
India Rubbers	E
Indian Deer Skins, half-dressed or shaved	D
Indigo, from the West Indies	A
Indigo, *not* from the West Indies	E
Iron in Bars	C
—— slit, or hammered into rods, and Iron drawn or hammered under three-fourths of an inch	C
Isinglass	E
Jalap	E
Jesuits' Bark	E
Jet	E
Juice of Lemons, Limes, or Oranges	E
—— Liquorice	E
Juniper Berries	E
Kelp	C
Lamp Black	E
Lemon Juice	E
Lime Juice	E
Linen, plain, of all sorts, except Sail Cloth	E
Linseed	C
——— Cakes	E
Liquorice Juice	E
——— Powder	E
Lutestrings	E
Mahogany from the West Indies	A
——— *not* from the West Indies	C
Manna	E
Marble Blocks	C
Melasses, from the West Indies	A
——— *not* from the West Indies	E
Melting Pots	E
Mercury	E
Mohair Yarn	E
Oil of Almonds	E
— of Amber	E
— of Anniseed	E
— of Bay	E

(*a*) *Articles imported from the West Indies can be warehoused before payment of duty only when particularly so mentioned.*

(*b*) Allowed to be warehoused by 57 Geo. 3. c. 27. sec. 1. but table not mentioned.

Oil — *continued, viz.*	Table
— of Cajaputa	E
— of Carraway	E
— of Cassia	E
— of Castor	E
— Chemical Oil, not otherwise enumerated	E
— of Cinnamon	E
— of Cloves	E
— Fish Oil of British Fishing	D
— of Jessamine	E
— of Juniper	E
— of Lavender	E
— of Linseed	E
— of Mace	E
— of Marjoram	E
— of Nutmegs	E
— of Olives	E
— of Oranges	E
— Palm	E
— Perfumed Oil, not otherwise enumerated	E
— of Pine	E
— Rock Oil	E
— of Rosemary	E
— of Rosewood	E
— Salad	E
— of Sassafras	E
— Spermaceti Oil, of British Fishing	D
— of Spike	E
— of Thyme	E
— Train Oil, of British Fishing	D
— of Turpentine	E
— of Walnut Oil	E
Opium	E
Orange Flower Ointment	E
——— Water	E
Orange Juice	E
Pearl Barley	E
Pictures	E
Pimento from the West Indies	A
Pitch	C

	Table
Pitch, Burgundy	E
Pots, Melting	E
Prize Goods	A & B
Prunes	E
Quicksilver	E
Radix Serpentaria, or Snake Root	E
Rags	E
Raisins of all sorts	E
Rape Cakes	E
—— Seed	C
Rhinehurst	E
Rhubarb	E
Rice	B
Roco, or Annatto	A
Rosin	C
Rum, from the West Indies	A
Saccharum Saturni	E
Saffron	E
Sal, *viz.*	
— Ammoniacus	E
— Gem	E
— Limonum or Acetocella	E
— Prunelle	E
— Succini	E
Saphora	E
Sarsaparilla	E
Seed, Clover	E
—— Linseed	C
—— Rape	C
Sena	E
Silk, Raw	E
—— Thrown	E
—— Waste	E
Skins and Furs, *viz.* Indian Deer Skins, half dressed, or shaved	D
—— Other Skins and Furs, not tanned, tawed, or in any way dressed	D
Smalts	E
Snake Root	E

	Table
Snuff.	
Spermaceti Oil, Head Matter, Train Oil, and all other Fish Oil, Blubber, and Whale Fins of British Fishing	D
Spirits	B
Staves	C
Straw Hats	E
Succus Liquoritia, or Liquorice Juice	E
Sugar	A
Tallow	C
Tapioca	E
Tar	C
—— Barbadoes	E
Teeth, Elephants'	E
Timber	C
Tobacco.	
Tornsal	E
Toys	E
Tow	C
Turkey Carpets	E
Turpentine	C
Verdigris	E
Vermilion	E
Unmanufactured Goods. See at the end of this title.	
Whale Fins, of British Fishing	D
Wine, from the West Indies	A
—— *not* from the West Indies	B
Wood	C
Wool, Cotton, from the West Indies	A
—— Cotton, *not* from the West Indies	E
Yarn, Cotton	E
—— Mohair	E
Zaffar and Cobalt	E

And also all Goods unmanufactured, *whether from the West Indies, or not,* except goods imported from any place within the limits of the charter granted to the East-India Company.....E

By Order of the Board of Customs, dated November 12. 1805, the following articles being deemed peculiarly liable to the danger of *fire,* it is directed, that officers at the outports are, in all cases, to prevent as much as possible the intermixture of them with the other goods in *Tables* A. B. C. and D. *viz.*

In Table C.		In Table D.
Brimstone	Rosin	Head Matter
Hemp undressed	Tow	Train Oil
Pitch	Turpentine.	Spermaceti Oil, and all other Fish Oil.
Tar		

WARP, in the manufactures, is the threads, whether of silk, wool, linen, hemp, &c. that are extended lengthwise on the weaver's loom, and across which the workman, by means of his shuttle, passes the threads of the woof, to form a cloth, ribband, fustian, or other stuff. For a woollen stuff to have the necessary qualities, it is required that the threads of the warp should be of the same kind of wool, and of the same firmness throughout; that they be sized with Flanders or parchment-size, well prepared; and that they should be in sufficient number, with regard to the breadth of the stuff to be wrought.

WARRANT OF ATTORNEY, is a security given by a defendant to the plaintiff, upon compromising any action: and it derives its name from giving authority to the attorney or attornies to whom it is directed, to appear for the defendant, and receive a declaration in an action to be brought against him, and thereupon to confess the said action, or suffer judgment to pass by default.

Every warrant of attorney should be given voluntarily, and for a good consideration; for if it be obtained by fraud, or founded upon a corrupt, or usurious, consideration, the court will set aside the judgment, if entered up, together with all the proceedings under it, and order it to be delivered up. A warrant of attorney need not be by deed, nor does it require an attesting witness. *Kinnersly* v. *Massen*, *5 Taunt.* 264.

No warrant of attorney executed by any person in custody of the sheriff, shall be valid, or of any force, unless there be present some attorney on the behalf of the person in custody, to be expressly named by him, and attending at his request, to inform him of the nature and effect of such warrant of attorney before the same is executed, which attorney shall subscribe his name as a witness to the due execution thereof. *Hutson* v. *Hutson*, 9 *T. R.* 7.

Where a warrant of attorney is given by a defendant in custody, upon process of *execution*, or upon criminal process, or to a third person, at whose suit the defendant is not in custody, the presence of an attorney is unnecessary. *Charlton* v. *Fletcher*, 4 *T. R.* 433.

A warrant of attorney given to confess a judgment is not revocable; and if the party giving such warrant of attorney endeavour to revoke it, the court will, notwithstanding, give the other party leave to enter up the judgment.

The death of either party is a countermand of the warrant of attorney; but if either party die in vacation, within a year after giving the warrant of attorney, judgment may be entered up in course at any time after in that vacation, and it will be a good judgment at common law.

Where there are several parties, and one of them dies before judgment, it may be entered up either by, or against, the survivors.

Where a warrant of attorney is given to a single woman, who afterwards marries, judgment may be entered upon the names of the husband and wife.

If a warrant of attorney be given to confess a judgment of a particular term, the judgment should be entered as of that term; but if it be given generally, or of a particular, or any subsequent term, (which is the most usual form,) judgment may be entered up as of any term after giving the warrant.

Within a year and a day next after the execution of the warrant, judgment may be entered of course, otherwise a motion must be made in court, or to a judge in vacation, on an affidavit of the due execution of the warrant of attorney, &c. *See* 2 *Lit. Abr.* 629.

By 3 Geo. 4. c. 39. s. 1., warrants of attorney, or copies, &c. &c. shall be filed within 21 days after the execution thereof. By s. 2. if not filed, &c. they are, in certain cases, made void as against assignees under a commission of bankrupt. By s. 3. cognovits are placed under the same regulations.

WASH, the fermentable liquor used by the malt-distillers. *See* DISTILLATION.

WASHINGS, *among goldsmiths*, are the small particles of gold, and silver, which have been rubbed off in the manufacture of any article, and which are again collected together.

WATCHES, (Ger. *Uhren, Taschenuhren.* Du. *Zakhorologien, Zaknurwerken.* Da. *Lommenhr.* Sw. *Fik-ur, Byxsäks-ur.* Fr. *Montres.* It. *Orinoli da tasca, o da saccoccia.* Sp. *Relojes de faltriquera.* Port. *Relogios de algibeira.* Rus. *Karmanniie tschasii,*) are movements or machines for the measuring of time, having their motion regulated by a spiral spring.

WATCH, *Striking*, one which, besides the common watch-work for measuring time, has a clock part for striking the hours, so that, properly speaking, they are pocket-clocks.

WATCH, *Repeating*, one that by only pulling a string, pushing in a pin, &c. repeats the hour, half-hour, or quarter, at any time of the day or night.

Watches made by artificers, are to have the makers' names, under the penalty of 20*l.* 9 & 10 Will. 3. c. 28.

WATERMEN. The names of watermen are to be registered, and their boats shall be 12½ feet long, and 4½ feet broad, or be liable to forfeiture, and none shall ply on the river but such as have been apprentices to watermen for seven years.

No till-boat, row-barge, &c. shall take in above thirty-seven passengers, and three more by the way, nor any other boat above eight passengers, on forfeiture of 5*l.* for the first offence, and 10*l.* for the second, &c.; and if any person be drowned where a greater

number is taken in, such waterman to be guilty of felony.

Till-boats used between London bridge, and Gravesend, shall be fifteen tons, and not under, and other boats three tons. Rulers of the watermen's company are to appoint two officers; one at Billingsgate, at high water, and another at Gravesend, to ring a bell for the till-boats, &c. to put off, and those not immediately proceeding in their voyage, with two sufficient men, shall forfeit *5l.* to be levied on their boats, tackles, &c.

Watermen plying at, or between Windsor and Woolwich, when they do not take their fares directly up, and down, the river, and are detained by their passengers stopping at ships, wharfs, or otherwise, are to be paid by time or distance, at the option of the waterman; (that is to say) if by time, oars at the rate of *6d.* for every half hour; and scullers *3d.* for every half hour, in lieu and instead of the rates computed by distance.

Watermen plying between Windsor and Woolwich, when they take their fares directly up, or down, the river, and are detained by passengers for more than half an hour after landing, (being desired by such passengers to wait,) are to be paid for loss of time as follows, that is to say: for oars *6d.*, and for a sculler *3d.*, and for any time not exceeding half an hour, from the expiration of the first half hour from the time of such passenger's landing, and so in proportion for every succeeding half hour in which they shall be so detained, over and above the rates computed by distance.

No more than six persons are to be taken into any wherry as one fare, for any of the said prices: nor more than eight persons into any passage-boat, between Windsor and Woolwich.

In London, the lord mayor and court of aldermen have much power in governing the company of watermen, and appointing the fares for plying on the river Thames; and justices for Middlesex, and other adjoining counties, have also power to hear and determine offences, &c.; *see* 10 Geo. 2. c. 31.

WATERAGE, money paid for carriage of goods and merchandise, &c. by water.

WATER-MARK, the mark or limit of a flood: thus we say, *high-water-mark, low-water-mark*, &c.

WATER-MILL, a mill turned by means of water. *See* MILLS.

WATER-PROOF, a term applied to those stuffs, which have undergone certain chemical, or mechanical, processes, and thus become impervious to moisture.

The following simple process is stated to be that employed by the Chinese for rendering cloth water-proof: Let an ounce of white wax be dissolved in one quart of spirits of turpentine; the cloth be immersed in the solution, and then suspended in the air till it be perfectly dry. The gum known by the name of "Indian rubber," (*see* GUM, *elastic*,) dissolved in spirit, will also render hats, cloths, and leather, impervious to wet.

WAX, (Ger. *Wachs.* Du. *Wasch.* Da. *Vox.* Sw. *Vax.* Fr. *Cire.* It. Sp. and Port. *Cera.* Rus. and Pol. *Wosk.* Lat. *Cera*,) when pure, is of a whitish colour: it is destitute of taste, and has scarcely any smell.

Yellow wax should always be of a good consistence, fine colour, and pleasant smell. The French consider that made in Champagne to be the best.

In Russia, and in America, there is sometimes found, in the trunks of old trees, a sort of black wax, in round bits of the size of a nutmeg. This is produced by a small kind of bees, and when heated has a smell like balm; the Americans make candles of it.

The yellow wax, or bees' wax, used in this country, is principally imported from Poland, and Russia.

Upper Egypt produces large quantities of this article.

From the common yellow wax, by bleaching, is formed *white wax*. The greater the surface is in proportion to the quantity, the sooner, and more perfectly, this operation is performed. The usual way is to melt the wax in hot water, and press it through a strainer of fine linen; it is then poured into shallow moulds. When hardened by cooling, it is taken out, and exposed to the sun and air, sprinkling it now and then with water, and often turning it: by these means it soon becomes white.

The myrtle wax of North America is obtained from the *myrica cerifera*, a shrub which grows abundantly in Louisiana, and other parts. It produces a berry about the size of a pepper-corn. A very fertile shrub yields nearly seven pounds. The berries are picked off, thrown into a kettle, and covered with water to the depth of about half a foot. The water is then boiled, and the berries stirred, and squeezed against the side of the vessel. The wax which they contain is melted out, and swims on the surface. It is skimmed off, passed through a cloth, dried, melted again, and cast into cakes. The wax thus obtained is of a pale green colour. Its specific gravity is 1.0150. It melts at the temperature of 109°; when strongly heated it burns with a white flame, produces little smoke, and during the combustion emits an agreeable aromatic odour. Water does not act upon it. Alcohol, when hot, dissolves 1-20th of its weight, but lets most of it fall again on cooling.

Wax exudes from the leaves of a tree common in many parts of the Brasils, much like the myrtle wax of the northern part of the same continent. It is very abundant, and of excellent quality, and requires no trouble to obtain it, as the tree, from which it is produced, is indigenous, and shades almost

every small habitation in the interior of the country.

WAX-CANDLES, (Ger. *Wachslichter.* Du. *Waschkaarsen.* Da. *Vaxlys.* Sw. *Vaxljus.* Fr. *Bougies, bierges.* It. *Candele di cera.* Sp. *Bujias.* Port. *Bogias, Velas de cera,*) are made from bleached wax. *See* CANDLE.

WEARING APPAREL. Ready-made clothes, more technically denominated *wearing apparel,* have recently become an article of considerable interest in commerce, as well for exportation, as for home consumption. America, the British West India islands, and our new settlements in the South Seas, take off immense quantities, both new, and half worn, or second-hand. This trade, especially in the second-hand articles, is principally, but by no means exclusively, as some have supposed, in the hands of the English Jews, who have correspondents of their own religious persuasion in all parts of the world. Wearing apparel is the subject of particular *protection* in this country by special statute, (6 Geo. 1. c. 23.,) which makes it felony, subject to transportation for seven years, to "assault any person in the streets or public highways, *with intention to tear, spoil, cut, or deface the garments or clothes* of any person." It is also the subject of several *prohibitions* by various statutes. The following are the principal objects of them, under the general denomination of *wearing apparel.*

Brocades of silk, shall not be imported, or sold, under pain of forfeiture of the articles, and a penalty of 100*l.*; but not to extend to *wearers* of the same. 22 Geo. 2. c. 36.

Calicoes, painted, dyed, printed, or stained in Persia, China, or East India, being the manufacture of those places, shall not be sold, *or worn,* under pain of forfeiture of the articles, and a penalty of 200*l.*, by 11 & 12 W. 3. c. 10.

Fringes, girdles, ribbands, buttons, &c. of foreign manufacture, shall not be sold on pain of forfeiture, and penalty of 50*l.*; nor imported under penalty of 100*l.*, by 13 & 14 Car. 2. c. 12. and 4 W. & Mar. c. 10. but not to extend to wearers.

Gloves and *mitts* of silk or leather, of foreign manufacture, prohibited to be imported, on pain of forfeiture, and under a penalty of 200*l.* for selling, or concealing the same; but not to extend to persons using the same as part of their wearing apparel only, 6 Geo. 3. c. 19. — So gloves and mitts of other materials, of foreign manufacture, prohibited by 5 Eliz. c. 7., and extended to leather cut into shapes for gloves or mitts, by 25 Geo. 3. c. 55.

Lace, as well silk, as thread, of foreign manufacture, is prohibited to be imported or *be possessed for sale:* the former by 43 Geo. 3. c. 68.; the latter by 46 Geo. 3. c. 81.; without paying certain duties imposed thereon by 49 Geo. 3. c. 48., under penalties of 50*l.* respectively.

Silk Stockings, of foreign manufacture, are prohibited by 5 Geo. 3. c. 48., under the like penalties, and with the like exception as to wearers, as *gloves, mitts, &c. ante.*

Velvets, of foreign manufacture, are prohibited by 26 Geo. 2. c. 21., in like manner, and with the like exception, as brocades, (*see ante*) by 6 Geo. 3. c. 28.

Lastly, *silk handkerchiefs,* the manufacture of Persia, China, or the East Indies, are prohibited from being sold, or exposed to sale, or worn, in Great Britain, and rendered liable to seizure and a penalty of 200*l.*

WEAVERS. The wages of journeymen weavers in London, are to be settled by the lord mayor, recorder, and aldermen. Masters giving more wages than is appointed, to forfeit 50*l.*; and journeymen demanding, or combining to demand more, to forfeit 40*s.*, or be imprisoned three months. *See title* SILK.

WEB, a tissue, or texture, formed of threads interwoven with each other; some whereof are extended in length, and called the warp; and others drawn across, and called the woof. *See* WARP.

WEFT, the woof of cloth. *See* WEB.

WEIGH, Way, or Wey, a weight of cheese, wool, &c. containing 256 pounds avoirdupois. Of corn, the weigh contains 40 bushels; of barley or malt, six quarters. In some places, as Essex, the weigh of cheese is 300 pounds. *See* WEIGHTS and MEASURES.

WEIGHTS and MEASURES, are used to ascertain the quantities of any article or commodity, according to its nature, and are a branch of the king's prerogative.

Tables of English Weights.

TROY WEIGHT.

				Marked
24	grains	1	pennyweight	dwt.
20	pennyweights	1	ounce	oz.
12	ounces	1	pound	℔
25	pounds	¼	hundred weight	qr.
100	pounds	1	hundred do.	cwt.
20	hundred wt.	1	ton	ton

APOTHECARIES' WEIGHT.

20	grains	1	scruple	℈
3	scruples	1	drachm	ʒ
8	drachms	1	ounce	℥
12	ounces	1	pound	℔.
10	drachms	1	ounce	oz.
16	ounces	1	pound	℔.
28	pounds	¼	hundred wt.	qr.
4	qrs. or 112 lbs.	1	hundred wt.	cwt.
20	hundred wt.	1	ton	ton
6½	hundred wt.	1	fother	fod.
19½	ditto	1	ditto of lead	——

AVOIRDUPOIS WEIGHT.

16	drachms	1	ounce	oz.
16	ounces	1	pound	℔.
28	pounds	¼	of a hundred	¼ cwt.
56	pounds	½	of a hundred	½ cwt.
112	pounds	1	hundred wt.	1 cwt.

		Marked
WOOL.		
7 pounds	1 clove	cl.
2 cloves	1 stone	st.
2 stone	1 tod	tod
13 stone	1 wey	wy.
2 weys	1 sack	sk.
12 sacks	1 last	lt.
CHEESE AND BUTTER.		
8 pounds	1 clove	cl.
32 cloves	1 wey in Essex	wy.
42 do.	1 do. in Suffolk	wy.
56 pounds	1 firkin of butter	fkn.
BEEF, MUTTON, &c.		
8 pounds	1 stone of beef, mutton, &c.	st.

		Marked
64 ℔. of soap	1 firkin	fkn.
30 ℔. anchovies	1 barrel	bar.
112 ℔. gunpowder	1 do.	—
112 ℔. raisins	1 do.	—
120 ℔. prunes	1 puncheon	pun.
7½ ℔. oil	1 gallon	gal.
8 ℔. vinegar	1 do.	—
36 ℔. straw	1 truss	tr.
60 ℔. new hay	1 do.	—
56 ℔. old hay	1 do.	—
36 trusses hay or straw	1 load	load
7 ℔. of salt	1 gallon	gal.
56 ℔. or 8 galls.	1 bushel	bush.

WEIGHT OF PIG LEAD, *at sundry Places.*

At Stockton on Tees,	22 cwt.	of 112 ℔.	℘ fodder	2464 ℔.
Chester - -	20	120	ditto	2400
Newcastle upon Tyne	21	112	ditto	2352
Hull - -	19½	120	ditto	2340
Leith - -	20	112	ditto	2240
London - -	19½	112	ditto	2184

The moneyers, jewellers, &c. have a particular class of weights for gold and precious stones, viz. *carat* and *grain;* and for silver, the *pennyweight* and *grain.* The moneyers have also a peculiar subdivision of the troy-grain; thus divided:

the grain into 20 mites,
the mite into 24 droits,
the droit into 20 periots,
the periot into 24 blanks.

Under king Richard the First it was ordained, that there should be only one weight, and one measure, throughout the nation; and that the custody of the assize or standard of the weights, and measures, should be committed to certain persons in every city and borough; from whence the ancient office of king's alnager seems to have been derived. These original standards were called *pondus regis* and *mensura domini regis,* and are directed, by a variety of subsequent statutes, to be kept in the exchequer-chamber, by an officer called the clerk of the market, except the wine-gallon, which is committed to the city of London, and kept in Guildhall.

The Scottish standards are distributed among the oldest boroughs. The elward is kept at Edinburgh; the pint at Stirling; the pound at Lanark; and the firlot at Linlithgow.

The two principal weights established in Great Britain, are troy weight, and avoirdupois weight. Under the head of the former it may farther be added, that a carat is a weight of four grains; but when the term is applied to gold, it denotes the degree of fineness. Any quantity of gold is supposed to be divided into 24 parts. If the whole mass is pure, it is said to be twenty-four carats fine; if there are twenty-three parts of pure gold, and one part of alloy or base metal, it is said to be twenty-three carats fine, and so on.

Pure gold is too soft to be used for coin. The standard coin of this kingdom is twenty-two carats fine. A pound of standard gold is coined into 44½ guineas, and therefore every guinea should weigh 5 dwts. 9$\frac{29}{89}$ grains.

A pound of silver coin contains 11oz. 2 dwts. pure silver, and 18 dwts. alloy; and standard silver plate 11 oz. pure silver, with one ounce alloy. A pound of standard silver is coined into 62 shillings; and, therefore, the weight of a shilling should be 3 dwts. 20$\frac{28}{31}$ grains.

By the 27th chapter of Magna Charta, the weights all over England are to be the same; but for different commodities, there are two different sorts, viz. troy weight, and avoirdupois weight. The origin from which they are both raised, is a grain of wheat gathered in the middle of the ear.

By troy weight we weigh gold, silver, jewels, and liquors. The apothecaries also use the troy pound, ounce, and grain; but they differ from the rest in the intermediate divisions. They divide the ounce into eight drachms; the drachm into three scruples; and the scruple into twenty grains.

By avoirdupois weight we weigh mercury and grocery wares, base metals, wool, tallow, hops, hemp, flax, drugs, bread, &c. In avoirdupois weight, the pound contains 16 ounces; but the ounce is less by near one-twelfth than the troy ounce; the latter containing 490 grains, and the former only 448. The ounce contains 16 drachms: 80 ounces avoirdupois are only equal to 73 ounces troy; and 17 pounds troy equal to 14 pounds avoirdupois.

Mr. Ferguson gives the following comparison between troy and avoirdupois weight.

175 Pounds troy are equal to 144 pounds avoirdupois.

175 Ounces troy are equal to 192 ounces avoirdupois.

One pound troy contains 5760 grains.

One pound avoirdupois contains $437\frac{1}{2}$ grains.

One drachm avoirdupois contains 27.34375 grains.

One pound troy contains 13oz. 2.651428576 drachms avoirdupois.

One avoirdupois pound contains 1 ℔. 11 dwts. 16 gr. troy.

Therefore the avoirdupois pound is to the pound troy as 175 to 144; and the avoirdupois oz. is to the troy oz. as $437\frac{1}{2}$ is to 480.

Other nations have also certain weights peculiar to themselves: thus Spain has its arrobas, containing 25 Spanish pounds, or one-fourth of the common quintal: its quintal macho, containing 150 pounds, or one-half common quintal, or 6 arrobas: its adarme, containing one-sixteenth of its ounce. And for gold, it has its castillan, or $\frac{1}{100}$ of a pound; and its tomin, containing 12 grains, or one-eighth of a castillan. The same weights are used in the Spanish West Indies.

Portugal has its arroba, containing 32 Lisbon arratals, or pound: Savary also mentions its faratelle, containing two Lisbon pounds; and its rottolis, containing about 12 pounds. And for gold, its chego, containing four carats. The same weights are used in the Portuguese settlements in the East Indies, Brazil, &c.

Italy, and particularly Venice, have their migliaro, containing four mines; the mine, containing 30 Venice pounds; the saggio, containing one-sixth part of an ounce. Genoa has five kinds of weights, viz. large weights, whereby all kinds of merchandise are weighed at the custom-house; cash-weights for piastres, and other specie; the cantara or quintal, for the coarsest commodities; the large balance for raw silks, and the small balance for the fine commodities.

Sicily has its rottolo, $32\frac{1}{2}$ ℔. of Messina.

Germany, Flanders, Holland, the Hanse towns, Sweden, Denmark, Poland, &c. have their schippondt, which at Antwerp and Hamburgh is 300 pounds; at Lubeck, 320; and at Coningsburg, 400 pounds.

In Sweden, the schippondt for copper is 320 pounds, and for provisions, 400 pounds. At Riga and Revel, the schippondt is 400 pounds; at Dantzic, 340 pounds; in Norway, 300 pounds; at Amsterdam, 300; containing 20 lyspondts, each weighing 15 pounds.

In Muscovy, they weigh their large commodities by the bercheroct, or berkewits, containing 400 of their pounds. They have also the poet, or poede, containing 40 pounds, or one-tenth of the bercheroct.

New French Weights.

$103\frac{100}{69}$	pounds (poids de marc)	= 112 ℔. avoirdupois.
$138\frac{100}{32}$	pounds apothecaries' weight	= 112 ditto.
$50\frac{100}{60}$	kilogrammes	= 112 ditto.
$507\frac{100}{69}$	hectogrammes	= 112 ditto.

A TABLE of the Conformity of Weights of the principal Places in Europe with each other.

N.B. By Observations at the Custom-house in London, 100 ℔. Dantzick Weight makes 96 ℔. Avoirdupois in London; 106 ℔. of Germany makes 112 ℔. in London; 104 ℔. Dutch Weight makes 112 ℔. in London; and the Weights of Italy are commonly between 23 and 25 per Cent. lighter than the Avoirdupois Weight of London.

		Holland or Amsterd.	Brabant or Antwerp.	Rouen.	Lyons.	Rochelle.	Tolouse.	Provence or Marseilles.	Geneva.	London.	Hamburg.	Frankfort.
		℔. oz.	℔. oz.	℔. oz.	℔. oz.	℔. oz.	℔. oz.	℔. oz.	℔. oz.	℔. oz.	℔. oz.	℔. oz.
100 ℔. at Amsterdam	are equal to	100 00	105 08	96 04	116 00	99 00	118 00	123 08	89 00	109 08	102 00	98 00
100 ℔. at Antwerp		94 12	100 00	91 04	110 00	93 13	111 12	117 00	84 05	103 12	96 10	92 13
100 ℔. at Rouen		104 00	109 12	100 00	120 08	102 15	122 11	128 08	92 09	113 14	106 00	102 00
100 ℔. at Lyons		86 00	90 12	82 12	100 00	85 02	101 08	106 04	76 08	94 03	87 12	84 04
100 ℔. at Rochelle		101 00	106 08	97 03	117 00	100 00	119 03	124 12	89 14	110 09	103 00	99 00
100 ℔. at Tolouse		84 12	89 06	81 08	98 05	83 15	100 00	104 11	75 07	92 06	86 07	83 00
100 ℔. at Marseilles		81 00	85 08	78 00	94 00	80 03	95 09	100 00	72 00	88 11	82 10	79 06
100 ℔. at Geneva		112 06	118 08	105 00	130 05	111 06	132 09	128 04	100 00	123 00	114 10	110 02
100 ℔. at London		91 08	96 08	88 00	106 00	90 09	107 11	113 00	81 07	100 00	93 05	89 07
100 ℔. at Hamburgh		98 00	103 06	94 04	113 10	97 00	115 10	121 00	87 04	107 05	100 00	96 00
100 ℔. at Franckfort		102 00	107 08	98 03	118 05	101 00	120 06	126 00	90 12	111 11	104 00	100 00
100 ℔. at Leipsick		95 04	100 00	91 12	110 08	94 04	112 06	117 12	84 12	104 05	96 02	93 05
100 ℔. at Genoa		66 $\frac{2}{3}$	70 05	64 00	77 05	66 00	78 10	82 05	59 05	73 00	68 00	64 05
100 ℔. at Leghorn		69 00	72 12	66 06	114 13	68 05	81 06	85 04	61 06	75 09	70 06	67 10
100 ℔. at Milan		59 08	62 12	57 04	69 00	58 14	70 12	73 08	53 00	65 05	60 11	58 05
100 ℔. at Venice		60 00	63 06	57 12	69 10	59 06	70 13	74 02	53 06	65 11	61 03	58 13
100 ℔. at Naples		59 00	62 04	57 00	68 07	58 06	69 10	72 14	52 08	64 10	60 02	57 13
100 ℔. at Spain		94 08	99 12	91 00	109 10	93 09	111 08	116 11	84 02	103 07	96 06	92 10
100 ℔. at Portugal		87 08	92 00	84 04	101 08	96 10	103 04	108 00	77 14	95 04	89 04	85 12
100 ℔. at Leige		95 00	100 03	91 07	110 03	94 00	112 00	117 05	84 08	104 00	96 14	93 00
100 ℔. at Russia, &c.		81 04	85 $\frac{2}{3}$	78 00	94 $\frac{1}{12}$	80 06	95 09	100 05	72 04	88 12	82 13	79 06
100 ℔. at Sweden		85 08	90 02	82 03	99 00	84 09	100 09	105 09	76 01	93 07	87 03	83 09
100 ℔. at Denmark		102 04	107 13	98 05	118 07	100 15	120 05	126 04	91 00	111 12	104 04	99 14

See next page.

TABLE of Weights—*continued.*

		Leipsick, Naumb. Halle.	Genoa.	Leghorn.	Milan.	Venice.	Naples.	Spain, Seville, & Cadiz.	Lisbon.	Liege.	Russia.	Sweden.	Denmark.
		℔. oz.	℔. oz.	℔. oz.	℔. oz.	℔. oz.	℔. oz.	℔. oz.	℔. oz.	℔. oz.	℔. oz.	℔. oz.	℔. oz.
100 ℔. at Amsterdam	are equal to	105 00	150 00	145 00	168 00	166 00	169 00	106 00	114 08	105 04	123 $\frac{1}{12}$	117 00	97 13
100 ℔. at Antwerp		99 08	142 02	137 06	159 03	157 $\frac{1}{3}$	160 02	100 08	109 08	99 11	116 $\frac{2}{3}$	110 $\frac{11}{12}$	92 $\frac{3}{4}$
100 ℔. at Rouen		109 04	156 00	150 13	174 11	172 $\frac{2}{3}$	175 12	110 04	119 00	109 07	128 00	121 $\frac{15}{24}$	101 $\frac{5}{8}$
100 ℔. at Lyons		90 05	129 00	124 11	144 08	142 $\frac{3}{4}$	145 06	91 03	98 08	90 08	106 $\frac{1}{4}$	101 00	84 $\frac{7}{16}$
100 ℔. at Rochelle		106 00	151 08	146 07	169 11	167 10	170 11	107 00	115 10	106 05	124 $\frac{1}{3}$	117 $\frac{11}{12}$	98 13
100 ℔. at Tolouse		91 08	127 02	122 14	142 06	140 00	144 04	89 13	97 00	89 03	104 $\frac{9}{16}$	99 $\frac{1}{2}$	83 $\frac{1}{8}$
100 ℔. at Marseilles		87 08	121 08	117 07	136 01	134 08	136 14	85 13	92 12	85 04	99 $\frac{2}{3}$	94 $\frac{3}{4}$	79 $\frac{3}{16}$
100 ℔. at Geneva		119 00	168 09	163 00	188 13	186 08	189 14	119 02	128 08	118 04	138 $\frac{1}{4}$	131 $\frac{7}{16}$	109 $\frac{7}{8}$
100 ℔. at London		96 01	137 04	132 11	153 11	152 00	154 10	97 00	104 13	96 05	112 $\frac{2}{3}$	107 $\frac{17}{24}$	89 $\frac{1}{2}$
100 ℔. at Hamburgh		102 15	147 00	142 02	164 10	162 11	167 10	103 13	112 04	103 02	120 $\frac{11}{16}$	114 00	95 00
100 ℔. at Frankfort		107 01	153 00	147 14	171 06	169 05	172 06	108 02	116 13	107 06	125 $\frac{7}{8}$	119 $\frac{2}{3}$	100 $\frac{1}{16}$
100 ℔. at Leipsick		100 00	142 13	138 01	160 00	158 02	161 00	101 00	109 00	100 04	117 $\frac{1}{4}$	111 $\frac{5}{12}$	93 $\frac{1}{8}$
100 ℔. at Genoa		70 00	100 00	96 11	112 00	110 11	112 11	70 11	76 05	70 06	83 $\frac{7}{8}$	79 $\frac{3}{4}$	66 $\frac{5}{8}$
100 ℔. at Leghorn		72 08	103 08	100 00	116 00	114 08	116 09	73 00	79 00	72 10	84 $\frac{7}{8}$	80 $\frac{2}{3}$	67 $\frac{7}{16}$
100 ℔. at Milan		62 08	89 04	86 04	100 00	98 12	100 08	63 00	68 02	62 05	73 $\frac{1}{4}$	69 $\frac{2}{3}$	58 $\frac{3}{4}$
100 ℔. at Venice		63 00	90 00	87 00	100 13	100 00	101 06	63 09	68 11	63 02	74 00	70 $\frac{5}{8}$	58 $\frac{11}{16}$
100 ℔. at Naples		62 00	88 02	85 08	99 02	98 00	100 00	62 08	67 09	62 00	72 $\frac{13}{16}$	69 $\frac{5}{8}$	57 $\frac{7}{8}$
100 ℔. at Spain		99 04	141 12	137 00	158 12	156 14	159 12	100 00	108 03	99 14	116 00	110 $\frac{1}{3}$	92 $\frac{5}{16}$
100 ℔. at Portugal		91 13	131 04	126 13	147 00	145 04	148 00	92 12	100 00	92 00	107 $\frac{13}{16}$	102 $\frac{1}{8}$	85 $\frac{3}{8}$
100 ℔. at Liege		99 12	142 08	137 12	159 09	157 11	160 10	100 09	108 12	100 00	116 $\frac{15}{16}$	111 $\frac{1}{8}$	92 $\frac{15}{16}$
100 ℔. at Russia, &c.		85 04	121 13	117 13	136 07	134 15	137 04	86 03	93 01	85 08	100 00	95 00	79 $\frac{7}{16}$
100 ℔. at Sweden		89 12	128 03	124 00	143 09	142 00	144 07	90 09	97 15	90 00	105 $\frac{1}{4}$	100 00	83 $\frac{1}{4}$
100 ℔. at Denmark		107 05	153 05	148 04	171 11	169 13	172 12	109 01	117 01	107 10	125 $\frac{5}{6}$	119 00	100 00

By means of this and the preceding Table, may be easily seen the agreement which the weights of one place have with those of another; as, for example, if it be wanted to know how many pounds 100 English make at Amsterdam, look for London in the first column, and from thence along the line to the column under Amsterdam, and it will there be found, that 91 ℔. 8 oz. Dutch correspond with 100℔. English; and so with any other weight sought for, and *vice versâ*.

The correspondence between English weights and some modern weights in France and other countries:

English Weights.

Troy Weight.

lb.	*oz.*	*dms.*	*scr.*	*grains.*	*grammes*
1 =	12 =	96 =	285 =	5760 =	372.99
	1 =	8 =	24 =	480 =	31.08
		1 =	3 =	60 =	3.885
			1 =	20 =	1.395
				1 =	0.06475

Avoirdupois Weight.

lb.	*oz.*	*dms.*	*grains.*	*grammes.*
1 =	16 =	256 =	7000	= 453.25
	1 =	16 =	437.5	= 28.32
		1 =	27.975	= 1.81

German.

71 lbs. or grains English troy = 74 lbs. or grains German apothecaries' weight.
1 oz. Nuremberg, medic. weight = 7 drs. 2 scr. 9 grains English.
1 mark Cologne = 7 oz. 2 dwt. 4 grains English troy.

Dutch.

1 ℔. Dutch = 1 ℔. 3 oz. 16 dwt. 7 grains English troy.
787½ ℔. Do. = 1038 lbs. Do.

Swedish Weights, *used by Bergman and Scheele.*

The Swedish pound, which is divided like the English apothecary, or troy, pound, weighs 6556 grains troy.

The kanne of pure water, according to Bergman, weighs 42250 Swedish grains, and occupies 100 Swedish cubical inches. Hence the kanne of pure water weighs 48088.719444 English troy grains, or is equal to 189.9413 English cubic inches; and the Swedish longitudinal inch is equal to 1.238435 English longitudinal inches.

From these data the following rules are deduced:

1. To reduce Swedish longitudinal inches to English, multiply by 1.2834, or divide by 0.80747.

2. To reduce Swedish to English cubical inches, multiply by 1.9, or divide by 0.5265.

3. To reduce the Swedish pound, ounce, dram, scruple, or grain, to the corresponding English troy denomination, multiply by 1.1382, or divide by 8.786.

4. To reduce the Swedish kannes to English wine pints, multiply by .1520207, or divide by 6.57804.

5. The lod, a weight sometimes used by Bergman, is the 32d part of the Swedish pound: therefore to reduce it to the English troy pound, multiply by .03557, or divide by 28.1156.

Correspondence of English Weights with those used in France before the Revolution.

The Paris pound, pois de marc of Charlemagne, contains 9216 Paris grains; it is divided into 16 ounces, each ounce into 8 gros, and each gros into 72 grains. It is equal to 7561 English troy grains.

The English troy pound of 12 ounces contains 5760 English troy grains, and is equal to 7021 Paris grains.

The English avoirdupois pound of 16 ounces contains 7000 English troy grains, and is equal to 8538 Paris grains.

To reduce Paris grains to English troy grains, divide by } 1.2189.
To reduce English troy grains to Paris grains, multiply by }
To reduce Paris ounces to English troy, divide by } 1.015734.
To reduce English troy ounces to Paris, multiply by }

Or the conversion may be made by means of the following tables.

1. *To reduce French to English Troy Weight.*

The Paris pound - -	= 7561	Eng. troy grains.
The ounce - -	= 472.5625	
The gros - -	= 59.0703	
The grain - -	= .8204	

2. *To reduce English Troy to Paris Weight.*

The English troy pound of 12 oz.	= 7021	Paris grains.
The troy ounce - -	= 585.0893	
The dram of 60 grains -	= 73.1354	
The dwt. or dernier, of 24 grains	= 29.2541	
The scruple of 20 grains	= 24.3784	
The grain - -	= 1.2189	

3. To reduce English Avoirdupois to Paris Weight.

The avoirdupois pound of 16 ounces, or 7000 troy grains	= 8538	Paris grains.
The ounce - - - -	= 533.6250	

New French Weights (calculated by Dr. Duncan, Jun.)

			Avoird.		
			lb.	*oz.*	*dr.*
Milligramme	=	.0154			
Centigramme	=	.1544			
Decigramme	=	1.5444			
Gramme	=	15.4440			
Decagramme	=	154.4402 =	0	0	5.65
Hecatogramme	=	1544.4023 =	0	3	8.5
Killogramme	=	15444.0234 =	2	3	5
Myriogramme	=	154440.2344 =	22	1	2

TABLE,

Showing the comparison between French and English Grains. (Pois de Marc.)

Fr. grs.	= Eng. grs.	Eng. grs.	= Fr. grs.
1	0.8203	1	1.2189
2	1.6407	2	2.4378
3	2.4611	3	3.6568
4	3.2815	4	4.8757
5	4.1019	5	6.0947
6	4.9223	6	7.3136
7	5.7427	7	8.5325
8	6.5631	8	9.7515
9	7.3835	9	10.9704
10	8.203	10	12.189
20	16.407	20	24.378
30	24.611	30	36.563
40	32.815	40	48.757
50	41.019	50	60.947
60	49.223	60	73.136
70	57.427	70	85.325
80	65.631	80	97.515
90	73.835	90	109.704
100	82.03	100	121.89
200	164.07	200	243.78
300	246.11	300	365.68
400	328.15	400	487.57
500	410.19	500	609.47
600	492.23	600	731.36
700	574.27	700	853.25
800	656.31	800	975.15
900	738.35	900	1097.04
1000	820.3	1000	1218.9
2000	1640.7	2000	2437.8
3000	2461.1	3000	3656.8
4000	3281.5	4000	4875.7
5000	4101.9	5000	6094.7
6000	4922.3	6000	7313.6
7000	5742.7	7000	8532.5
8000	6563.1	8000	9751.5
9000	7383.5	9000	10970.4
1000	8203.0	10000	12189.0

Weights used in the several parts of Asia, the East Indies, China, Persia, &c.

In Turkey, at Smyrna, &c. they use the batman, or batteman, containing six occos, the occo weighing three pounds 4-5ths English. They have another batman much less, consisting, as the former, of six occos; but the occo only containing 15 ounces English; 44 occos of the first kind make the Turkish quintal.

At Cairo, Alexandretta, Aleppo, and Alexandria, they use the rotto, rotton, or rottoli; at Cairo, and other parts of Egypt, it is 144 drachms, being above an English pound weight.

At Aleppo there are three sorts of rottos; the first, 720 drachms, making about seven pounds English, and used in weighing cottons, galls, and other large commodities; the second is 624 drachms, used for all silks but white ones, which are weighed by the third rotto of 700 drachms.

At Seyda the rotto is 600 drachms.

The other ports of the Levant, not here named, use some of these weights, particularly the occo or ocqua, the rottoli, and rotto.

The Chinese weights are the piece, for large commodities; it is divided into 100 catis, or cattis, though some say 125; the cati into 16 taels, or tales, each tale equivalent to $1\frac{1}{3}$ of an ounce English, or the weight of one rial and 1-12th, and containing 12 mas, or masses; and each mas 10 condrins. So that the Chinese piece amounts to 137 pounds English avoirdupois, and the cadi to one pound eight ounces. The picol for silk contains 66 catis and 3-4ths; the bahar, bakaire, or barr, contains 300 catis.

Tonquin has also the same weights, measures, &c. as China.

Japan has only one weight, viz. the cati, which, however, is different from that of China, as containing 20 taels.

At Surat, Agra, and throughout the states which composed the kingdom of the Great Mogul, they use the man, or maund, whereof they have two kinds; the king's man, or king's weight, and the man simply; the first used for the weighing of common provisions, containing 40 seers or seres, and each seer just a Paris pound.

The common man, used in the weighing of merchandise, consists likewise of 40 seers; but each seer is only estimated at 12 Paris ounces, or 3-4ths of the other seer.

The man may be looked on as the common weight of the East Indies, though under

some difference of name, or rather of pronunciation, it being called mas at Cambaya, and in other places, mein and maun. The seer is properly the Indian pound, and of universal use; the like may be said of the bahar, tael, and catti above-mentioned.

At Siam, the weights are the piece containing two shans, or cattis; but the Siamese catti is only half the Japanese, the latter containing 20 taels, and the former only 10; though some make the Chinese catti only 16 taels, and the Siamese eight. The tael contains four baats, or ticals, each about a Paris ounce; the baat four selings, or mayons; the mayon two fouangs; the fouang four payes; the paye two clams; the sompaye half a fouang. It is to be observed, that these are the names of their coins as well as weights; silver and gold being commodities there sold, as other things, by their weights.

In the isle of Java, and particularly at Bantam, they use the gantan, equal to nearly three Dutch pounds. In Golconda, at Visapour, and Goa, they have the furatelle, containing one pound 14 ounces English: the mangalis, or mangelin, for weighing diamonds and precious stones, weighing at Goa five grains, at Golconda, &c. $5\frac{1}{2}$ grains. They have also the rotolo, containing $14\frac{1}{4}$ ounces English; the metricol, containing the sixth part of an ounce; the wall for piastres and ducats, containing the 73d part of a rial.

In Persia they use two kinds of batmans, or mans: the one called cahi, or cheray, which is the king's weight; and the other batman of Tauris. The first weighs thirteen pounds ten ounces English; the second $6\frac{1}{2}$ pounds; its divisions are the ratel, or a sixteenth; the derhem, or drachm, which is the fiftieth; the meschal, which is half the derhem: the dung, which is the sixth part of the meschal, being equivalent to six carat-grains; and lastly, the grain, which is the one-fourth part of the dung. They have also the vakie, which exceeds a little our ounce; the sah-cheray, equal to the 1170th part of the derhem; and the toman, used to weigh out large payments of money without telling, its weight is that of fifty abassis.

American weights.—The several European colonies make use of the weights of the states or kingdoms of Europe they belong to. For, as to the aroue of Peru, which weighs twenty-seven pounds, it is evidently no other than the Spanish arroba, with a little difference in the name.

As to the weights of Africa, there are few places that have any, except Egypt, and the countries bordering on the Mediterranean, whose weights have been already enumerated among those of the ports of the Levant. The island of Madagascar, indeed, has weights, but none that exceed the drachm, nor are they used for any thing but gold and silver.

By stat. 35 Geo. 3. c. 102. amended by 37 Geo. 3. c. 143. the justices in sessions, in every county, are required to appoint persons to examine the weights and balances within their respective jurisdictions. These inspectors may seize and examine weights in shops, &c. and seize false weights and balances, and the offender, being convicted before two justices, shall be fined from five to twenty shillings.

Persons obstructing the inspectors to forfeit from five to forty shillings.

Inspectors to be recompensed out of the county-rate. Standard weights to be purchased by the sessions out of the county-rate, and produced to all persons paying for the production thereof. Informations to be within one month.

Of Measures.

The standard of measures was originally kept at Winchester, which measure was, by the law of king Edgar, ordained to be observed throughout the kingdom.

The English lineal standard is the yard, containing three English feet, equal to three Paris feet, one inch and 3-12ths of an inch, or 7-9ths of a Paris ell. The use of this measure was established by Henry I. of England, and the standard taken from the length of his own arm. The English ell is equal to a yard and a quarter, or forty five inches, and is used in measuring linens imported from Germany and the Low Countries.

The Scots elwand, was established by king David I. and divided into thirty-seven inches. The standard is kept in the council chamber of Edinburgh, and being compared with the English yard, is found to measure thirty-seven and one-fifth; and therefore the Scots inch and foot are larger than the English, in the proportion of 180 to 185; but this difference being so inconsiderable, is seldom attended to in practice. The Scotch ell, though forbidden by law, is still used for measuring some coarse commodities, and is the foundation of the land-measure of Scotland.

Itinerary measure is the same both in England and Scotland.

The length of the chain is four poles, or twenty-two yards; eighty chains make a mile. The old Scots computed miles were generally about a mile and a half each.

The reel of yarn is $2\frac{1}{2}$ yards, or ten quarters, in circuit; 120 threads make a cut, twelve cuts make a hasp or hank, and four hanks make a spindle.

The French standard was formerly the aune, or ell, containing three Paris feet, seven inches, eight lines, or one yard and 2-7ths English; the Paris foot royal exceeding the English by $\frac{68}{1000}$ parts, as in one of the following tables. This ell is divided two ways, viz. into halves, thirds, sixths, and twelfths; and into quarters, half-quarters, and sixteenths.

The French, however, have also formed an entirely new system of weights and measures according to the following table:

PRINCIPAL MEASURES OR UNITIES.

Proportions of the measures of each species to its principal measure or unity.	First part of the name which indicates the proportion to the principal measure or unity.	Length.	Capacity.	Weight.	Agrarian.	For firewood.
10000 1000 100 10 0 0.1 0.01 0.001	Myria Kilo Hecto Deca — Deci Centi Milli	Metre.	Litre.	Gramme.	Arc.	Stere.
Proportion of the principal measures between themselves and the length of the meridian. - - -		10,000,000th part of the distance from the pole to the equator.	A decimetre cube.	Weight of a centimetre cube of distilled water.	100 square metres.	One cubic metre.
Value of the principal measures in the ancient French measures - - - -		3 feet, 11 lines, and one half nearly.	1 pint and 1-20th, or 1 litron and 1-4th nearly.	18 grains and 841,000 parts.	Two square perches *des eaux et forêt.*	1 demi-voie, or 1-4th of a cord *des eaux et forêt.*
Value in English measures - - - -		Inches, 39.383.	61.083 inches, which is more than the wine and less than the beer quart.	22.966 grains.	11968 square yards.	—

The Paris foot expressed in decimals is equal to 1.0654 of the English foot, or contains 12.785 English inches.

The standard in Holland, Flanders, Sweden, a good part of Germany, many of the Hanse Towns, as Dantzic, and Hamburgh, and at Geneva, Frankfort, &c. is likewise the ell; but the ell in all these places differs from the Paris ell. In Holland it contains one Paris foot, eleven lines, or four-sevenths of the Paris ell. The Flanders ell contains two feet, one inch, 5½ lines, or seven-twelfths of the Paris ell. The ell of Germany, Brabant, &c. is equal to that of Flanders.

The Italian measure is the bracchio, brace, or fathom. This obtains in the states of Modena, Venice, Florence, Lucca, Milan, Mantua, Bologna, &c. but is of different lengths. At Venice it contains one Paris foot, eleven inches, three lines, or eight-fifteenths of the Paris ell. At Bologna, Modena, and Mantua, the brace is the same as at Venice. At Lucca it contains one Paris foot, nine inches, ten lines, or half a Paris ell. At Florence it contains one foot, nine inches, four lines, or 49-hundredths of a Paris ell. At Milan, the brace for measuring silks is one Paris foot, seven inches, four lines, or four-ninths of a Paris ell; that for woollen cloths is the same with the ell of Holland. At Bergama, the brace is one foot, seven inches, six lines, or five-ninths of a Paris ell. The usual measure at Naples, however, is the canna, containing six feet, ten inches, and two lines, or one Paris ell and fifteen-seventeenths.

The Spanish measure is the vara, or yard, in some places called the barra; containing seventeen-twenty-fourths of the Paris ell. But the measure in Castile and Valencia is the pan, span, or palm; which is used, together with the canna, at Genoa. In Arragon, the vara is equal to a Paris ell and a half, or five feet, five inches, six lines.

The Portuguese measure is the cavedos, containing two feet, eleven lines or four-sevenths of a Paris ell; and the vara, 106 whereof make 100 Paris ells.

The Piedmontese measure is the ras, containing one Paris foot, nine inches, ten lines, or half a Paris ell.

In *Sicily*, their measure is the canna, the same with that of Naples.

The Muscovite measures are the cubit, equal to one Paris foot, four inches, two lines; and the arcin, two whereof are equal to three cubits.

The Turkish and Levant measures are the picq, containing two feet, two inches, and two lines, or three-fifths of the Paris ell.

The Chinese measure is the cobre, ten whereof are equal to three Paris ells.

In *Persia*, and some parts of the Indies, the gueze, of which there are two kinds: the royal gueze, called also the gueze mankelser, containing two Paris feet, ten inches, eleven lines, or four-fifths of the Paris ell; and the shorter gueze, called simply, gueze, only two-thirds of the former. At Goa and Ormuz, the measure is the vara, the same with that of the Portuguese.

In *Pegu*, and some other parts of the Indies, the cando or candi, equal to the ell of Venice. At Goa, and other parts, they use a large cando, equal to seventeen Dutch ells, exceeding that of Babel and Balsora by seven-eighths per centum, and the vara by six and a half. In Siam they use the ken, short of three Paris feet by one inch. The ken contains two soks, the sok two keubs, the keub, twelve nious, or inches, the nious to be equal to eight grains of rice, *i. e.* to about nine lines.

At *Camboia* they use the haster; in Japan the tatam; and the span on some of the coasts of Guinea.

The Ell of Noremburg is equal to that of Amsterdam; the Ell of Osnaburg to that of England; and the Ell of Bern, Basil, &c. to that of Hamburgh.

A TABLE of the Conformity of LONG MEASURES of the principal Places of Europe, with each other.

N. B. By Observation at the Custom-house in London, 100 Auns of Flanders and Holland make 58 4/5 Ells English in London, 100 Auns of Germany and the East Countries 49 Ells in London, 100 Ashin from Russia 57 Ells in London, and 100 Turkey Picos 43 1/3 Ells in London.

		Ells of Holland.	Ells of Brabant.	Ells of England, France &c.	Ells of Hamburgh, Frankfort.	Ells of Breslaw.	Ells of Dantzick.	Ells of Bergen.	Ells of Sweden.	Linen Ells of St. Gall	Woollen Ells of St. Gall.	Ells of Geneva.	Canes of Marseilles.
100 Ells of Holland	make	100	98 3/4	58 1/2	120	125	112 1/2	110	117	86	112	60	35
100 Ells of Brabant	make	101 1/4	100	60	121 1/2	126 3/5	114	111 4/5	118 1/2	87	113 4/5	60 3/4	35 4/5
100 Ells of England, and France, &c.	make	171	166 2/3	100	205 1/4	213 3/4	192 4/5	188	200	147	191 1/2	102 1/6	59 4/5
100 Ells of Hamburg, Frankfort, &c.	make	83 1/3	82 1/3	48 4/5	100	104 1/5	92 3/5	91 3/4	97 1/2	71 2/3	91 1/3	50	29 1/5
100 Ells of Breslaw	make	80	79	46 3/5	96	100	89 4/5	88	93 3/5	68 3/4	89 3/5	48	28
100 Ells of Dantzick	make	89	87 3/4	52	96 4/5	111 1/4	100	98	104 3/5	76 3/5	99 3/4	53 4/5	31 1/5
100 Ells of Bergen	make	90	89	52 3/4	108	112 1/2	101 1/4	100	105 3/5	77 4/5	100 4/5	54	31 1/2
100 Ells of Sweden	make	86	84	50 3/5	103 1/5	107 1/2	96 3/4	94 3/5	100	74	96 1/3	51 3/5	30 1/5
100 Ells of St. Gall for Linen	make	116	114 1/2	67 3/4	139 1/5	145	130 1/2	127 3/5	135 3/4	100	130	69 3/5	40 3/4
100 Ells of St. Gall for Woollen	make	89 1/3	88 4/5	52 1/4	107 1/5	111 3/4	100 1/2	98 1/4	104 1/2	76 4/5	100	53 3/5	31 1/4
100 Ells of Geneva	make	166 2/3	164 3/5	97 1/2	200	208 1/3	187 1/2	183 1/4	195	143 1/3	130 2/5	100	58 1/3
100 Canes of Marseilles and Montpelier	make	286	282 4/5	167 1/3	343 1/5	357 1/2	321 3/4	314 3/5	334 3/5	246	320 1/3	171 3/5	100
100 Canes of Tolouse	make	266 2/3	263 1/3	156	320	333 1/3	300	193 1/2	312	229	298 2/3	160	93 1/3
100 Canes of Genoa of 9 Palms	make	327	323	191 1/3	392 4/5	408 3/4	367 4/5	359 3/4	382 3/5	281 1/4	366 1/4	196 1/5	114 1/2
100 Canes of Rome	make	303	299 1/5	177 1/4	363 3/5	378 3/4	340 4/5	333 1/4	454 1/2	260 3/5	339 4/5	181 4/5	116
100 Yards of England	make	133 1/3	131 2/3	78	160	166 3/4	150	146 3/5	156	114 3/5	149 1/3	80	46 2/3
100 Yards, or Varas, of Spain	make	125	113 4/5	73 1/5	150	156 3/4	140 2/3	137 1/2	146 3/4	107 1/2	140	75	43 3/4
100 Varas of Portugal	make	164	162	96	196 4/5	205	184 1/2	180 4/5	191 4/5	141	183 3/5	94 4/5	57 4/5
100 Cavidoes of Portugal	make	100	98 3/4	58 1/2	120	125	112 1/2	110	117	86	112	60	35
100 Braces of Venice	make	98	96 3/4	57 1/3	117 3/5	122 1/2	104 1/2	107 3/4	115	84 1/4	109 3/4	58 3/4	34 1/3
100 Braces of Bergam	make	95	93 4/5	55 3/5	114	118 3/4	106 3/4	104 1/2	111 1/5	81 3/4	106 4/5	57	33 3/4
100 Braces of Florence, Leghorn, &c.	make	85 1/2	84 4/5	50	102 3/5	106 4/5	96 2/5	94	100	73 1/2	95 3/4	51 3/5	30
100 Braces of Milan	make	78	77	45 3/5	93 3/5	97 1/2	87 3/4	85 4/5	91 1/4	67	87 3/5	46 4/5	27 3/5

Table of Long Measures continued.

	Canes of Tolouse.	Canes of Genoa.	Canes of Rome.	Yards of England.	Yards and Varas of Spain.	Varas of Portugal.	Cavidoes of Portugal.	Braces of Venice.	Braces of Bergam, Bologne.	Braces of Florence, & Leghorn.	Braces of Milan.
100 Ells of Holland ..... make	37½	30½	33	75	80	61	100	102	105¼	116½	128½
100 Ells of Brabant ..... make	38	30⅘	33⅘	76	81	61¾	101¼	103¼	106	118	130
100 Ells of England, and France, &c. ..... make	64⅕	52⅕	56⅘	128¼	136⅘	104⅓	171	174⅘	179	199⅕	219
100 Ells of Hamburg, Franckfort, &c. ..... make	31¼	25⅘	27½	62½	65⅘	50⅘	83⅓	85	88½	97	107
100 Ells of Breslaw ..... make	30	24⅘	26⅘	60	64	48⅘	80	81⅗	84⅘	93⅕	102⅘
100 Ells of Dantzick ..... make	33⅘	27⅕	29¾	66¾	71⅕	54⅓	89	90¾	93⅗	103¾	114½
100 Ells of Bergen ..... make	33¾	27⅕	29¾	67½	72	55	90	91¾	94¾	105	115¾
100 Ells of Sweden ..... make	32¼	26¼	28⅘	64½	68⅘	52½	86	87¾	90½	100⅕	110½
100 Ells of St. Gall for Linen ..... make	43½	35⅘	38⅓	87	92⅘	70¾	116	118⅗	122	135⅕	149
100 Ells of St. Gall for Woollen ..... make	33½	27⅕	29½	67	71⅕	54½	89⅓	91⅕	94	104	114¾
100 Ells of Geneva ..... make	62½	50⅘	55	124¾	133⅓	101⅔	166⅔	170	172⅘	193⅓	214⅕
100 Canes of Marseilles ..... make	107¼	87¼	94⅘	214½	228⅘	174¾	286	291¾	301	333⅕	367½
100 Canes of Tolouse ..... make	100	81⅓	88	199¾	213⅓	162⅔	266⅔	272	280⅗	309⅓	342⅔
100 Canes of Genoa of 9 Palms ..... make	122⅗	100	108	245¼	261⅗	199½	327	333½	344⅕	381	420⅕
100 Canes of Rome ..... make	113⅔	92⅘	100	227¼	242⅘	184⅘	303	309	319	353	389⅘
100 Yards of England ..... make	50	40⅔	44	100	108	81⅓	133⅓	136	104⅓	154¾	171⅓
100 Yards, or Varas, of Spain ..... make	46⅘	38⅕	41¼	92	100	76¼	125	127½	131½	145⅗	159⅔
100 Varas of Portugal ..... make	61½	50	54⅕	123	131⅕	100	164	167¼	172⅗	191	210¾
100 Cavidoes of Portugal ..... make	37½	30½	33	75	80	61	100	102	105¼	116½	128½
100 Braces of Venice ..... make	36¾	29¾	32⅓	73½	78⅘	59¾	98	100	103⅕	114⅕	126
100 Braces of Bergam ..... make	35⅗	29	31⅗	72¼	76	58	95	97	100	100⅗	122
100 Braces of Florence, Leghorn, &c. ..... make	32	26⅕	28⅕	65⅕	68⅘	52⅕	85½	87⅕	95	100	109⅘
100 Braces of Milan ..... make	29¼	23⅘	25¾	58½	62⅘	47½	78	79½	82⅕	91	100

By means of this and the preceding table may be easily seen the agreement, which the measures of one place have with those of another, as for example; if it is wanted to know how many ells 100 of Amsterdam make at Brabant, look for Amsterdam in the first column, and from thence along the line to the column under Brabant, and will there be found, that 100 ells of Amsterdam correspond with 98¾ ells of Brabant, and so with any other measure sought for, and *vice versa*.

TABLES OF ENGLISH MEASURES.

Cloth Measure.

				Marked
2¼	Inches	1	Nail -	N.
4	Nails	1	Quarter yard	Qur.
4	Quarters	1	Yard -	Yd.
3	Quarters	1	Ell Flemish	Ell F.
5	Quarters	1	Ell English	E. E.
6	Quarters	1	Ell French	E. F

Long Measure.

3	Barley-corns	1	Inch -	In.
4	Inches	1	Hand -	Hand
12	do. or 3 Hands	1	Foot -	Ft.
3	Feet -	1	Yard -	Yd.
6	do. or 2 Yards	1	Fathom -	Fm.
5½	Yards -	1	Rod, Pole, or Perch	R. or P.
40	Rds. Pls. or Phs.	1	Furlong -	Fur.
8	Furlongs	1	Mile -	Mile
3	Miles	1	League -	Le.
60	Miles -	1	Degree -	De.
360	Degrees		Circumference of the Earth.	

Ale and Beer Measures.

2	Pints -	1	Quart -	Qut.
4	Quarts -	1	Gallon -	Gall.
8	Gallons of Ale	1	Firkin -	Firk.
32	do.	1	Barrel -	Bar.
1½	Brls. or 48 gal. do.	1	Hogshead	Hhd.
9	Gallons of Beer	1	Firkin -	Firk.
2	Firkins of do.	1	Kilderkin	Kiln.
2	Kild. or 36 Galls.	1	Barrel -	Bar.
1½	Barrel or 54 Gal.	1	Hogshead	Hhd.
2	Hhds. or 3 Barr.	1	Butt -	Butt
2	Butts or 4 Hhds.	1	Tun -	Tu.
42	Gall. of Salmon	1	Barrel -	Bar.
42	Gallons of Eels	1	Do. -	Do.
32	Gall. of Herrings	1	Do. -	Do.
4 or 5	Gall. of Sturg.	1	Keg -	Keg
8	Gallons of Soap	1	Firkin -	Firk.

Solid Measure.

1728	Cubic Inches	1	Solid Foot
27	Cubic feet	1	Cubic Yard

Hay.

A Load contains	36	Trusses	
A Truss weighs	56	Pounds	

Wine Measure.

				Marked
2	Pints	1	Quart	Qut.
4	Quarts	1	Gallon	Gall.
10	Gallons	1	Anker	Ank.
18	Do.	1	Rundlet	Runt.
31½	Do.		Half a hogshead	Hhd.
42	Do.	1	Tierce	Trce.
2	Tierces	1	Puncheon	Pun.
63	Gallons	1	Hogshead	Hhd.
2	Hogsheads	1	Pipe or Butt	P. or B.
2	Pipes or 4 Hhds.	1	Tun -	Tu.
3	Puncheons	1	Do. of Fish oil	Do.
236	Gallons	1	Do. of Olive oil	Do.

Coal Measure.

4	Pecks	1	Bushel	Bush.
3	Bushels	1	Sack	Sa.
12	Sacks, or 36 Bush.	1	Chaldron	Chald.
21	Chaldron	1	Score	Score

Dry Measure.

2	Pints	1	Quart	Qut.
2	Quarts	1	Pottle	Pottl.
4	Quarts	1	Gallon	Gall.
2	Gallons	1	Peck	Peck
4	Pecks	1	Bushel	Bush.
2	Bushels	1	Strike	Str.
4	Bushels	1	Coom	C. or S.
2	Cooms, or 8 Bush.	1	Quarter	Qur.
4	Quarters	1	Chaldron	Chal.
5	Quarters	1	Wey or Load	W. or L.
10	Do. of Corn	1	Wey	Do.
2	Weys	1	Last of corn	Last

Square or Superficial Measure.

144	Inches	1	Square Foot
9	Square Feet	1	Square Yard
100	Feet	1	Square of Flooring
272¼	Do.	1	Rod
40	Rods or Perch.	1	Rood
4	Roods	1	Acre
640	Acres	1	Square Mile
30	Acres	1	Yard of Land
100	Acres	1	Hide of Land

Water Measure.

				Marked.
5	Pecks	1	Bushel	Bush.
3	Bushels of coals	1	Sack	Sack
12	Sacks	1	Chaldron	Chal.
21	Chald. of coals	1	Score	Score

Cubical Measures, or Measures of Capacity for Liquids.

The English measures were originally raised from troy-weight, it being enacted by several statutes, that eight pounds troy of wheat, gathered from the middle of the ear, and well dried, should weigh a gallon of wine measure, the divisions, and multiples, whereof were to form the other measures; at the same time it was also ordered, that there should be but one liquid measure in the kingdom; yet custom has prevailed, and there having been introduced a new weight, viz. the avoirdupois, we have now a second standard gallon adjusted thereto, and therefore exceeding the former in the proportion of the avoirdupois weight to troy weight. From this latter standard are raised two several measures, the one for ale, the other for beer.

The sealed gallon at Guildhall, which is the standard for wines, spirits, oils, &c. is supposed to contain two hundred and thirty-

one cubic inches, and on this supposition the other measures raised therefrom, will contain, as in the table underneath; yet by actual experiment made in 1688, before the lord-mayor and the commissioners of excise, this gallon was found to contain only two hundred and twenty-four cubic inches: it was, however, agreed to continue the common supposed contents of two hundred and thirty-one cubic inches: so that all computations stand on their old footing. Hence, as twelve is to two hundred and thirty-one, so is fourteen and 12-20ths to $281\frac{1}{2}$, the cubic inches in the ale gallon; but in effect the ale quart contains $70\frac{1}{2}$ cubic inches, on which principle the ale and beer gallon will be two hundred and eighty-two cubic inches. The several divisions and multiples of these measures, and their proportions, are exhibited in the following tables:

New French Measures.

$225\frac{100}{13}$ boiseau, corn measure -		10 quarters English.
$285\frac{100}{51}$ decalitres, ditto - -		
$3\frac{100}{79}$ hectolitres, liquid measure -		100 gallons English.
$378\frac{100}{67}$ litres, ditto - -		
$76\frac{100}{80}$ aunes, or ells, cloth measure -		100 yards English.
$91\frac{100}{47}$ metres, ditto - -		
$15\frac{100}{64}$ toise, long measure - -		100 feet English.
$93\frac{100}{86}$ pied de roi, ditto - -		
$30\frac{100}{49}$ metre, ditto - -		

English Measure of Capacity for Liquids.

Wine Measure.

Sol. inches	Pint.	Gallon.	Runlet.	Barrel.	Tierce.	Hhd.	Pun.	Butt.	Tun.
$28\frac{7}{8}$									
231	8								
4158	144	18							
$7276\frac{1}{2}$	252	$31\frac{1}{2}$	$1\frac{3}{4}$						
9702	336	42	$2\frac{1}{3}$	$1\frac{1}{3}$					
14553	504	63	$3\frac{1}{2}$	2	$1\frac{1}{2}$				
19279	672	84	$4\frac{2}{3}$	$2\frac{2}{3}$	2	$1\frac{1}{3}$			
29106	1008	126	7	4	3	2	$1\frac{1}{2}$		
58212	2016	252	14	8	6	4	3	2	

Jewish Measures of Capacity for Liquids, reduced to English Wine-measure.

							Gall.	Pints.	Sol. inch.
Caph							0	$0\frac{5}{6}$	0.177
$1\frac{1}{3}$	Log						0	$0\frac{5}{6}$	0.211
$5\frac{1}{3}$		Cab					0	$3\frac{1}{3}$	0.844
16	12	3	Hin				1	2	2.533
32	24	6	2	Seah			2	4	5.067
96	72	18	6	3	Bath, or Epha		7	4	15.2
960	720	180	60	30	10	Coron or Chomer	75	5	7.625

Roman Measures of Capacity for things dry, reduced to English Corn-measure.

							Peck.	Gal.	Pint.	Sol.in.Dec.
Ligula							0	0	0 $\frac{1}{48}$	0.01
4	Cyathus						0	0	0 $\frac{1}{12}$	0.04
6	$1\frac{1}{2}$	Acetabulum					0	0	0$\frac{1}{8}$	0.06
24	6	4	Hemina				0	0	0$\frac{1}{2}$	0.24
48	12	8	2	Sextarius			0	0	1	0.48
384	96	64	16	8	Semimodius		0	1	0	3.84
768	192	128	32	16	2	Modius	1	0	0	7.68

Roman Measures of Capacity for Liquids, reduced to English Wine-measure.

									Gal.	Pts.	Sol.in.Dec.
Ligula									0	0$\frac{1}{48}$	0.117$\frac{5}{12}$
4	Cyathus								0	0$\frac{1}{12}$	0.469$\frac{2}{3}$
6	$1\frac{1}{2}$	Acetabalum							0	0$\frac{1}{8}$	0.704$\frac{1}{2}$
12	3	2	Quartarius						0	0$\frac{1}{4}$	1.409
24	6	4	2	Hemina					0	0$\frac{1}{2}$	2.818
48	12	8	4	2	Sextarius				0	1	5.636
288	72	43	24	12	6	Congius			0	7	4.942
1152	288	192	96	48	24	4	Urna		3	4$\frac{1}{2}$	5.33
2304	576	384	192	96	48	8	2	Amphora	7	1	10.66
46080	11520	7680	3840	1920	960	160	40	20 Cuelus	143	3	11.095

Attic Measures of Capacity for things dry, reduced to English Corn-measure.

							Peck.	Gal.	Pint.	Sol. in. Dec.
Cochliarion							0	0	0	0.276$\frac{7}{10}$
10	Cyathos						0	0	0	2.763$\frac{1}{2}$
15	$1\frac{1}{2}$	Oxybaphon					0	0	0	4.144$\frac{3}{4}$
60	6	4	Cotyle				0	0	0	16.579
120	12	8	2	Xestes			0	0	0	33.158
180	18	12	3	$1\frac{1}{2}$	Choenix		0	0	1	15.705$\frac{3}{4}$
8640	864	576	144	72	48	Medimnos	4	0	6	3.501

Attic Measures of Capacity for Liquids, reduced to English Wine-measure.

										Gal.	Pts.	Sol. in. Dec.
Cochliarion										0	$\frac{1}{120}$	$0.0356\frac{5}{12}$
2	Cheme									0	$\frac{1}{60}$	$0.0712\frac{5}{6}$
$2\frac{1}{2}$	$1\frac{1}{4}$	Mystron								0	$\frac{1}{48}$	$0.089\frac{11}{48}$
5	$2\frac{1}{2}$	2	Conche							0	$\frac{1}{24}$	$0.178\frac{11}{24}$
10	5	4	2	Cyathos						0	$\frac{1}{12}$	$0.356\frac{11}{12}$
15	$7\frac{1}{2}$	6	3	$1\frac{1}{2}$	Oxybaphon					0	$\frac{1}{8}$	$0.535\frac{3}{8}$
60	30	24	12	6	4	Cotyle				0	$\frac{1}{2}$	$2.141\frac{1}{2}$
120	60	48	24	12	8	2	Xestes			0	1	4.283
720	360	288	144	72	48	12	6	Chous		0	6	25.698
8640	4320	3416	1728	864	576	144	72	12	Metretes	10	2	19.629

Scripture Measures of Capacity for things dry, reduced to English Corn-measure.

									Peck.	Gal.	Pts.	Sol. in. Dec.
Gachal									0	0	$0\frac{17}{120}$	0.031
20	Cab								0	0	$2\frac{5}{6}$	0.073
36	$1\frac{4}{5}$	Gomor							0	0	$5\frac{1}{10}$	1.211
120	6	$3\frac{1}{3}$	Seah						1	0	1	4.036
360	18	10	3	Epha					3	0	3	12.107
1800	90	50	15	5	Leteeh				16	0	0	26.500
3600	180	100	30	10	2	Chomer, or Coron			32	0	1	18.969

Beer and Ale-measure.

Pints.					
8	Gallon.				
72	9	Firkin.			
144	18	2	Kilderkin.		
288	36	4	2	Barrel.	
576	72	8	4	2	Hogshead.

English Dry or Corn measure.

Solid inches.					
33.6	Pint.				
268.8	8	Gallon.			
537.6	16	2	Peck.		
2150.4	64	8	4	Bushel.	
17203.2	512	64	32	8	Quarter.

English Measure of Length.

Barley corns.										
3	Inch.									
9	3	Palm.								
27	9	3	Span.							
36	12	4	$1\frac{1}{3}$	Foot.						
54	18	6	2	$1\frac{1}{2}$	Cubit.					
108	36	12	4	3	2	Yard.				
180	60	20	$6\frac{2}{3}$	5	$3\frac{1}{3}$	$1\frac{2}{3}$	Pace.			
216	72	24	8	6	4	2	$1\frac{1}{5}$	Fathom.		
594	198	66	22	$16\frac{1}{2}$	14	$5\frac{1}{2}$	$3\frac{3}{10}$	$2\frac{3}{4}$	Pole.	
23760	7920	2640	880	660	440	220	132	110	40	Furlong.
190080	63360	21120	7040	5230	3520	1760	1056	880	320	8 Mile.

English Square-measure.

Inches.					
144	Foot.				
1296	9	Yard.			
3600	25	$2\frac{7}{9}$	Pace.		
39204	$272\frac{1}{4}$	$30\frac{1}{4}$	10.89	Pole.	
1568160	10890	1210	$435\frac{7}{6}$	40	Rood.
6272640	43560	4840	1743.6	160	4 Acre.

N. B. The English square or superficial measures are raised from the yard of 36 inches multiplied into itself, and thus producing 1296 square inches in the square yard: the divisions of this are square feet and inches; and the multiples, poles, roods, and acres, as in the above table.

Roman Square-measure reduced to English.

☞ *The integer was the jugeum or acre, which the Romans divided like the libra or as: thus, the jugeum contained,*

	Square feet.	Scrup.	Eng. roods.	Square poles.	Square feet.
As -	28800	288	2	18	250.05
Deunx -	26400	264	2	10	183.85
Dextans	24000	240	2	2	117.64
Dodrans	21600	216	1	34	51.42
Bes	19200	192	1	25	257.46
Septunx	16800	168	1	17	191.25
Semis -	14400	144	1	9	125.03
Quincunx	12000	120	1	1	58.82
Triens -	9600	96	0	32	264.85
Quadrans	7200	72	0	24	198.64
Sextans -	4800	48	0	16	132.43
Uncia	2400	24	0	8	66.21

A TABLE of FOREIGN MEASURES, shewing their EXACT CONTENTS in ENGLISH MEASURE.

Alicant.	The cahiz or caffisse, corn measure = 7 Winchester bushels.
	The cantara, liquid measure = 3 gallons English.
	The vara, cloth measure, 107 varas = 100 yards ditto.
Amsterdam.	The last, corn measure = $10\frac{1}{2}$ quarters Winchester.
	The aum of 56 stoops, liquid measure = 39 gallons English.
	The virtel, 30 virtels, ditto = 58 ditto.
	The quardeel, of 90 stoops, ditto = 100 ditto.
	The aun or ell, cloth measure, $1\frac{5}{8}$ aun = 1 ell English.
Antwerp, Brussels, &c.	The hectrolitre, corn measure, $30\frac{3}{4}$ hectrolitres = $10\frac{1}{2}$ quarters Winchester.
	The litre, liquid measure, $3\frac{3}{4}$ litres = 1 gallon English.
	The aune or ell, cloth measure = $\frac{3}{4}$ yard ditto.
Archangel.	*See* Petersburg.
Augsburg.	The schaf, corn measure, $6\frac{1}{2}$ schafs = $10\frac{1}{2}$ quarters Winchester.
Barcelona.	The quartera, corn measure = 2 bushels ditto.
	The pipa of wine or brandy, called the regular pipe = 118 gallons English.
Bayonne.	*See* Paris.
Bergen.	The last, corn measure, sold per barrel = 4 bushels Winchester.
	The ell, cloth measure = 24 inches English.
	The palm, timber measure = $41\frac{7}{8}$ lines English.
Berlin.	The scheffel, corn measure, $52\frac{1}{4}$ scheffels = 10 quarters Winchester.
Bilboa.	The fanega, ditto, 50 fanegas = 10 ditto.
Bologna.	The corba, ditto, $38\frac{3}{4}$ corbas = 10 ditto.
	The Corba, liquid measure, $5\frac{100}{13}$ corbas = 100 gallons English.
Bourdeaux.	The hectol, corn measure = $26\frac{4}{75}$ parts, ditto.
	The boisseau, ditto = 2 bushels English.
	The litre, liquid measure, $1\frac{1}{20}$ Paris pints, 4 Paris pints = 1 gallon English.
	Three hectols and 80 libras of brandy = $100\frac{1}{2}$ ditto.
	The velt = $1\frac{15}{16}$ ditto.
	The metre, cloth measure = 39 inches English.
Bremen.	The last, corn measure = 11 quarters Winchester.
	The vertel, 30 vertels, liquid measure = 58 gallons English.
	The barrel, oil measure, 8 barrels = 1 tun English.
Breslaw.	The scheffel, corn measure, $40\frac{100}{89}$ scheffels = 10 quarters Winchester.
	The eimer of 80 quarts, liquid measure, $545\frac{100}{67}$ quarts = 100 gallons English.
	The ell, cloth measure, $166\frac{1}{3}$ ells = 100 yards English.
Cadiz.	The fanega, corn measure, 5 fanegas = 1 quarter Winchester.
	The fanega of Coca = 110lb. English.
	For other measures, see Spain.
Cologne.	The malter, corn measure, $17\frac{1}{2}$ malters = 10 quarters Winchester.
	The viertel, liquid measure, $63\frac{1}{3}$ viertels = 100 gallons English.
	The grosse ell, The kleine ell } cloth measure. { $131\frac{1}{4}$ grosse ells. or $159\frac{1}{3}$ kleine ells. } = 100 yards Eng.
Constantinople.	*See* Smyrna.
Copenhagen.	A barrel of alum or salt = 112lb. English.
	A barrel of corn = half quarter Winchester.
	A barrel of oil = 34 gallons English.
	A vertel, liquid measure = 2 gallons English.
	The ell or aun = 2 feet ditto.
Corsica.	The stajo, corn measure, 29 stajos = 10 quarters Winchester.
Cyprus.	The medimno, corn measure, $39\frac{100}{17}$ medimnos = 10 ditto.
Dantzic.	The last of wheat, &c. = $10\frac{1}{4}$ ditto, or 82 Winchester bushels.
Elsinore.	*See* Copenhagen.
Florence.	The staji, corn measure, $120\frac{1}{2}$ staji = 10 quarters English.
	The barile, oil measure, 12 barile = 100 gallons ditto.
	The barile, wine measure, $9\frac{1}{2}$ barile = 100 ditto.
	The fiaschi, liquid measure, 191 fiaschi = 100 ditto.
	The boccali, ditto, 382 boccali = 100 ditto.
Frankfort on the Maine.	The malter, corn measure, $26\frac{100}{46}$ malters = 10 quarters Winchester.
	The viertel, wine measure, $51\frac{1}{3}$ viertels = 100 gallons English.
	Three different ells are used here for measuring cloth, viz.
	The Frankfort ell, $169\frac{1}{2}$ ells = 100 yards English.
	The Brabant ell, $132\frac{1}{3}$ ells = 100 ditto.
	The Paris, aune or ell, 77 ells = 100 ditto.

Galippoli.	*See* Naples.
Geneva.	The coupe, corn measure, $36\frac{100}{80}$ coupes = 10 quarters Winchester.
	The char, wine measure, 1 char = 100 gallons English.
	The ell, cloth measure, 80 ells = 100 yards English.
Genoa.	The mina of 8 quarters, corn measure, $24\frac{100}{51}$ = 10 quarters Winchester.
Gottenburg.	*See* Stockholm.
Hamburgh.	The last, corn measure = $11\frac{1}{2}$ quarters Winchester.
	The viertel, liquid measure = 2 gallons English.
	The steck, ditto, $19\frac{1}{2}$ steck = 252 ditto.
	The ell, cloth measure, 83 ells = 52 yards English.
Hanover.	The himten, corn measure, $91\frac{3}{4}$ himtens = 10 quarters Winchester.
	The last of corn = 96 hintens of Brunswick.
	The stubgen, wine measure, $97\frac{1}{2}$ stubgens = 100 gallons English.
	The tonne, beer measure, $3\frac{3}{4}$ tonne = 100 ditto.
	The tonne, honey measure, $3\frac{100}{82}$ tonne = 100 ditto.
	The ell, cloth measure = 2 feet English.
Japan.	The ink or fatumy, cloth measure, $48\frac{100}{13}$ inks = 100 yards ditto.
Konigsberg	The last, of $56\frac{1}{2}$ scheffels, corn measure = 85 bushels Winchester.
	The ell, cloth measure, $137\frac{1}{5}$ ells = 100 yards English.
Lyons.	The anée, corn measure, $13\frac{100}{90}$ anées = 10 quarters Winchester.
	The pot, wine measure, $397\frac{1}{2}$ pots = 100 gallons English.
	The aune or ell, cloth measure, $78\frac{1}{4}$ aunes = 100 yards English.
Leghorn.	The sack, corn measure, 4 sacks = 1 quarter Winchester, less 4 per cent.
	The canna of 4 braccio, cloth measure, 155 braccio = 100 yards English.
	The barrel, oil measure, 28 barrels = 1 tun of 236 gallons English.
Leipsic.	The scheffel, corn measure, $20\frac{1}{2}$ scheffels = 10 quarters Winchester.
	The eimer, wine measure, 5 eimers, or $314\frac{3}{4}$ kannen = 100 gallons English.
	The ell, cloth measure, $161\frac{3}{4}$ ells = 100 yards English.
Libau.	The loof, corn measure, $45\frac{100}{62}$ loofs = 10 quarters Winchester.
	For other measures, *see* Riga.
Lisbon.	The alquire, corn measure, $2\frac{1}{2}$ alquires = 1 bushel English.
	The almude, liquid measure, 100 almudes = 437 gallons ditto.
	The muid, salt measure, 1 muid = $32\frac{1}{2}$ bushels ditto.
	The pipe, coal measure, 1 pipe of Newcastle coal = $\frac{1}{9}$ of 1 kell ditto.
	The vara, cloth measure, 5 varas = 6 yards ditto.
	The covado, ditto, 27 covados = 20 yards ditto.
Lisle.	The raziere, corn measure, $40\frac{1}{5}$ razieres = 10 quarters ditto.
	The lot, liquid measure, $180\frac{1}{2}$ lots = 100 gallons ditto.
	The aune or ell, cloth measure, 130 aunes = 100 yards ditto.
Lubeck.	The last, of 96 scheffels, corn measure, 95 scheffels = $10\frac{1}{4}$ quarters ditto.
	The ell, cloth measure, 14 ells = 9 yards ditto.
Lucca.	The stajo, corn measure, $116\frac{1}{2}$ stajos = 10 quarters ditto.
	The copa, oil measure, $3\frac{100}{79}$ copas = 100 gallons ditto.
	The braccio, cloth measure, 151 braccio = 100 yards ditto.
	The braccio, silk measure, $158\frac{100}{10}$ ditto = 100 ditto.
Madeira.	The alquire, corn measure, 255 alquires = 10 quarters ditto.
Majorca.	The quartera, corn measure, $42\frac{100}{10}$ quarters = 10 ditto.
	The cortan, oil measure, $91\frac{100}{80}$ cortans = 100 gallons ditto.
	The canna, cloth measure = $1\frac{7}{8}$ yards ditto.
Malaga.	The fanega, corn measure, 5 fanegas = 1 quarter Winchester.
	The heaped fanega, ditto = $1\frac{1}{3}$ struck measure.
Malta.	The salm, corn measure = $8\frac{1}{8}$ bushels Winchester.
	The caffies, liquid measure = $5\frac{1}{4}$ gallons English.
	The barrel, ditto = 11 ditto.
	The cane, cloth measure, is divided into 8 palms = $10\frac{1}{4}$ inches English each.
Mantua.	The staro, corn measure, 82 staros = 10 quarters ditto.
	The braccio, cloth measure, $196\frac{100}{53}$ braccios = 100 yards ditto.
	The moggio, oil measure, $3\frac{100}{40}$ moggios = 100 gallons ditto.
Marseilles.	The velt, brandy and wine measure = $1\frac{5}{16}$ gallons ditto.
Memel.	The last, of $56\frac{1}{2}$ scheffels, corn measure = $10\frac{1}{2}$ quarters Winchester.
	The ell, cloth measure, $137\frac{1}{5}$ ell = 100 yards English.
	The scheffel, corn measure, $2\frac{1}{2}$ scheffels of linseed = 1 barrel ditto.
Milan.	The moggio, corn measure, $20\frac{2}{3}$ moggios = 10 quarters ditto.
	The braccio, cloth measure, $135\frac{1}{4}$ braccios = 100 yards ditto.
	The braccio, silk measure, $170\frac{1}{2}$ ditto = 100 ditto.
Minorca.	The quartillos, liquid measure, 66 quartillos = 100 gallons English.
Mocha.	The gudda, liquid measure = 2 gallons ditto.
	The coved, long measure = 18 inches ditto.

Mocha. The guz, long measure = 27 inches English

Modena. The stajos, corn measure, $40\frac{100}{67}$ stajos = 10 quarters English.
The braccio, cloth measure, $142\frac{3}{4}$ braccios = 100 yards ditto.

Montpellier. The settier, corn measure, $55\frac{100}{86}$ settiers = 10 quarters ditto.
The muid of 576 pots, wine measure, $360\frac{1}{4}$ pots = 100 gallons ditto.
The charge of 128 pots, oil measure, $323\frac{3}{4}$ pots = 100 ditto.
The canne, cloth measure, $45\frac{100}{66}$ cannes = 100 yards ditto.

Morocco. The fanega, corn measure, $52\frac{100}{67}$ fanegas = 10 quarters ditto.
The covados, cloth measure, $181\frac{1}{2}$ covados = 100 yards ditto.

Munich. The schaff, corn measure, $7\frac{100}{88}$ schaffs = 10 quarters ditto.
The ell, cloth measure, $109\frac{1}{2}$ ells = 100 yards ditto.

Munster. The schaffel, corn measure, $99\frac{100}{57}$ scheffels = 10 quarters ditto.
The kanne, liquid measure, $110\frac{1}{2}$ kannes = 100 gallons ditto.

Nantes. The tonneau, corn measure, $1\frac{100}{14}\frac{1}{4}$ tonneau
The setier, ditto, or $11\frac{100}{42}\frac{1}{2}$ setiers } = 10 quarters ditto.
The aune or ell, cloth measure, 68 aunes = 100 yards ditto.

Naples. The tormoli of 45 to 48 rotoli, corn measure = $19\frac{1}{2}$ quarters ditto.
The salm, oil measure, $5\frac{1}{2}$ salems = 1 tun of 236 gallons ditto.
The pipe of wine or brandy = 132 gallons ditto.

Narva. *See* Petersburgh.

Nice. The stajo, corn measure, 74 staji = 10 quarters ditto.
The palmo, cloth measure, $146\frac{1}{2}$ palmos
The raso, ditto, or $166\frac{1}{2}$ rasos } = 100 yards ditto.

Oporto. The milhero of salt = 10 tons ditto.
For other measures, see Lisbon.

Osnaburg. The scheffel, corn measure, $99\frac{1}{2}$ scheffels = 10 quarters ditto.
100 scheffels make the last.
The fuder of 672 cannes, liquid measure, $310\frac{1}{2}$ kannes = 100 gallons do.

Paris. The boisseau, corn measure, $225\frac{100}{13}$ boisseau
The decalitre, ditto, or $285\frac{100}{64}$ decalitre } = 10 quarters ditto.
The hectolitre, liquid measure, $3\frac{100}{79}$ hectolitres
The litre, ditto, $378\frac{100}{69}$ litres } = 100 gallons ditto.
The aune, cloth measure, $76\frac{100}{80}$ aunes
The metre, ditto, or $91\frac{100}{47}$ metres } = 100 yards ditto.
The toise, long measure, $15\frac{100}{64}$ toises
The pied de roi, ditto, $93\frac{100}{86}$ pied de roi
The metre, ditto, $30\frac{100}{49}$ metre } = 100 feet ditto.

Parma. The quartarole, corn measure, of 1 staro = 102lb. of Parma.
The braccio, cloth measure, $167\frac{1}{3}$ braccios = 100 yards English.

Patras. The staro, corn measure, $34\frac{100}{81}$ staros = 10 quarters ditto.
The pike, cloth measure, $133\frac{1}{3}$ pikes
The pike, silk ditto, 144 ditto } = 100 yards ditto.

Pernau. The loof, corn measure, $43\frac{100}{25}$ loofs = 10 quarters English.
The tonne of salt = 1 last ditto.
The tonne of linseed, or 24 loofs = 1 ditto.
The ell, cloth measure, $166\frac{3}{4}$ ells = 100 yards ditto.

Petersburgh The chetwert, corn measure = $5\frac{3}{20}$ bushels Winchester.
16 chetwerts = 1 last.
The arsheen, cloth measure, 9 arsheens = 7 yards English.
The kruska, beer measure, 3 kruskas = 1 gallon ditto.

Ratisbon. The metzen, corn measure, 87 metzens = 10 quarters English.
32 ditto of wheat = 1 schaf.
56 ditto of oats = 1 ditto.
The viertel, wine measure, $106\frac{100}{70}$ viertels = 100 gallons English.
The ell, cloth measure, $112\frac{100}{80}$ ells = 100 yards ditto.

Revel. The last, corn measure, or $24\frac{3}{4}$ tonnen = 10 quarters Winchester.
The ell, cloth measure, 171 ells = 100 yards English.

Riga. The last of wheat or barley, of 48 loofs = $11\frac{1}{4}$ quarters Winchester.
The last of Liverpool salt = $2\frac{1}{2}$ tons English.
The ell, cloth measure = 24 inches ditto.

Rio Janeiro. *See* Lisbon.

Rochelle. The tonneau of 42 boisseau, corn measure, $2\frac{100}{7}$ tonneau = 10 quarters do.
24 Boisseau = 1 muid.
28 muids = 1 cent of salt.
The velt, liquid measure, $51\frac{100}{67}$ velts of brandy = 100 gallons English.

Rome. The rubbo, corn measure, $10\frac{100}{41}$ rubbos = 10 quarters ditto.
The boccali, wine measure, $289\frac{100}{49}$ boccali = 100 gallons do.
The canna, linen measure, $43\frac{100}{77}$ cannas = 100 yards ditto.

The canna, cloth and silk measure, 46 cannas = 100 yards English.
The braccio, linen measure, 144 braccios = 100 yards ditto
The braccio, cloth and silk measure, $107\frac{100}{86}$ ditto = 100 yards ditto.

Rostock. The last of wheat of 96 scheffels = $13\frac{1}{2}$ quarters ditto.
The last of oats = 15 ditto.
The ell of Rostock, $158\frac{100}{15}$ ells = 100 yards ditto.
For other measures, see Hamburgh.

Rotterdam. *See* Amsterdam.

Rouen. The setiers, corn measure, $15\frac{100}{98}$ setiers } = 10 quarters ditto.
The boisseau, ditto, $127\frac{100}{83}$ boisseaus }
The aune, cloth measure, $78\frac{100}{58}$ aunes } = 100 yards ditto.
The aune, linen measure, $65\frac{100}{49}$ ditto }

St. Malo. The tonneau of $31\frac{1}{4}$ boisseau, corn measure $2\frac{100}{7}$ tonneau = 10 quarters do
The tonneau of 21 juttes of salt = 2600 lb. ditto.
The aune, cloth measure, $67\frac{100}{90}$ aunes = 100 yards ditto.

St. Sebastian. *See* Cadiz.

Santa Cruz. *See* Copenhagen.

Sardinia. The starello, corn measure, $58\frac{100}{31}$ starellos = 10 quarters ditto.
The palmos, cloth measure, $364\frac{1}{3}$ palmos = 100 yards ditto.

Sayd. The pike, cloth measure, $151\frac{100}{27}$ pikes = 100 yards ditto.

Seville. *See* Cadiz.

Smyrna. The pike, cloth measure, = $\frac{3}{4}$ yard ditto.

Spain. 12 fanegas, 48 quartillas, or 144 celemines, corn measure = 1 cahiz.
The fanega, corn measure, $52\frac{100}{67}$ fanegas, or $631\frac{100}{30}$ celemines = 10 quarters English.
The moyos, wine measure, $1\frac{100}{52}$ moyos, }
The cantaras, ditto, $24\frac{100}{39}$ cantaras, }
The azumbres, ditto, $195\frac{100}{14}$ azumbres, } = 100 Gallons ditto.
The quartillos, ditto, $780\frac{100}{40}$ quartillos, }
The arrobas, oil measure, $31\frac{100}{22}$ arrobas, }
The quartillas, ditto, $124\frac{100}{36}$ quartillos, } = 100 gallons, ditto.
The libras, ditto, $780\frac{100}{40}$ libras, }
The vara, cloth measure, $109\frac{100}{30}$ varas, = 100 yards ditto.

Stettin. The last of 96 scheffels, corn measure, = $14\frac{3}{4}$ quarters Winchester.
The berg scheffels, coal measure, $34\frac{1}{3}$ = 1 chaldron English.
The ell, cloth measure, 14 ells = 9 yards ditto.
The foot, long measure, 31 feet = 32 feet ditto.

Stockholm. The tuma, corn measure, 23 tumas = $10\frac{1}{2}$ quarters, ditto.
The ell, cloth measure, 57 ells = 37 yards ditto.

Stralsund. The scheffell, corn measure, $66\frac{100}{78}$ scheffels of wheat, } = 10 quarters do
The scheffell, ditto, $62\frac{100}{95}$ ditto of oats, }
The last of wheat = $14\frac{3}{8}$ ditto.
The last of oats = $15\frac{1}{8}$ ditto.
The stubgen, liquid measure, $97\frac{1}{2}$ stubgens = 100 gallons ditto.

Strasburg. The sester, corn measure, 156 sester *city measure*, or } = 10 quarters ditto.
$151\frac{1}{4}$ ditto country measure, }
The schoppen, liquid measure, $780\frac{100}{80}$ schoppens = 100 gallons ditto.
The ell, cloth measure, $76\frac{100}{80}$ } = 100 yards ditto.
The ell braches, ditto, $169\frac{100}{68}$ }

Teneriffe. *See* Spain.

Toulon. The emine, corn measure, 28 emines = 10 quarters English.
The millerolle, liquid measure, $5\frac{100}{88}$ millerolles = 100 gallons ditto.
The canne, cloth measure, $47\frac{100}{17}$ cannes = 100 yards ditto.

Trieste. The stara, corn measure, = 29 quarters ditto.
The orna, oil measure, = $5\frac{1}{2}$ casissi, or 107 lb. wt. = 17 gallons, English nearly, or 1414 lb. at Trieste = 236 gallons of oil.

Tripoli. The caffisse, corn measure, $8\frac{3}{4}$ caffisse = 10 quarters English.
The mataro, oil measure, $16\frac{100}{80}$ mataro = 100 gallons ditto.
The pike, cloth measure, $165\frac{100}{58}$ pikes = 100 yards ditto.

Tunis. The caffisse, corn measure, $7\frac{100}{98}$ caffisses = 10 quarters ditto.
The mataro, oil measure, 20 mataros, } = 100 gallons ditto.
The mataro, wine measure, 40 mataros }
The pike, cloth measure, $135\frac{100}{193}$ pikes }
The pike, silk measure, 145 ditto, } = 100 yards ditto.
The pike, linen measure, $193\frac{1}{3}$ ditto, }

Turin. The emine, corn measure, $149\frac{100}{18}$ emines = 10 quarters ditto.
The pinti, liquid measure, $241\frac{100}{89}$ pintis = 100 gallons ditto.

The raso, cloth measure, $151\frac{100}{53}$ rasos = 100 yards English.

Valencia. *See* Spain.

Venice. The staro, or stajo of wheat, $35\frac{100}{27}$ staros = 10 quarters English.
The migliajo of 40 miri, oil measure, 24 miri = 100 gallons ditto.
The secchie, wine measure, $38\frac{100}{36}$ secchie = 100 gallons ditto.
The brachi cloth measure, $137\frac{100}{19}$ brachi, } = 100 yards ditto.
The brachi, silk measure, $145\frac{3}{4}$ ditto, }

Verona. The minella, of wheat, $77\frac{1}{2}$ minellas = 10 quarters ditto.
The brenta, of 8 bassi, wine measure, $83\frac{100}{77}$ bassi = 100 gallons ditto.
The brachi, cloth measure, $145\frac{3}{4}$ brachi = 100 yards ditto.
The migliajo, of 40 miri, of oil weighs 1738 ℔. peso sottille.

Vienna. The metzen, corn measure, $40\frac{100}{74}$ metzen = 10 quarters English
The eimer, liquid measure $6\frac{100}{39}$ eimers } = 100 gallons ditto.
The maas, ditto, $255\frac{100}{72}$ maas, }
The ell, or aune, cloth measure, $117\frac{100}{71}$ ells = 100 yards ditto.

Ulm. The metzen, corn measure, $298\frac{1}{4}$ metzens = 10 quarters ditto.
The ell, cloth measure, $160\frac{100}{90}$ ells = 100 yards ditto.

Wismar. The scheffel, corn measure, $69\frac{100}{81}$ scheffels = 10 quarters ditto.
The ell, cloth measure, $156\frac{100}{92}$ ells = 100 yards ditto.

Zell. The scheffel, corn measure, $9\frac{100}{19}$ scheffels = 10 quarters ditto.
The stubgen, liquid measure, $97\frac{100}{47}$ stubgens = 100 gallons ditto.
The ell, cloth measure, $157\frac{100}{17}$ ells = 100 yards ditto.

WELD, or Would, (Ger. *Wau.* Du. *Wouw, Wouwe.* Da. *Vau.* Sw. *Vau, Gaude.* Fr. *Gaude.* It. *Guadarella.* Sp. *Gualda.* Port. *Guada.* Pol. *Tarbownik.* Lat. *Luteola,*) is a plant cultivated in Kent, Herefordshire, and many other parts of this kingdom. It is likewise very common in the environs of Paris, in most of the French provinces, and in a great part of the rest of Europe. It pushes out long narrow leaves, of a lively green: from the midst of these leaves, the stalk rises to the height of three or four feet, frequently branchy, and furnished with leaves, narrow like the radical ones, but shorter as they approach the flowers, which are disposed in long spikes. The whole of the plant is used for dyeing yellow: though some assert, that the seeds only afford the colouring matter.

Two sorts of weld are distinguished: the bastard or wild, which grows naturally in the fields; and the cultivated, the stalks of which are smaller, and not so high. For dyeing, the latter is preferred, it abounding more in colouring matter. The more slender the stalk, the more it is valued.

When the weld is ripe, it is pulled, dried, and made into bundles, in which state it is used. *See* DYEING.

WELDING-HEAT, in smithery, a degree of heat given to iron, &c. sufficient to make any two bars, or pieces, of iron unite by a few strokes of the hammer, and form one piece.

WHALE-FINS. (Ger. *Wallfischbarten, Barten, Baarden.* Du. *Baarden.* Da. and Sw. *Baarder.* Fr. *Fanons, Barbes.* It. *Barbe di ballena.* Sp. *Baubas de ballena.* Port. *Barbas de balea.* Rus. *Ursii y Kita.*) *See* FISHERY.

WHALE-OIL. *See* TRAIN-OIL, and FISHERY.

WHARF, a bank, or quay, for landing goods at, as also for shipping off from. Some are of long standing, and set out by commission from the court of exchequer; others of more recent date by statute, as the London Docks, West India Docks, &c. &c.

WHARFAGE. When a wharfinger receives a sum of money for wharfage, porterage, and sufferage, according to the custom of trade, he is bound to deliver the goods in safety, on board the destined vessel, and is also responsible for any loss or damage that may be sustained through his negligence. For this responsibility, wharfingers are allowed for rent, landing, weighing, or shipping, the following

Wharfinger's Rates.		s.	d.
Landing and weighing Coffee,	each bag	0	2
	under 3 cwt. per cask	0	3
	3 to 5 cwt.	0	4
	5 to 7 cwt.	0	6
	7 cwt. and upwards	0	8
Pimento, the same as Coffee			
Cotton-wool, landing and weighing,	each pocket	0	2
Ditto	per bag	0	3
Fustick	per ton	1	0
Young Fustick	ditto	1	6
Ginger	per bag	0	1
Hemp	per ton	1	3

		s.	d.
Iron, landing and weighing	per cwt.		1
Lignum Rhodium, Lignum Vitæ, and Logwood		1	0
Molasses	per barrel	0	4
Ditto	per puncheon	0	6
Sugar, under 4 cwt.	per cwt.	0	3
Ditto, 4 to 8 cwt.	per ditto	0	6
Tobacco	per hhd.	0	3

Rent per Week

Tobacco, under 6 cwt.		0	2
6 cwt. and under 15 cwt.		0	3
15 cwt. and upwards		0	4
Loading, extra for use of cranes,	per tierce or hhd.	0	3
Shipping same as loading.			

WHEAT, (Ger *Weitzen.* Du. *Tarw.* Da. *Hvede.* Sw. *Hvete.* Fr. *Froment, Bled, Blé.* It. *Grano, Formento.* Sp. and Port. *Trigo.* Rus. *Pscheniza.* Pol. *Pszenica.* Lat. *Triticum,*) a well-known plant, of which there is a great variety of species. Of what country the wheat first introduced into this was a native, is a matter by no means decided; but some recent discoveries seem to intimate that it is of Asiatic origin. What is grown in this country may be divided into two kinds, the smooth or polled, and the rough or bearded. Of each of these there are numerous varieties of established cultivation, and continual additions are almost daily making to them by importation from abroad.

It is customary to set aside, or to purchase for seed-corn, the boldest and plumpest samples that can be obtained; that is, those that contain the most flour; but this is an unnecessary waste of human subsistence; the smallest grains, such as are sifted out before the wheat is carried to market, and either consumed in the farmer's family, or given to his poultry, will be found by experience to answer the purpose of propagating the sort whence they sprang, as effectually as the largest. Every ear of wheat is composed of a number of cups placed alternately on each side of the straw; the lower ones contain, according to circumstances, three or four grains, nearly equal in size, but towards the top of the ear, where the quantity of nutriment is diminished by the supply of those cups that are nearer the root, the third or fourth grain in a cup is frequently defrauded of its proportion, and becomes shrivelled and small. These small grains, which are rejected by the miller, because they do not contain flour enough for his purpose, have, nevertheless, an ample abundance for all purposes of vegetation, and as fully partake of the sap, (or blood, as we should call it in animals,) of the kind which produced them, as the fairest and fullest grain that can be obtained from the bottoms of the lower cups, by the wasteful process of beating the sheaves.

The principal corn countries, from which we draw our supplies of wheat in war-time, are Poland, Prussia, Russia, Germany, Zealand, the coast of Barbary, and the shores of the Black-Sea. North America also furnishes us with abundance, which, however, we usually receive in the form of flour. *See* ASIA, AMERICA, and the corn-countries under the article EUROPE. *See* also FLOUR, and CORN.

WHEEL, *Wheels,* (Ger. *Räder.* Du. *Raders, Wielen.* Da. *Hiul.* Sw. *Hjul.* Fr. *Roues.* It. *Ruote.* Sp. *Ruedas.* Port. *Rodas.* Rus. *Kolessa.* Pol. *Kola,*) in mechanics, a simple machine, consisting of a round piece of wood, metal, or other matter, which revolves on an axis. The wheel is one of the principal mechanic powers; it has place in most engines; in effect, it is of an assemblage of wheels, that most of our engines are composed. With respect to wheels of carriages, the use is two-fold, viz. that of diminishing, or more easily overcoming, the resistance or friction from the carriage; and that of more easily overcoming obstacles in the road. In the first case, the friction on the ground is transferred, in some degree, from the outer surface of the wheel, to its nave and axle; and in the latter, they serve easily to raise the carriage over obstacles and asperities met with on the roads.

In both these cases, the height of the wheel is of material consideration, as the spokes act as levers, the top of an obstacle being the fulcrum, their length enables the carriage more easily to surmount them; and the greater proportion of the wheel to the axle serves more easily to diminish, or to overcome the friction of the axle.

2. The wheels should be exactly round; and the fellies at right angles to the naves, according to the inclination of the spokes.

3. It is the general opinion, that the spokes should be somewhat inclined to the naves, so that the wheels may be dishing, or concave. Indeed, if the wheels were always to roll upon smooth and level ground, it would be best to make the spokes perpendicular to the naves, or to the axles; because they would then bear the weight of the load perpendicularly. But because the ground is commonly uneven, one wheel often falls into a cavity, or rut, when the

other does not, and then it bears much more of the weight than the other does, in which case it is thought best for the wheel to be dished, because the spokes become perpendicular in the rut, and therefore have the greatest strength when the obliquity of the roads throws most of the weight upon them; whilst those on the high ground have less weight to bear, and therefore need not be at their full strength.

4. The axles of the wheels should be quite straight, and perpendicular to the shafts, or to the pole.

5. Large wheels are more advantageous for rolling than small ones, both with regard to their power as a longer lever, to the degree of friction, and to the advantage in getting over holes, &c. &c.

6 It would be much more advantageous to make the four wheels of a coach or waggon nearly of a height.

7. The utility of broad wheels, in preserving the roads, has been so generally believed, as to have occasioned the legislature to enforce their use. At the same time, the proprietors and drivers of carriages seem to be convinced, by experience, that a narrow-wheeled carriage is more easily and speedily drawn by the same number of horses, than a broad-wheeled one of the same burthen; because they have less friction on the axle; and the owners of broad-wheeled waggons contrive, in general, to make them as destructive to roads as narrow-wheeled ones, by making the rim of the wheel of unequal diameters, and the waggon consequently to go generally on a sharp and narrow edge. This, however, had become so obvious, that the legislature interfered, by 55 Geo. 3. c. 119. which enacts, that on all turnpike roads throughout England, any seven or more trustees, at any public meeting holden for purposes respecting their turnpike roads, may make an order to exempt from any, or from all, the tolls for additional weight imposed by former statutes, on condition of the carriages "having the soles or bottoms of the fellies of the wheels of the breadth of six inches, or of nine, or of sixteen inches, or upwards, and being *cylindrical*, that is to say, *of the same diameter, on the inside next the carriage, as on the outside*; so that when such wheels shall be rolling on a level surface, *the whole breadth thereof shall bear equally on such level surface*; and the opposite ends of the axle-trees of such carriages inserted in the naves shall be horizontal, and in the continuance of one short line, and not forming any angle with each other.

WHETSTONE, (Ger. *Wetzstein*. Du. *Wetsteen*. Da. *Hvedsesteen*. Sw. *Brynsten*, *Vettjesten*. Fr. *Pierre à aiguiser*. It. *Pietra d'affilare*. Sp. *Piedra de afilar*. Port. *Pedra de afiar*. Rus. *Totschilnoe kamen*. Port. *Marmuka*. Lat. *Cos*,) is a kind of sand-stone, dug up chiefly in Derbyshire, and other northern counties; it is of a dusky yellow colour, resists the action of acids, though permeable to water, being of a rough and coarse grain: this fossil affords a useful article of trade, and is employed for sharpening knives, &c. &c.

WHITE PEPPER. *See* PEPPER.

WHIP-MAKER This trade is generally combined with that of saddlery. Whips are made with a wooden handle, and whalebone covered with sheep-gut; and the small round plate at top is furnished by the sadler's founder.

WHISKEY, a spirit obtained by distillation from corn, sugar, or molasses, though generally from the former. Whiskey is the *national spirit*, if we may so term it, of Ireland, and Scotland; but that distilled in the latter country is distinguishable from the Irish by a peculiar smoky flavour. *See* DISTILLATION, also IRELAND, under the article EUROPE.

WHITE COPPER. *See* TUTENAG.

WHITE LAC. *See* LAC.

WHITE LEAD. *See* CERUSE.

WHITING, chalk cleared of its grosser impurities, ground in a mill, and made up into small loaves, is sold under the name of *whiting*. This article is used for various purposes domestic, and mechanical.

WHOLESALE, a term used in opposition to retail, implying sale in the lump.

WICKER-WORK. *See* BASKETS.

WILLOW. (Ger. *Weide*, *Weidenbaum*. Du. *Wilg*. Da. *Pül*. Sw. *Pihl*. Fr. *Saule*. It. *Salcio*, *Salgaro*. Sp. *Sauce*, *Salce*. Port. *Salgueiro*, *Sinceiro*. Rus. *Wetla*, *Tal*, *Jwa*. Pol. *Wierzha*. Lat. *Salix*.) The varieties of species of this genus of tree are exceedingly numerous, and all of them highly valuable in different points of view. The wood, or bole, of the willow is useful to the turner, the patten-maker, and picture-frame-maker; also as timber for purposes under water. The larger branches for gates, hurdles, and other agricultural purposes; and the twigs for baskets. The blossoms contain a saccharine juice, which yields an intoxicating liquor on distillation. The leaves of the willow are mentioned by Scheffer, as proper for giving a fine yellow colour to wool, silk, and thread. Bergman asserts, that the leaves of the sweet willow (*laurier saule*), *salix pentandra*, should be employed; and that the leaves of the common willow give a colour, which is for the most part discharged by the sun in a few weeks.

WINDLASS, in a ship, is an instrument in small ships placed upon the deck, just abaft the foremast. It is made of a piece of timber six or eight feet square, in form of an axle-tree, whose length is placed horizontally upon two pieces of wood at the ends, and upon which it is turned about by the help of handspikes put into holes made for that purpose. This instrument serves for weighing anchors, or hoisting of any weight in, or out of, the ship, and will purchase

much more than any capstan, and that without any danger to those who heave; for if in heaving the windlass about, any of the handspikes should happen to break, the windlass would pall of itself.

WIND-MILL, a kind of mill, the internal parts of which are much the same with those of a water-mill; from which, however, it differs, in being moved by the impulse of the wind upon its vanes or sails, which are to be considered as a wheel on the axle. *See* MILL.

WIND-SAILS, in a ship, are made of the common sail-cloth, and are usually between 25 and 30 feet long, according to the size of the ship, and are of the form of a cone ending obtusely; when they are made use of, they are hoisted by ropes to about two-thirds, or more, of their height, with their basis distended circularly by hoops, and their apex hanging downwards in the hatchways of the ship; above each of these, one of the common sails is so disposed, that the greatest part of the air rushing against it is directed into the wind-sail, and conveyed, as through a funnel, into the upper parts of the body of the ship.

WIND-TACKLE-BLOCKS, in a ship, are the main double blocks, which, being made fast to the end of a small cable, serve for hoisting goods into the ship, &c.

To WIND, or WEND, a ship, signifies to bring her head about. How winds or wends a ship? is a question asked by mariners concerning a ship under sail; signifying as much as, upon what point of the compass does she lie with her head?

WINDWARD, in the sea language, denotes any thing towards that point from which the wind blows in respect of a ship: thus windward tide is the tide which runs against the wind.

WIND, *Large*. In the sea language, to sail with a large wind, is the same as with a fair wind.

WINE, (GER. *Wein*. DU. *Wyn*. DA. SW. and FR. *Vin*. IT. and SP. *Vino*. PORT. *Vinho*. RUS. *Wino, Winogradnoe winoe*. POL. *Wino*. LAT. *Vinum*,) is an agreeable spirituous liquor, produced by fermentation from those vegetable substances that contain saccharine matter. A very great number of vegetable substances may be made to afford wine (as well as spirit); as grapes, currants, elder-berries, cherries, apples, pulse, turnips, parsnips, &c. but more particularly, as has been lately discovered, the fruit, or apple, growing at the top of the potatoe-plant.

The appellation of wine is, however, in a more particular manner appropriated to the liquor drawn from the fruit of the common vine, *vitis vinifera*.

Of all substances susceptible of the spirituous fermentation, none is capable of being converted into so good wine, as the juice of the grapes of France, or of other countries that are nearly in the same latitude, or in the same temperature. The grapes of hotter countries, and even those of the southern provinces of France, do indeed furnish wines that have a more agreeable, that is, more of a saccharine taste; but these wines, though they are sufficiently strong, are not so spirituous as those of the provinces near the middle of France; at least, from these latter wines the best vinegar, and brandy, are made. As an example, therefore, of spirituous fermentation in general, we shall describe the method of making wine from the juice of the grapes of France.

This juice, when newly expressed, and before it has begun to ferment, is called must, and in common language sweet wine. It is turbid, has an agreeable, and very saccharine, taste. It is very laxative, and when drunk too freely, or by persons disposed to diarrhœas, it is apt to occasion these disorders. Its consistence is somewhat less fluid than that of water, and it becomes almost of a pitchy thickness when dried.

When the must is pressed from the grapes, and put into a proper vessel and place, with a temperature between fifty-five, and sixty, degrees, very sensible effects are produced in it, in a shorter, or longer, time, according to the nature of the liquor, and the exposure of the place. It then swells, and is so rarefied, that it frequently overflows the vessel containing it, if this be nearly full. An intestine motion is excited among its parts, accompanied with a small hissing noise, and evident ebullition. The bubbles rise to the surface, and at the same time is disengaged a quantity of carbonic acid of such purity, and so subtle and dangerous, that it is capable of killing instantly men, and animals, exposed to it in a place where the air is not renewed. The skins, stones, and other grosser matters of the grapes are buoyed up by the particles of disengaged air that adhere to their surface, are variously agitated, and raised in form of a scum or soft and spongy crust, that covers the whole liquor. During the fermentation this crust is frequently raised, and broken by the air disengaged from the liquor which forces its way through it; afterward the crust subsides, and becomes entire as before.

These effects continue while the fermentation is brisk, and at last gradually cease; then the crust, being no longer supported, falls in pieces to the bottom of the liquor. At this time, if we would have a strong and generous wine, all sensible fermentation must be stopped. This is done by putting the wine into close vessels, and carrying these into a cellar, or other cool place.

After this first operation, an interval of repose takes place, as is indicated by the cessation of the sensible effects of the spirituous fermentation; and thus enables us to preserve a liquor no less agreeable in its taste, than useful for its reviving and nutritive qualities when drunk moderately.

If we examine the wine produced by this first fermentation, we shall find that it differs entirely and essentially from the juice of grapes before fermentation. Its sweet and saccharine taste is changed into one that is very different, though still agreeable, and somewhat spirituous and piquant.

It has not the laxative quality of must, but affects the head, and occasions, as is well known, drunkenness. Lastly, if it be distilled, it yields, instead of the insipid water obtained from must by distillation with the heat of boiling water, a volatile, spirituous, and inflammable liquor called spirit of wine, or alcohol. This spirit is consequently a new being, produced by the kind of fermentation called the vinous or spirituous.

When any liquor undergoes the spirituous fermentation, all its parts seem not to ferment at the same time, otherwise the fermentation would probably be very quickly completed, and the appearances would be much more striking: hence, in a liquor much disposed to fermentation, this motion is more quick, and simultaneous, than in another liquor less disposed. Experience has shown, that a wine, the fermentation of which is very slow and tedious, is never good or very spirituous; and therefore when the weather is too cold, the fermentation is usually accelerated by heating the place in which the wine is made. A proposal has been made by a person very intelligent in economical affairs, to apply a greater than the usual heat to accelerate the fermentation of the wine, in those years in which grapes have not been sufficiently ripened, and when the juice is not sufficiently disposed to fermentation.

The wine is usually taken out of the fermenting vessels, when fermentation has subsided. The mass being settled, the colour of the liquor is well developed, it having become clear, and its heat having disappeared, it is then put into casks, where, by a second less sensible fermentation, the wine is clarified, its principles combine more perfectly together, and its taste and smell become still more perceptible. If this fermentation be stopped, the gaseous principles are retained, the wine is brisker, and more of the nature of must.

In France, as well as in most of the other wine countries, it is usual to drink the wine in its pure state, or just as it is produced by the grape, without any foreign mixture; and this is so generally practised, that wine in this state has obtained the appellation of *table-wine*, being drunk as freely, as beer is amongst the English. When, however, wine is intended for exportation, it is always necessary, in order to its enduring the sea-voyage, to qualify it, or give it body by brandy. This is more frequently practised in Spain, and Portugal, than in France; and the proportion of brandy employed by the Spanish, and Portuguese, is far greater than that employed by the French. It is not very unusual with many dealers in wine, in this country, to add a certain portion of brandy to the foreign wines which they import, more particularly if they find, on landing them, that they are thin, poor, or green. In Spain, and Portugal, the best wines are invariably *made up* with French brandy, but those of an inferior quality are usually coopered with Spanish, or Portuguese, spirit. The addition of brandy ought to take place as soon as may be, after the second fermentation, to the end that the spirit and wine may have due time to become incorporated, and to meliorate each other, prior to the exportation of the article.

To give a deep-red colour to wine, it is necessary to make use of black grapes, and to leave them fermenting in their mashed state, previous to the pressing.

The colour of wine is, however, frequently artificial; a deep red is almost always the effect of foreign additions, as red-wood, log-wood, elder-berries, bilberries, &c. In France, no secret is made of these practices, the colouring matters being publicly thrown out after they have been used.

A common practice is, to throw sugar of lead, and alum, among sour wine, in order to sweeten it. These substances being extremely detrimental, it becomes of importance to be able to detect them, when mixed with wine. For this purpose, the following test is furnished.

Mix equal parts of oyster-shells, and crude sulphur in fine powder, put them into a crucible in a wind furnace, bring it suddenly to a white heat, and keep it thus a quarter of an hour. When cold powder it, and keep it in bottles closely stopped. Into a strong bottle put two drachms of this powder, and as much cream of tartar; fill the bottle with water; boil it for an hour, and let it cool: stop the bottle close, shake it well for some time, and then let it settle. Decant the clear liquor into ounce phials, into which twenty drops of muriatic acid have been previously put; and stop them very close with wax, softened with a small portion of turpentine. One part of this liquor, mixed with three of wine, will show the least trace of lead, copper, &c. by a very sensible black precipitate.

For the countries that produce wine, we must refer the reader to article EUROPE.

Wine dealers distinguish the article in which they traffic into two general descriptions; namely, *sweet* or *luscious wines*, and *dry wines*, or such as are not sweet. The latter are aptly denominated *vins de grave* by the French.

On landing wines in this country, the less they are exposed the better, for they are affected by the seasons, and more or less by the weather. The great art of keeping wines is, to prevent their fretting, which is done by keeping them in the same degree of heat.

For the mode of fining or clarifying wine, *see* REFINING.

The greatest proportion of the wines consumed in this country, is brought from Spain, and Portugal, particularly the latter kingdom; government having always discouraged the importation of French wines by heavy taxes. It is not our province to decide how far these prohibitory laws are founded on good policy. The French wines are certainly the most wholesome, and might be the cheapest.

The consumption of German, French, and Italian wines, is but trifling in Great Britain.

WINE-COOPER, one whose profession it is to *cooper* or *make up* wines, to repair the vessels which contain them, and to taste and even purchase, the article on account of the merchant.

WINE, *Spirit of. See* SPIRIT OF WINE, and ALCOHOL.

WIRE, (Ger. *Draht.* Du. *Draad.* Da. *Traad.* Sw. *Tråd.* Fr. *Fil d'archal.* It. *Filo.* Sp. *Hilo.* Port. *Fio.* Rus. *Prowoloka.* Pol. *Drot,*) a piece of metal drawn through the hole of an iron into a thread of a fineness answerable to the hole it passed through.

Wires are frequently drawn so fine, as to be wrought along with other threads of silk, wool, flax, &c.

The metals most commonly drawn into wire, are gold, silver, copper, and iron; but platina, brass, and zinc, are also drawn into it occasionally.

Gold wire is made of cylindrical ingots of silver, covered over with a skin of gold, and thus drawn successively through a vast number of holes, each smaller and smaller; till at last it is brought to a fineness exceeding that of a hair. That admirable ductility which makes one of the distinguishing characters of gold, is no where more conspicuous than in this gilt wire. A cylinder of forty-eight ounces of silver, covered with a coat of gold, only weighing one ounce, as Dr. Halley informs us, is usually drawn into a wire, two yards of which weigh no more than one grain; whence ninety-eight yards of the wire weigh no more than forty-nine grains, and one single grain of gold covers the ninety-eight yards, so that the ten-thousandth part of a grain is above one-eighth of an inch long.

Silver wire is the same with gold wire, except that the latter is gilt, or covered with gold, and the other is not.

There are also counterfeit gold, and silver, wires; the first made of a cylinder of copper, silvered over, and then covered with gold: and the second of a like cylinder of copper, silvered over, and drawn through the iron, after the same manner as gold and silver wire.

Brass wire is drawn after the same manner as the former. Of this there are divers sizes, suited to the different kinds of works. The finest is used for the strings of musical instruments, as harpsichords, &c.

The pin-makers likewise use vast quantities of brass wire to make their pins of.

Iron wire is drawn of various sizes, from half an inch, to one-tenth of an inch, diameter, and even smaller.

The first iron that runs from the stone when melting, being the softest and toughest, is preserved to make wire of. Iron wire is made from bars of iron, called esleom-iron, which are first drawn out to a greater length, and to about the thickness of the little finger, at a furnace, with a hammer gently moved by water. These thinner pieces are bored round, and put into a furnace to anneal for twelve hours. A pretty strong fire is used for this operation. After this, they are laid under water for three or four months, the longer the better; then they are delivered to the workmen, called rippers, who draw them into wire through two or three holes. After this, they anneal them again for six hours, and water them a second time for about a week, and they are then delivered again to the rippers, who draw them into wire of the thickness of a large packthread. They are then annealed a third time, and then watered for a week longer, and delivered to the small wire-drawers, called overhouse-men.

In the mill where this work is performed, there are several barrels hooped with iron, which have two hooks on their upper sides, on each of which hang two links, which stand across, and are fastened to the two ends of the tongs which catch hold of the wire, and draw it through the hole. The axis on which the barrel moves does not run through the centre, but is placed on one side, which is that on which the hooks are placed; and underneath there is fastened to the barrel a spoke of wood, which they call a swingle, which is drawn back a good way by the cogs in the axis of the wheel, and draws back the barrel, which falls to again by its own weight.

The tongs hanging on the hooks of the barrel, are by the workmen fastened to the end of the wire, and by the force of the wheel, the hooks being pulled back, draw the wire through the holes. The plate in which the holes are, is iron on the outside, and steel on the inside; and the wire is anointed with train-oil, to make it run the easier. Great improvements have been made of late years in the machines which perform this operation of wire-drawing, especially by the French, who excel all other workmen in this manufacture. Duties are imposed by divers statutes on wire, both imported, and manufactured at home, especially 24 Geo. 3. c. 41., 43 Geo. 3. c. 68., and 49 Geo. 3. c. 98.

WOAD, (Ger. *Waid.* Du. *Weede.* Da. *Vede.* Sw. *Vejde.* Fr. *Pastel, Guéde, Vouéde.* It. *Guadone, Guado, Glastro.* Sp. *Pastel, Glasto.* Port. *Pastel.* Rus. *Liet-*

njak. Pol. *Sinilo, Urzet.* Lat. *Guadum, Glastum,*) a plant with long green leaves, the lower ones narrow at both ends; those which grow upon the stalk broad at bottom, like the head of an arrow. On the tops come forth numerous yellow flowers, which are followed by little flat pods, containing the seeds. It grows wild in some parts of France, and on the coasts of the Baltic sea; the wild woad, and that which is cultivated for the use of the dyers, appear to be the same species of plant.

The preparation of woad for dyeing, is this: The plant puts forth at first five or six upright leaves, about a foot long, and six inches broad; when these hang downwards, and turn yellow, they are fit for gathering, and five crops may be gathered in one year.

The leaves are carried directly to a mill, much resembling the oil, or tan, mills, and ground into a smooth paste. If this process was deferred for some time, they would putrify, and send forth an insufferable stench. The paste is laid in heaps, pressed close and smooth, and the blackish crust, which forms on the outside, reunited if it happens to crack. After lying for fifteen days, the heaps are opened, the crust rubbed and mixed with the inside, and the matter formed into oval balls, which are pressed close and solid in wooden moulds. These are dried upon hurdles; they turn black on the outside, if in the sun, if in a close place yellowish, especially if the weather be rainy. The dealers in this commodity prefer the first. The good balls are distinguished by their being weighty, of an agreeable smell, and when rubbed of a violet-colour within. Woad affords a lasting and substantial blue in dyeing. *See* DYEING. It is cultivated in France, Spain, Portugal, the Azores, the Canaries, Switzerland, Sweden, Germany, and England. But it exhausts the land more than any other crop, and therefore is only grown on the fat soil of low grounds, such as the fens of Lincolnshire.

WOOD, is that solid and compact substance which constitutes the bulk of the trunk and branches of trees. When cut transversely, this wood is found to consist of numerous concentric layers, very distinct in some trees, especially those of cold climates. A different degree of hardness, and in some trees a prodigious difference of colour, obtains between the different concentric layers. Those nearest to the centre are the hardest, and generally go to compose what is called "the heart" of the timber; those nearer the exterior, and which are softer, are called "the sap." The layer which forms the line of discrimination, is more strongly marked in some species of wood than in others, but is more, or less, observable in all. Those who use wood for mechanical purposes, are fully aware of the great difference in these different parts, and of the precise line of discrimination. The softer external layers have as little durability as hardness, compared with the heart or internal layers. They retain, indeed, more of the vital principle, as they retain the peculiar juices of the plant in a fluctuating state, liable to be acted upon by external causes, and scarcely united in a fixed state to the solid body of the wood. This sap is not limited to any determinate period of age, nor even to any determinate series of concentric circles of any individual tree; but differs according to the vigour of the plant, to the climate, to the rapidity of growth, and to a great variety of causes.

A remarkable difference, in point of solidity, exists between even the hardest portions of different trees. The specific gravity of some is so great, as for the wood to sink in water. Such is the iron-wood of China. Some is so light, that it is difficult of immersion, even by force, as in the instance of cork-wood.

For further information respecting the mechanical, and commercial, applications of wood, in order to avoid tautology, we must refer the reader to the generic *title* TIMBER, as well as to the names of each particular species of tree respectively, and to *title* DYEING, for an account of some species of wood used in that process.

WOOD, *staining of.* *See* STAINING.

WOODS, in the aggregate, of British growth, as well in their incipient state of poles, saplings, underwood, or by whatever appellation known, as in every subsequent period of their growth, are protected by a prodigious number of penal statutes. The 6 Geo. 1. c. 48., enlarged by 13 Geo. 3. c. 33., has laid down the line of discrimination between *timber*, and the other denominations of trees; subject to which, the wilful destruction of every species, from quicksets to oaks, are subjected to some kind of heavy punishment or other. *See* 2 *Dick. Pract. Expos.* 1082.

The importation of wood, of foreign growth, is under the regulations of the customs, and subject to prohibitions, restrictions, and duties respectively, according to the countries from which they are imported. By 51 Geo. 3. c. 43. and 93., and by 53 Geo. 3. c. 105., certain drawbacks are allowed on fir timber imported, and used in the mines of Devon and Cornwall.

WOOF, among manufacturers, the threads which the weavers shoot across with an instrument called the shuttle. The woof is of different matter, according to the piece to be wrought. In taffety, both woof and warp are silk. In mohairs, the woof is usually wool, and the warp silk. In satins, the warp is frequently flax, and the woof silk.

WOOL, (Ger. *Wolle.* Du. *Wol.* Da. *Uld.* Sw. *Ull.* Fr. *Laine.* It. and Sp. *Lana.* Port. *Lã, Lãa.* Rus. *Wolna, Scherst.* Pol. *Welna.* Lat. *Lana,*) a kind of long, soft, curly hair, which covers the skins of

several of the ruminating animals, but which is particularly cut or shorn from that of the sheep.

The principal differences in wool consist in the length, and fineness, of its filaments. That which has the finest filaments is reserved for fine cloths. The most beautiful European wools are those of Spain and Saxony; at least so they have been esteemed; but it is now said that the highland wool of Scotland, and that of the Shetland islands, are equal in quality to these. The breed of Merino, or fine-woolled Spanish sheep, has been introduced into this country, and found to retain the excellent qualities of the fleece. It has likewise been crossed with our own breeds with advantage, so that we may hope to become independent of Spain for fine wool. This event is likely too to be accelerated by a very recent discovery, which is, that our new colony of New South Wales, and probably, therefore, the whole of Australasia, will produce as fine wool as any in Europe.

Simple inspection may easily lead to error respecting the fineness of wool, which it is important the manufacturer should know with accuracy; and there is a method of attaining this accuracy, by employing a micrometer for comparing, by means of a microscope, the fineness of the wool to be examined with that of other wools chosen as standards, a method long practised in the east coast of Scotland, to discover the fineness of cloth: it is called *a weaver's glass.*

Though the long wool is not so fine as the Spanish, and cannot be employed for fine cloths, it is still very useful for a variety of fabrics; and as the sheep which produce it have much larger fleeces, the profit they bring is not inferior to that of the fine-woolled sheep; besides, the cloths made of their wool, being cheaper, have a much more extensive sale. The prosperous state of the woollen manufactures of England is partly owing to our abundance of this wool. But the breed of sheep which produces one, or the other, kind of wool is connected with the nature of their pasture, which ought to determine the choice of them.

Wool is naturally covered with a kind of grease, which preserves it from moths. Reaumur has observed, that a stuff may be preserved from these insects by rubbing it with greasy wool. Hence wool is not scoured till it is about to be dyed or spun.

In order to scour wool, it is put for about a quarter of an hour into a kettle, containing a sufficient quantity of water, mixed with a fourth of putrid urine, heated to such a degree as the hand can just bear, and it is stirred from time to time with sticks; it is then taken out and put to drain; it is next carried in a large basket to a stream of running water, where it is moved about till the grease is entirely separated, and no longer renders the water turbid; it is then taken out and left to drain. It sometimes loses in this operation more than a fifth of its weight. The scouring should be carefully performed, because the wool is thereby better fitted to receive the dye.

WOOL, either in a raw or manufactured state, has always been the principal of the staple articles of this country. The price of wool was in very early times much higher in proportion to the wages of labour, the rent of land, and the price of butcher's meat, than at present. It was before the time of Edward III. always exported raw, the art of working it into cloth and dyeing being so imperfectly known, that persons above the degree of working people could not go dressed in cloth of English manufacture.

The first steps taken to encourage the manufacture of woollen cloths was by Edward III. who procured some good workmen from the Netherlands by means of protection and encouragement. The value of wool was considered of so much importance, that taxes were voted in that commodity, reckoning by the number of sacks; and in proportion to the price of the necessaries of life and value of silver, wool was at least three times dearer then than it is now. The manufacturing of cloth being once introduced into the country, the policy of preventing the exportation of the raw material was soon evident, and the first act was that of Hen. IV. c. 2., by which the exportation of sheep, lambs, or rams, is forbidden under very heavy penalties: these, and severer prohibitions, were also made use of to secure to Spain her breed of Spanish sheep; but such narrow-minded and contemptible restrictions are fast wearing away.

By stat. 28 Geo. 3. all former statutes respecting the exportation of wool and sheep are repealed, and numerous restrictions were consolidated in that statute.

By this act, if any person shall send or receive any sheep on board any vessel, to be carried out of the kingdom, such vessel shall be forfeited, and the person so offending shall forfeit 3*l.* for every sheep, and suffer solitary imprisonment for three months. But wether-sheep by a licence from the collector of the customs, may be taken on board for the use of the ship's company; and every person who shall export any wool, or woollen articles slightly made up, so as easily to be reduced again to wool, or any fuller's earth or tobacco-pipe-clay, and every carrier, ship-owner, commander, mariner, or other person, who shall knowingly assist in exporting, or attempting to export, these articles, shall forfeit three shillings for every pound weight, or the sum of 50*l.* in the whole, at the election of the prosecutor, and shall also suffer solitary imprisonment for three months. But wool may be carried coastwise upon being duly entered, and security being given according to the directions of the statute, to

the officer of the port whence the same shall be conveyed; and the owners of sheep within *five miles of the sea*, and *ten miles in Kent and Sussex*, cannot remove the wool, without giving notice to the officer of the nearest port, as directed by the statute; but *this* part of the statute is repealed by 54 Geo. 3. c. 78.; and the part of the statute which requires a registry of wool sent coastwise, is repealed by 1 & 2 Geo. 4. c. 81. See further, respecting WOOL and the WOOLLEN MANUFACTURE, 2 & 3 *Dick. Pract. Expos.* those titles. The laws relating to the stamping, &c. of woollen cloths in the West Riding of Yorkshire, are altered by 1 & 2 Geo. 4. c. 116.

WOOL-COMBERS. By 35 Geo. 3. c. 124. all those who have served an apprenticeship to the trade of a wool-comber, or who are by law entitled to exercise the same, and also their wives and children, may set up and exercise such trade, or any other trade or business they are apt and able for, in any town or place within this kingdom, without any molestation; nor shall they be removable from such place by the poor laws.

WORM-SEED, (GER. *Wurmsaamen.* DU. *Zeverzaad.* DA. *Ormfrö.* SW. *Maskfrö.* FR. *Sementine.* IT. *Santonico.* SP. *Semen contra.* PORT. *Semente contra vermes.* RUS. *Aleksanderskaja poliin.* POL. *Piolun glistny.* LAT. *Semen contra,*) a hot, bitter, drying kind of seed, often given to destroy worms in the human body. This seed is small, of a brownish colour, oblong figure, and a strong smell. It must be chosen new, greenish, of a sharp, bitter, aromatic taste, not a little disagreeable. It is brought to us from Aleppo, and is produced in Persia, about the frontiers of Muscovy.

WORSTED, a thread spun of wool that has been combed, and which, in the spinning, is twisted harder than ordinarily. It is chiefly used either to be knit or woven into stockings, caps, gloves, &c. Worsted has obtained its name from *Worstead*, a market-town in Norfolk, where the manufacture of this article was first introduced.

WORT, the infusion of malt, before it is made into beer by fermentation. *See* BREWING.

WORTHY, *Sea.* *See* SEA-WORTHY.

WRECK, such goods as after a shipwreck are cast upon the land by the sea, and left there within some county; for they are not wrecks so long as they remain at sea, being within the jurisdiction of the admiralty.

Various statutes have been made relative to wreck, which was formerly a perquisite belonging to the king, or by special grant to the lord of the manor; it is now, however, held, that if proof can be made of the property of any of the goods or lading which come to shore, they shall not be forfeited as wreck. The last statutes on the subject are 49 Geo. 3. c. 122., and 53 Geo. 3. c. 87., the latter being only an extension and amendment of the former. By these, cases of wreck are brought completely under the cognizance and protection of justices of the peace residing near the place, who are enabled to determine all matters respecting salvage, remuneration, sale of perishable goods, &c. &c. much to the furtherance of justice, and the interests of parties.

WRITING PAPER. (GER. *Schriebpapier.* DU. *Schryfpapier.* DA. *Skrivpapir.* SW. *Skrifpapper.* FR. *Papier à écrire.* IT. *Carta da scrivere.* SP. *Papel para escribir.* PORT. *Papel para escrever.* RUS. *Pischtschaja bumaga.* POL. *Papier, do pisania.* LAT. *Charta scriptoria.*) *See* PAPER.

X, THE twenty-second letter of our alphabet. In numerals it expresses 10, whence in the old Roman manuscripts it is used for denarius: and as such seems to be made of two V's placed one over the other. When a dash is added over it, thus, $\overline{X}$, it signifies ten thousand; and when laid flat, thus, ⋊, signifies one thousand.

XYLO-ALOE, in pharmacy, the aloes wood, or lignum-aloes. *See* ALOES.

XYLO-BALSAMUM, the wood of the tree which bears the balm of Gilead.

Y, THE twenty-third letter of our alphabet. Y is a numeral, signifying 150, or according to Baronius, 159; and with a dash at top, as $\overline{Y}$, it signifies 150,000.

YACHT, is a small ship, with one deck, carrying four, eight, or twelve guns, and thirty or forty men. Yachts, in general, are from 30 to 160 tons; contrived and adorned both withinside, and without, for carrying state passengers. They answer the purposes of business, as well as pleasure, being very fast sailers.

YARD, a long measure used in England, and Spain, chiefly to measure cloths,

stuffs, &c. The English yard contains three feet, or thirty-six inches, and was so settled by Henry I. from the length of his own arm. *See* MEASURE.

YARDS, *of a Ship*, are those long pieces of timber which are made a little tapering at each end, and are fitted each athwart its proper mast, with the sails made fast to them, so as to be hoisted up, or lowered down, as occasion serves. They have the names from the masts to which they belong. The length of the main yard is, usually, five-sixths of the length of the keel, or six-sevenths of the length of the main-mast. Their thickness is, usually, three-quarters of an inch for every yard in length. The length of the main-top-yard is two-fifths of the main-yard; and the fore-yard four-fifths of it. The sprit-sail-yard, and cross-jack-yard, are half the mizen-yard; and the thickness of the mizen-yard and sprit-sail-yard is half an inch for every yard in length. All small yards are half the great yards, from cleat to cleat. When a yard is down a portlast, it gives the length of all top-sail-sheets, lifts, ties, and bunt-lines, as also of the leech-lines, and halliards, measuring from the hounds to the deck; and when it is hoisted, it gives the length of the clew-lines, clew-garnets, braces, tackles, sheets, and bow-lines. There are several sea-terms relating to the management of the yards, as, square the yards; that is, see that they hang right across the ship, and no yard-arm traversed more than another: top the yards, that is, make them stand even. To top the main, and fore, yards, the clew-lines are the most proper; but when the top-sails are stowed, then the top-sail sheets will top them.

YARD-ARM is that half of the yard that is on either side of the mast, when it lies athwart the ship.

YARN, (Ger. *Garn*. Du. *Garen*. Da. and Sw. *Garn*. Fr. *Fil*. It. *Filato*. Sp. *Hilo*. Port. *Fio*. Rus. *Prasha*. Pol. *Przedza*,) wool, or flax, spun into thread, of which they weave cloth. Yarn is ordered after the following manner: after it has been spun upon spindles, spools, or the like, they reel it upon reels, which are hardly two feet in length, and have but two contrary cross-bars, being the best, and the least liable to ravelling. In reeling of fine yarn, the better to keep it from ravelling, you must, as it is reeled, with a tye-band of big twist, divide the slipping or skain into several leys, allowing to every ley eighty threads, and twenty leys to every slipping, if the yarn is fine; otherwise less of both kinds. The yarn being spun, reeled, and in the slippings, the next thing is to scour it. In order to fetch out the spots, it should be laid in luke-warm water for three or four days, each day shifting it once, wringing it out, and laying it in another water of the same nature; then carrying it to a well or brook, and rince it till nothing comes from it but pure clean water: that done, take a bucking-tub, and cover the bottom with very fine aspen ashes; and then having opened and spread the slippings, lay them on those ashes, and put more ashes above, and lay in more slippings, covering them with ashes as before; and thus lay one upon another, till the yarn is put in; afterwards cover up the uppermost yarn with a bucking-cloth, and, in proportion to the size of the tub, lay in it a peck or two more of ashes: this done, pour upon the uppermost cloth a great deal of warm water, till the tub can receive no more, and let it stand so all night. Next morning you are to set a kettle of clean water on the fire; and when it is warm, pull out the spiggot of the bucking-tub, to let the water run out of it, into another clean vessel; as the bucking-tub wastes, fill it up again with warm water on the fire; and as the water on the fire wastes, so likewise fill up that with the ley that comes from the bucking-tub, ever observing to make the ley hotter and hotter, till it boils: then you must, as before, ply it with the boiling ley at least four hours together, which is called "the driving of a buck of yarn." This being done, for the whitening of it, you must take off the bucking-cloth; then putting the yarn with the ley-ashes into large tubs, with your hands labour the yarn, ashes, and ley, pretty well together, afterwards carry it to a well, or river, and rinse it clean; then hang it upon poles in the air all day, and in the evening take the slippings down, and lay them in water all night; the next day hang them up again, and throw water upon them as they dry, observing to turn that side outermost which whitens slowest. After having done this for a week together, put all the yarn again into a bucking-tub, without ashes, covering it as before with a bucking-cloth; lay thereon good store of fresh ashes, and drive that buck, as before, with very strong boiling ley, for half a day, or more; then take it out, and rinse it, hanging it up, as before, in the day-time, to dry, and laying it in water at night another week. Lastly, wash it over in fair water, and so dry it up. Your yarn being thus scoured and whitened, wind it up into moderate-sized balls.

YAWL, a small ship's boat, common in Norway.

YEAST, yest, barm, or leaven, is the mucilaginous froth which rises to the surface of beer in the first stage of its fermentation. It has the power of exciting fermentation in a variety of bodies, and by this means of generating a similar substance in considerable quantity.

Mr. Harry has published a method of preparing *artificial yeast*, by which good bread may be made without the assistance of any other ferment. Boil flower and water together to the consistence of treacle, and when the mixture is cold, saturate it with

fixed air. Pour this mixture into one or more large bottles, or narrow-mouthed jars: cover it over loosely with paper, and upon that lay a slate, or board, with a weight, to keep it steady. Place the vessel in a situation where the thermometer will stand from 70 to 80 degrees, and stir up the mixture two or three times in 24 hours. In about two days such a degree of fermentation will have taken place, as to give the mixture the appearance of yeast. With the yeast in this state, and before it has acquired a thoroughly vinous smell, mix the quantity of flour intended for bread, in the proportion of six pounds of flour to a quart of the yeast, and a sufficient quantity of warm water. Knead them well together in a proper vessel, and covering it with a cloth, let the dough stand for 12 hours, or till it appears to be sufficiently fermented in the before-mentioned degree of heat. It is then to be formed into loaves, and baked. Mr. Harry adds, that perhaps the yeast would be more perfect if a decoction of malt were used instead of simple water.

It has lately been discovered, that a decoction of malt alone, without any addition, will produce a yeast proper enough for the purpose of brewing. This discovery was made by Joseph Senyor, a servant of the Reverend Mr. Mason, of Aston, near Rotheram; and he received for it a reward of 20*l.* from the Society of Arts. The process is as follows:

Procure three earthen or wooden vessels of different sizes, and apertures; one capable of holding two quarts, the other three or four, and the third five or six. Boil a quarter of a peck of malt for about eight or ten minutes in three pints of water; and when a quart is poured off from the grains, let it stand in the first or smaller vessel in a cool place till not quite cold, but retaining that degree of heat which the brewers find to be proper when they begin to work their liquor. Then remove the vessel into some warm situation near a fire, where the thermometer stands between 70 and 80 degrees, and there let it remain till the fermentation begins, which will be perceived within 30 hours. Add then two quarts more of a like decoction of malt, when cool, as the first was; and mix the whole in the second or larger vessel, and stir it well in, which must be repeated in the usual way, as it rises in a common vat: then add a still greater quantity of the same decoction, to be worked in the larger vessel, which will produce yeast enough for a brewing of 40 gallons.

Common ale-yeast may be kept fresh, and fit for use, several months by the following method: — Put a quantity of it into a close canvass bag, and gently squeeze out the moisture in a screw-press, till the remaining matter be as firm and stiff as clay. In this state it may be close packed up in a tight cask for securing it from the air, and will keep fresh, and fit for use for a long time.

YELLOW. *See* DYEING, PAINTING, and COLOURS.

YELLOW BERRIES. (Ger. *Französische oder, Fransche beerer, Gelbe beeren.* Du. *Geele Bessen.* Da. and Sw. *Avignonsfrö.* Fr. *Graines d'Avignon, Graine jaune, Grainette.* It. *Coccole di Spincervino.* Sp. *Grana de Avinon.* Port. *Graos de Avinho.* Pol. *Szeklak.*) *See* FRENCH BERRIES.

YELLOW-LEAD. *See* MASSICOT.

YELLOW-WEED. *See* WELD.

YEW. The yew-tree is a native of Britain, France, Switzerland, &c. and of North America. The wood is reddish, full of veins, and flexible, very hard, and smooth, and almost incorruptible. Its hardness renders it very proper for turners and cabinet-makers. Its berries are often eaten by birds, and are therefore not poisonous to them; but it is a common opinion that the leaves are poisonous to cattle, and many instances of this effect on cattle of different descriptions have been well ascertained. It is of no great height, but the trunk grows to a large size. Mr. Pennant has taken notice of a very remarkable decayed one in Fortingal church-yard, the remains of which measured fifty-six feet and a half in circumference.

Z, THE twenty-fourth and last letter of our alphabet. As a numeral letter it stood for 2000, when a dash was added at top, thus, $\bar{Z}$, stood for 2000 times 2000. In abbreviations this letter formerly stood as a mark for several sorts of weights; sometimes it signified an ounce and a half, and very frequently it stood for half an ounce, or a dram troy weight; and it has in earlier times been used to express the third part of an ounce, or eight scruples. Z Z were used by some of the ancient physicians to express myrrh, and at present they are often used to signify *zinziber*, or ginger.

ZACUES, a silver Persian money, being half a mamoudi. *See* MAMOUDI.

ZAFFRE is the oxyde of cobalt, employed in painting pottery-ware and cobalt of a blue colour. *See* COBALT.

ZEA, *Indian Corn.* The only species, the mays, or maize. The Indians in New England, and many other parts of America, had no other vegetable but maize or Indian corn for making their bread; they call it *weachin:* and in the United States of America there is much of the bread of the country made of this grain, not of European corn. In Italy, Germany, Spain, and Portugal, maize constitutes a great part of the food of the poor inhabitants. The ear of the maize yields a much greater quantity of grain, than any of our corn-ears. There are commonly about eight rows of grain in the ear, often more if the ground is good. Each of these rows contains at least 30 grains, and each of these gives much more flour than a grain of any of our corn. The grains are usually either white or yellow; but sometimes they are red, bluish, greenish, or olive-coloured, and sometimes striped and variegated. This sort of grain, though so essentially necessary to the natives of the place, is yet liable to many accidents. It does not ripen till the end of September; so that the rains often fall heavily upon it while on the stalk, and the birds in general peck it when it is soft and unripe. Nature has, to defend it from these accidents, covered it with a thick husk, which keeps off slight rains very well; but the birds, if not frightened away, often eat through it, and devour a great quantity of corn. For other particulars relative to the plant, *see* MAIZE, and INDIAN CORN.

ZEALAND, NEW, a part of that newly-appropriated part of the terraqueous globe, distinguished under the title of Australasia. It consists of two large islands, separated by only a narrow channel, and but a few leagues distant from that part of New Holland which the British have settled under the name of New South Wales. Its principal indigenous production is flax of the finest quality; but most of the vegetable productions of Europe and America thrive well, and yield abundantly. Potatoes succeed beyond all competition. The shores abound in fish of various kinds, and on the whole, it should seem to be a country holding out no small invitations to future colonization.

ZECHIN, a Venetian gold coin, worth about 9*s.* sterling.

ZEDOARY, (Ger. *Zittwer.* Du. *Zedoar.* Da. *Zitverrod.* Sw. *Sitfärsrot.* Fr. *Zédoaire.* It. *Zedoaria, Zettovario.* Sp. *Cedoaria, Zedoaria.* Port. and Lat. *Zedoaria,*) is a medicinal root brought to us from China. It should be chosen fresh, sound, and hard, in large pieces, it matters not whether long, or round, in its form; of a smooth surface, and of the briskest smell possible; such as is friable, dusty, and worm-eaten, is to be rejected. Zedoary, distilled with common water, affords a thick and dense essential oil, on which its virtues principally depend, which soon concretes into a kind of camphire. It is a sudorific, and is used as a cordial medicine.

ZEST, the woody thick skin, quartering the kernel of a walnut. Zest is also used for a chip of orange or lemon-peel; such as is usually squeezed into ale, wine, &c. to give a flavour; or the fine ethereal oil which spurts out of that peel on squeezing it.

ZINC, (Ger. Du. Da. and Sw. *Zink.* Fr. *Zinc.* It. *Zinco.* Sp. *Zinco, Cinck.* Port. *Zinco.* Rus. *Schpiauter.* Pol. *Cynec.* Lat. *Zincum,*) a metal called also *spelter;* it has never been found in Europe in a state of purity, and it was long before a method was discovered of extracting it from its ore. Henkel pointed out one in 1721; Von Swab obtained it by distillation in 1742; and Margraf published a process in the Berlin Memoirs, in 1746.

Zinc is of a brilliant white colour, with a shade of blue, and is composed of a number of thin plates adhering together. When this metal is rubbed for some time between the fingers, they acquire a peculiar taste, and emit a very perceptible smell. Its hardness is 6.5. When rubbed upon the fingers, it tinges them of a black colour. Its specific gravity, after it has been melted, is 6.861; after it has been compressed, 7.1908; so that its density is increased 1-20th. This metal forms, in a manner, the limit between the brittle and the malleable metals. Its malleability is by no means to be compared with that of some of the metals; yet it is not brittle like others. When struck with a hammer it does not break, but yields, and becomes somewhat flatter; and by a cautious and equal pressure, it may be reduced to pretty thin plates, which are supple and elastic, but cannot be folded without breaking. When heated to about 400°, it becomes so brittle that it may be reduced to powder in a mortar. It is not ductile; its tenacity has not been ascertained. When heated to the temperature of about 700°, it melts; and if the heat is increased, it evaporates, and may be easily distilled over close vessels. When allowed to cool slowly, it crystallises in small bundles of quadrangular prisms, disposed in all directions. If they are exposed to the air while hot, they assume a blue changeable colour. In this case its lustre is soon tarnished, but it scarcely undergoes any other change. When kept under water its surface soon becomes black, the water is slowly decomposed, hydrogen gas is emitted, and the oxygen combines with the metal. If the heat is increased, the decomposition goes on more rapidly; and if the steam of water is made to pass over zinc at a very high temperature, it is decomposed so rapidly, that very violent detonations take place. When zinc is kept melted in an open

vessel, its surface is soon covered with a grey-coloured pellicle, in consequence of its combination with oxygen. When this pellicle is removed, another soon succeeds it; and in this manner may the whole of the zinc be oxidated. When these pellicles are heated and agitated in an open vessel, they soon assume the form of a grey powder, often having a shade of yellow. The powder has been called the grey oxide of zinc. When zinc is raised to a strong red heat in an open vessel, it takes fire and burns with a brilliant white flame, and, at the same time, emits a vast quantity of very light white flakes. These are merely an oxide of zinc.

Zinc combines with almost all the metals, and some of its alloys are of great importance. It may be united to gold in any proportion by fusion. The alloy is the whiter, and the more brittle, the greater quantity of zinc it contains. An alloy, consisting of equal parts of these metals, is very hard and white, receives a fine polish, and does not tarnish readily. It has therefore been proposed by Mr. Malouin, as very proper for the specula of telescopes. One part of zinc is said to destroy the ductility of 100 parts of gold.

Platinum combines very readily with zinc. The alloy is brittle, pretty hard, very fusible, of a bluish-white colour, and not so clear as that of zinc.

The alloy of silver and zinc is easily produced by fusion. It is brittle, and has not been applied to any use.

Zinc may be combined with mercury, either by triturating the two metals together, or by dropping mercury into melted zinc.

This amalgam is solid. It crystallises when melted, and cooled slowly, into lamellated hexagonal figures, with cavities between them. They are composed of one part of zinc, and two and a half of mercury. It is used to rub on electrical machines, in order to excite electricity.

Zinc combines readily with copper, and forms one of the most useful of all the metallic alloys. The metals are usually combined together by stratifying plates of copper, and a native oxide of zinc, combined with carbonic acid, called calamine, and applying heat. When the zinc does not exceed a fourth part of the copper, the alloy is known by the name of brass. It is of a beautiful yellow colour, more fusible than copper, and not so apt to tarnish. It is malleable, and so ductile, that it may be drawn out into wire. Its density is greater than the mean. It has been calculated at 7.6296, but it actually is 8.3958; so that its density is increased by about one-tenth.

When the alloy contains three parts of zinc, and four of copper, it assumes a colour nearly the same with gold; but it is not so malleable as brass. It is then called pinchbeck, prince's metal, or prince Rupert's metal. Brass was known, and very much valued, by the ancients. They used an ore of zinc to form it, which they called *cadima*. Dr. Watson has proved that it was to brass that they gave the name of *orichalcum*. Their *æs* was copper, or rather bronze. It is very difficult to form an alloy of iron and zinc. Wallerius has shown, that iron is capable of combining with a small portion of zinc; and Malouin has shown, that zinc may be used instead of tin to cover iron plates, — a proof that there is an affinity between the two metals.

Tin and zinc may be easily combined by fusion. The alloy is much harder than zinc, and scarcely less ductile. This alloy is often the principal ingredient in the compound called pewter.

The alloy of lead and zinc has been examined by several chemists; Gmelin succeeded in forming the alloy by fusion. He put some suet into the mixture, and covered the crucible, in order to prevent the evaporation of the zinc. When the zinc exceeded the lead very much, the alloy was malleable, and much harder than lead. A mixture of two parts of zinc, and one of lead, formed an alloy more ductile and harder than the last. A mixture of equal parts of zinc and lead, formed an alloy differing little in ductility and colour from lead; but it was harder and more susceptible of polish, and more sonorous. When the mixture contained a smaller quantity of zinc, it still approached nearer the ductility and colour of lead; but it continued harder, more sonorous, and susceptible of polish, till the proportion approached to one of zinc, and sixteen of lead, when the alloy differed from the last metal only in being somewhat harder.

ZIRCON, a stone brought from Ceylon, and found also in France and Spain, and other parts of Europe. The texture of zircon is foliated. Fracture imperfectly conchoidal. Causes a very great double refraction. Specific gravity from 4.615 to 4.383. Colours various, commonly reddish or yellowish, sometimes clear. Before the blowpipe it loses its colour, but not its transparency. With borax, it melts into a transparent glass. Infusible with fixed alkali and microcosmic salt.

1. The variety formerly called hyacinth, is of a yellowish-red colour, mixed with brown. Its surface is smooth. Its lustre 3. Its transparency 3 to 4.

2. The variety formerly called jargon of Ceylon is either grey, greenish, yellowish-brown, reddish-brown, or violet. It has little external lustre. It is sometimes nearly opaque.

ZOPISSA, naval pitch, or that scraped from the sides of ships that have been a long time at sea. It is a composition of pitch and tar, impregnated by salt water; and is used in external applications as resolutive and desiccative.

APPENDIX.

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APPENDIX, No. I.

THE MONIES OF THE WORLD

WITH THEIR RESPECTIVE VALUE IN BRITISH STERLING

N. B. *That* c *stands for Copper;* s *for Silver;* G *for Gold; and thus marked* *, *are imaginary, as the Pound Sterling of England.*

		£.	s.	d.
GREAT BRITAIN.				
A Farthing	c	0	0	0¼
2 Farthings make a Halfpenny	c	0	0	0½
2 Halfpence, a Penny	c	0	0	1
6 Pence, a Half-Shilling	s	0	0	6
12 Pence, a Shilling	s	0	1	0
2 Shillings and Sixpence, a Half Crown	s	0	2	6
5 Shillings, a Crown	s	0	5	0
7 Shilling Piece, ⅓ of a Guinea	G	0	7	0
10 Shillings, a Half-Sovereign	G	0	10	0
10 Shillings and Sixpence, a Half-Guinea	G	0	10	6
20 Shillings, a Sovereign	G	1	0	0
20 Shillings, a Pound-sterling	s	1	0	0
21 Shillings, a Guinea	G	1	1	0
FRANCE.				
Paris, Lyons, Bourdeaux, &c.				
OLD MONIES.				
A Denier	c	0	0	0¼
3 Deniers make a Liard	c	0	0	0⅛
2 Liards, a Dardene	c	0	0	0¼
12 Deniers, a Sous	c	0	0	0½
20 Sous, a Livre of Exchange	*	0	0	10
60 Sous, an Ecu of Exchange	s	0	2	6
6 Livres, an Ecu	s	0	5	0
10 Livres, a Pistole	*	0	8	4
24 Livres, a Louis d'Or	G	1	0	0
NEW MONIES.				
A Centime	*	0	0	0 1/10
5 Centime Piece	c	0	0	0½
A Decime Piece	c	0	0	1
A Franc	s	0	0	10
2 Franc Piece	s	0	1	8
15 Sol Piece	s	0	0	7½
30 Sol Piece	s	0	1	3
5 Franc Piece	s	0	4	2
10 Franc Piece	G	0	8	4
20 Franc Piece	G	0	16	8
A Louis d'Or	G	1	0	0
Dunkirk, St. Omers, St. Quintin, &c.				
A Denier	c	0	0	0¼
12 Deniers make a Sol or Sous	c	0	0	0½
15 Deniers, a Patard	*	0	0	0⅝
15 Sous, a Piette	*	0	0	7½
20 Sous, a Livre Tournois	*	0	0	10
3 Livres, an Ecu of Exchange	s	0	2	6
24 Livres, a Louis d'Or	G	1	0	0
24½ Livres, a Guinea	G	1	1	0
32¾ Livres, a Moidore	G	1	7	0

FRANCE—*continued.*

Lisle, Cambray, Valenciennes, &c.

		£.	s.	d.
A Denier	C	0	0	$0\frac{1}{24}$
12 Deniers make a Sol or Sous	C	0	0	$0\frac{1}{2}$
15 Deniers, a Patard	*	0	0	$0\frac{5}{8}$
15 Patars, a Piette	*	0	0	$9\frac{3}{4}$
20 Sous, a Livre Tournois	*	0	0	10
20 Patars, a Florin	*	0	1	$0\frac{1}{2}$
60 Sous, an Ecu of Exchange	S	0	2	6
$10\frac{1}{2}$ Livres, a Ducat	G	0	8	9
24 Livres, a Louis d'Or	G	1	0	0

N. B. All the New Monies of Paris pass current in the above places.

IRELAND.

A Farthing	C	0	0	$0\frac{3}{13}$
2 Farthings make a Halfpenny	C	0	0	$0\frac{6}{13}$
2 Halfpence, a Penny	C	0	0	$0\frac{12}{13}$
6 Pence Halfpenny, a Half-Shilling	S	0	0	6
12 Pence, a Shilling Irish	*	0	0	$11\frac{3}{40}$
13 Pence, a Shilling	S	0	1	0
32 Pence Halfpenny, a Half-Crown	S	0	2	6
65 Pence, a Crown	S	0	5	0
91 Pence $\frac{1}{3}$ of a Guinea	G	0	7	0
10 Shillings and 10 Pence, a Half-Sovereign	G	0	10	0
11 Shillings and $4\frac{1}{2}$d., a Half-Guinea	G	0	10	6
21 Shillings and 8d., a Sovereign	G	1	0	0
22 Shillings and 9d., a Guinea	G	1	1	0
20 Shillings, a Pound Irish	*	0	18	$5\frac{1}{2}$

Silver Bank of Ireland Tokens are current for 5d., 10d., and 2s. 6d. each, Irish Currency.

SPAIN.

At *Madrid, Cadiz, Seville, &c.*

NEW PLATE.

A Maravedie	C	0	0	$0\frac{43}{272}$
2 Maravedies make a Quartil	C	0	0	$0\frac{43}{136}$
34 Maravedies, a Rial	S	0	0	$5\frac{3}{8}$
2 Rials, a Pistirine	S	0	0	$10\frac{3}{4}$
8 Rials, a Piastre of Exchange	*	0	3	7
10 Rials, a Dollar	S	0	4	6
375 Maravedies, a Ducat of Exchange	*	0	4	$11\frac{1}{2}$
32 Rials, a Pistole of Exchange	*	0	14	4
36 Rials, a Pistole	G	0	16	9

At *Barcelona, Saragosa, Valencia, &c.*

OLD PLATE.

A Maravedie	*	0	0	$0\frac{27}{128}$
16 Maravedies make a Soldo	S	0	0	$3\frac{3}{8}$
2 Soldos, a Rial Old Plate	S	0	0	$6\frac{3}{4}$
16 Soldos, a Dollar	*	0	4	6
20 Soldos, a Libra	*	0	5	7
21 Soldos, a Ducat	*	0	5	10
22 Soldos, a Ducat	*	0	6	2
24 Soldos, a Ducat	*	0	6	9
60 Soldos, a Pistole	G	0	16	9

At *Malaga, Gibraltar, Denia, &c.*

RIALS VELON.

A Maravedie	*	0	0	$0\frac{33}{272}$
2 Maravedies make an Octavo	C	0	0	$0\frac{33}{136}$
4 Maravedies, a Quartil	C	0	0	$0\frac{33}{68}$
34 Maravedies, a Rial Velon	*	0	0	$2\frac{7}{8}$

		£.	s.	d.
SPAIN—*continued.*				
512 Maravedies, a Piastre	s	0	3	7
15 Rials, a Piastre of Exchange	*	0	3	7
60 Rials, a Pistole of Exchange	G	0	14	4
78 Rials, a Pistole	G	0	16	
2048 Maravedies, a Pistole of Exchange	*	0	16	
PORTUGAL.				
A Rec or Rea	*	0	0	$0\frac{27}{406}$
10 Rez make a Half Vintin	C	0	0	$0\frac{27}{40}$
20 Rez, a Vintin	C	0	0	$1\frac{7}{10}$
5 Vintins a Testoon	S	0	0	$6\frac{3}{4}$
4 Testoons, a Crusade of Exchange	S	0	2	3
24 Vintins, a New Crusade	S	0	2	$8\frac{2}{5}$
10 Testoons, or 1000 Rez, a Milre	*	0	5	$7\frac{1}{2}$
48 Testoons, a Moidore	G	1	7	0
64 Testoons, a Joannes	G	1	16	0
DENMARK AND NORWAY.				
Copenhagen, Sound, Bergen, Drontheim, &c.				
A Skilling	C	0	0	$0\frac{9}{16}$
6 Skillings make a Druggen	S	0	0	$3\frac{3}{8}$
16 Skillings, a Slet Marc	*	0	0	9
20 Skillings, a Rix Marc	S	0	0	$11\frac{1}{4}$
24 Skillings, a Rix Ort	S	0	1	$1\frac{1}{2}$
4 Marcs, a Crown	S	0	3	0
6 Marcs, a Rix Dollar	S	0	4	6
11 Marcs, a Ducat	G	0	8	3
SWEDEN AND FINLAND.				
Stockholm, Upsal, &c.				
A Runstic	*	0	0	$0\frac{7}{30}$
3 Runstics make a Stiver	C	0	0	$7\frac{7}{18}$
8 Runstics, a Copper Marc	C	0	0	$1\frac{5}{9}$
3 Copper Marcs, a Silver Marc	S	0	0	$4\frac{2}{3}$
4 Ditto, a Copper Dollar	C	0	0	$6\frac{2}{9}$
9 Ditto, a Caroline	S	0	1	2
3 Copper Dollars, a Silver Dollar	S	0	1	$6\frac{2}{3}$
3 Silver Dollars, a Rix Dollar	S	0	4	8
2 Rix Dollars, a Ducat	G	0	9	4
LIVONIA.				
Riga, Revel, Narva, &c.				
A Blacken	C	0	0	$0\frac{7}{90}$
6 Blackens make a Grosh	C	0	0	$0\frac{7}{15}$
9 Blackens, a Vording	C	0	0	$0\frac{7}{10}$
2 Groshen, a Whiten	C	0	0	$0\frac{14}{15}$
6 Groshen, a Marc	S	0	0	$2\frac{4}{5}$
30 Groshen, a Florin	S	0	1	2
90 Groshen, a Rix Dollar	*	0	3	6
108 Groshen, an Albertus	S	0	4	2
64 Whiten, a Copper-Plate Dollar		0	5	0
POLAND AND PRUSSIA.				
Cracow, Warsaw, &c. Dantzic, Konigsberg, &c.				
A Shelon		0	0	$0\frac{7}{45}$
3 Shelons make a Grosh	C	0	0	$0\frac{7}{15}$
5 Groshen, a Coustic	S	0	0	$2\frac{1}{3}$
3 Coustics, a Tinse	S	0	0	7
18 Groshen, an Ort	S	0	0	$8\frac{2}{5}$
30 Groshen, a Florin	S	0	1	2
90 Groshen, a Rix Dollar	*	0	3	6
8 Florins, a Ducat	G	0	9	4
5 Rix Dollars, a Frederic d'Or	G	0	17	6

RUSSIA.

Petersburg, Archangel, Moscow, &c.

		£.	s.	d.
A Polusca	*	0	0	$0\frac{22}{108}$
2 Poluscas make a Denusca	C	0	0	$0\frac{27}{100}$
2 Denuscas, a Copec	*	0	0	$0\frac{27}{50}$
3 Copecs, an Altin	C	0	0	$1\frac{31}{50}$
10 Copecs, a Grivener	S	0	0	$5\frac{2}{5}$
25 Copecs, a Polpotin	S	0	1	$1\frac{1}{2}$
50 Copecs, a Poltin	S	0	2	3
100 Copecs, a Ruble	S	0	4	6
$2\frac{1}{4}$ Rubles, a Czarvonitch	G	0	10	$1\frac{1}{2}$
5 Rubles, an Imperial	G	1	2	6
10 Rubles, a Double Imperial	G	2	5	0

HOLLAND.

Amsterdam, Rotterdam, &c.

		£.	s.	d.
A Pening	*	0	0	$0\frac{21}{320}$
8 Penings make a Grote	C	0	0	$0\frac{21}{40}$
2 Grotes, a Stiver	S	0	0	$1\frac{1}{20}$
6 Stivers, a Schelling	S	0	0	$6\frac{3}{10}$
20 Stivers, a Guilder, or Florin	S	0	1	9
28 Stivers, a Golden Florin		0	2	$5\frac{1}{10}$
50 Stivers, a Rix Dollar	S	0	4	$4\frac{1}{10}$
60 Stivers, a Dry Guilder	S	0	5	3
3 Florins and 3 Stivers, a Ducatoon	G	0	7	6
105 Stivers, a Ducat	G	0	9	3
6 Guilders, a Pound Flemish	*	0	10	6
7 Florins, a Half-Reyer	G	0	12	3
14 Florins, a Reyer	G	1	4	6

NETHERLANDS, *now* NEW HOLLAND.

Antwerp, Brussels, Ghent, Ostend, &c.

		£.	s.	d.
A Pening	*	0	0	$0\frac{9}{160}$
4 Peningens make an Urche	C	0	0	$0\frac{9}{40}$
8 Peningens, a Grote	*	0	0	$0\frac{9}{20}$
2 Grotes, a Petard	C	0	0	$0\frac{9}{10}$
6 Petards, a Scalin	*	0	0	$5\frac{2}{5}$
7 Petards, a Scalin	S	0	0	$6\frac{3}{10}$
40 Grotes, a Florin	*	0	1	6
$17\frac{1}{2}$ Scalins, a Ducat	G	0	9	3
240 Grotes, a Pound Flemish	*	0	9	0

ITALY.

Genoa, St. Remo, Novi, &c. Corsica.

		£.	s.	d.
A Denari	C	0	0	$0\frac{43}{1200}$
12 Denari make a Soldi	C	0	0	$0\frac{1}{3}$
4 Soldi, a Chevalet	S	0	0	$1\frac{18}{25}$
20 Soldi, a Lira	*	0	0	$8\frac{3}{5}$
30 Soldi, a Testoon	S	0	1	$0\frac{9}{10}$
5 Liras, a Croisade	S	0	3	7
115 Soldi, a Pezzo of Exchange	*	0	4	2
6 Testoons, a Genouine	G	0	6	$2\frac{2}{5}$
20 Liras, a Pistole	G	0	14	4

Turin, Chamberry, &c. Sardinia.

		£.	s.	d.
A Denari	C	0	0	$0\frac{1}{15}$
3 Denari make a Quatrini	C	0	0	$0\frac{3}{15}$
12 Denari, a Soldi	C	0	0	$0\frac{3}{4}$
12 Soldi, a Florin	*	0	0	9
20 Soldi, a Lira	*	0	1	3
6 Florins, a Scudi	S	0	4	6
7 Florins, a Ducatoon	S	0	5	3
13 Liras, a Pistole	G	0	16	3
16 Liras, a Louis d'Or	G	1	0	0

ITALY—*continued.*

		£.	s.	d.
Milan, Modena, Parma, Pavia, &c.				
A Denari	C	0	0	$0\frac{3}{82}$
3 Denari make a Quatrini	C	0	0	$0\frac{9}{82}$
12 Denari, a Soldi	C	0	0	$0\frac{18}{41}$
20 Soldi, a Lira	*	0	0	$8\frac{3}{4}$
115 Soldi, a Current Scudi	S	0	4	$2\frac{1}{2}$
117 Soldi, a Scudi of Exchange	S	0	4	3
6 Liras, a Philip	S	0	4	$4\frac{1}{2}$
22 Liras, a Pistole	G	0	16	0
23 Liras, a Spanish Pistole	G	0	16	9
Leghorn, Florence, &c.				
A Denari	C	0	0	$0\frac{5}{144}$
4 Denari make a Quatrini	C	0	0	$0\frac{5}{36}$
12 Denari, a Soldi	C	0	0	$0\frac{5}{12}$
5 Quatrini, a Craca	C	0	0	$0\frac{25}{36}$
8 Cracas, a Quilo	S	0	0	$5\frac{5}{9}$
20 Soldi, a Lira	*	0	0	$8\frac{1}{3}$
6 Liras, a Piastre of Exchange	G	0	4	2
$7\frac{1}{2}$ Liras, a Ducat	G	0	5	$2\frac{1}{4}$
22 Liras, a Pistole	G	0	15	6
Rome, Civita Vecchia, Ancona, &c.				
A Quatrini	C	0	0	$0\frac{3}{20}$
5 Quatrini make a Bayoc	C	0	0	$0\frac{3}{4}$
8 Bayocs, a Julio	S	0	0	6
10 Bayocs, a Stamped Julio	S	0	0	$7\frac{1}{2}$
24 Bayocs, a Testoon	S	0	1	6
10 Julios, a Crown Current	S	0	5	0
12 Julios, a Stamped Crown	*	0	6	0
18 Julios, a Chequin	G	0	9	0
31 Julios, a Pistole	G	0	15	6
Naples, Gaieta, Capua, &c.				
A Quatrini	C	0	0	$0\frac{3}{16}$
3 Quatrini make a Grain	C	0	0	$0\frac{9}{16}$
10 Grains, a Carlin	S	0	0	4
40 Quatrini, a Paulo	S	0	0	$5\frac{1}{3}$
20 Grains, a Tarin	S	0	0	8
40 Grains, a Testoon	S	0	1	4
100 Grains, a Ducat of Exchange	*	0	3	4
23 Tarins, a Pistole	G	0	15	4
25 Tarins, a Spanish Pistole	G	0	16	9
Palermo, Messina, &c. Malta.				
A Pichili	C	0	0	$0\frac{1}{39}$
6 Pichili make a Grain	C	0	0	$0\frac{2}{13}$
8 Pichili, a Pouli	C	0	0	$0\frac{4}{39}$
10 Grains, a Carlin	S	0	0	$1\frac{7}{13}$
20 Grains, a Tarin	S	0	0	$3\frac{1}{13}$
6 Grains, a Florin of Exchange	*	0	1	$6\frac{6}{13}$
13 Tarins, a Ducat of Exchange	G	0	3	4
60 Carlins, an Ounce	*	0	7	$8\frac{4}{13}$
2 Ounces, a Pistole	G	0	15	4
Bologna, Ravenna, &c.				
A Quatrini	C	0	0	$0\frac{1}{10}$
6 Quatrini make a Bayoc	C	0	0	$0\frac{2}{5}$
10 Bayocs, a Julio	S	0	0	6
20 Bayocs, a Lira	*	0	1	0
3 Julios, a Testoon	S	0	1	6
80 Bayocs, a Scudi of Exchange	S	0	4	3
105 Bayocs, a Ducatoon	S	0	5	3
100 Bayocs, a Crown	S	0	5	0
31 Julios, a Pistole	G	0	15	6
Venice, Berghamo, &c.				
A Picoli	C	0	0	$0\frac{1}{32}$
12 Picoli make a Soldi	C	0	0	$0\frac{3}{8}$

ITALY—*continued.*		£.	s.	d.
6½ Soldi, a Gros	*	0	0	2¼
18 Soldi, a Jule	S	0	0	6
20 Soldi, a Lira	*	0	0	6⅔
3 Jules, a Testoon	S	0	1	6
124 Soldi, a Current Ducat	S	0	3	5⅓
24 Gros, a Ducat of Exchange	*	0	4	4
17 Liras, a Chequin	G	0	9	2
SWITZERLAND.				
Basle, Zurich, Zug, &c.				
A Rap	C	0	0	0 1/24
3 Rapen make a Fening	C	0	0	0⅛
4 Fenings a Cruitzer	C	0	0	0½
12 Fenings, a Sol	*	0	0	1½
15 Fenings, a Coarse Batzen	S	0	0	1⅞
18 Fenings, a Good Batzen	S	0	0	2¼
20 Sols, a Livre	*	0	2	6
60 Cruitzers, a Gulden	S	0	2	6
108 Cruitzers, a Rix Dollar	S	0	4	6
St. Gaul, Appenzel, &c.				
A Heller	C	0	0	0 1/16
2 Hellers make a Fening	C	0	0	0⅛
4 Fenings, a Cruitzer	C	0	0	0½
12 Fenings, a Sol	*	0	0	1½
4 Cruitzers, a Coarse Batzen	S	0	0	2
5 Cruitzers, a Good Batzen	S	0	0	2½
20 Sols, a Livre	*	0	2	6
60 Cruitzers, a Gould	S	0	2	6
102 Cruitzers, a Rix-dollar	S	0	4	3
Berne, Lucern, Neufchatel, &c.				
A Denier	C	0	0	0 1/10
4 Deniers make a Cruitzer	C	0	0	0⅖
3 Cruitzers, a Sol	*	0	0	0⅕
4 Cruitzers, a Plapert	S	0	0	1⅖
5 Cruitzers, a Gros	S	0	0	2
8 Cruitzers, a Batzen	S	0	0	2⅖
20 Sols, a Livre	*	0	2	0
75 Cruitzers, a Gulden	S	0	2	6
135 Cruitzers, a Crown	S	0	4	6
Geneva, &c.				
A Denier	*	0	0	0 1/12
2 Deniers make a Deniere Current	C	0	0	0 1/16
12 Deniers, a Small Sol	C	0	0	0⅛
12 Deniers Current, a Sol Current	C	0	0	0¾
12 Small Sols, a Florin	*	0	0	4½
12 Sols Current, a Livre Current	*	0	1	3
10½ Florins, a Patacon	S	0	3	11¼
15¾ Florins, a Croisade	S	0	5	10⅞
24 Florins, a Ducat	S	0	9	0
GERMANY.				
Hamburg, Bremen, Altona, Lubeck &c.				
A Tryling	*	0	0	0 9/128
2 Trylings make a Sexling	*	0	0	0 1/64
2 Sexlings, a Fening	C	0	0	0 3/32
12 Fenings, a Sheling Lubs	S	0	0	1⅛
16 Shelings, a Marc	*	0	1	6
2 Marcs, a Slet Dollar	S	0	3	0
3 Marcs, a Rix Dollar	S	0	4	6
6¼ Marcs, a Ducat	G	0	9	4½
120 Shelings, a Pound Flemish	*	0	11	6
Hanover, Lunenburg, Zell, &c.				
A Fening	*	0	0	0 7/48
3 Fenings make a Dreyer	C	0	0	0 7/16

GERMANY—*continued.*		£.	s.	d.
8 Fenings, a Marien	c	0	0	$1\frac{1}{8}$
12 Fenings, a Grosh	s	0	0	$1\frac{3}{4}$
8 Groshen, a Half-Gulden	s	0	1	2
16 Groshen, a Gulden	s	0	2	4
24 Groshen, a Rix Dollar	*	0	3	6
32 Groshen, a Double Gulden	s	0	4	8
4 Guldens, a Ducat	G	0	9	4
Dresden, Leipsic, Wismar, Kiel, &c.				
A Heller	*	0	0	$0\frac{7}{30}$
2 Hellers make a Fening	c	0	0	$0\frac{7}{48}$
6 Hellers, a Dreyer	c	0	0	$0\frac{7}{16}$
16 Hellers, a Marien	s	0	0	$1\frac{1}{6}$
12 Fenings, a Grosh	s	0	0	$1\frac{3}{4}$
16 Groshen, a Gould	s	0	2	4
24 Groshen, a Rix Dollar	*	0	3	6
32 Groshen, a Specie Dollar	s	0	4	8
4 Goulds, a Ducat	G	0	9	4
Berlin, Potzdam, Stetin, &c.				
A Denier	*	0	0	$0\frac{7}{270}$
9 Deniers make a Polchen	c	0	0	$0\frac{7}{30}$
18 Deniers, a Grosh	c	0	0	$0\frac{7}{15}$
3 Polchens, an Abras	c	0	0	$0\frac{7}{10}$
20 Groshen, a Marc	*	0	0	$9\frac{1}{3}$
30 Groshen, a Florin	s	0	1	2
90 Groshen, a Rix Dollar	*	0	3	6
108 Groshen, an Albertus	s	0	4	2
8 Florins, a Ducat	G	0	9	4
Vienna, Trieste, Augsburg, Ulm, &c.				
A Fening	*	0	0	$0\frac{7}{60}$
2 Fenings make a Dreyer	c	0	0	$0\frac{7}{30}$
4 Fenings, a Cruitzer	c	0	0	$0\frac{7}{15}$
14 Fenings, a Grosh	s	0	0	$1\frac{13}{30}$
4 Cruitzers, a Batzen	s	0	0	$1\frac{13}{15}$
15 Batzen, a Gould	s	0	2	4
90 Cruitzers, a Rix Dollar	*	0	3	6
30 Batzen, a Specie Dollar	s	0	4	8
60 Batzen, a Ducat	G	0	9	4
Frankfort, Nuremberg, &c.				
A Fening	*	0	0	$0\frac{7}{60}$
4 Fenings make a Cruitzer	c	0	0	$0\frac{7}{15}$
3 Cruitzers, a Keyser Grosh	s	0	0	$1\frac{2}{5}$
4 Cruitzers, a Batzen	s	0	0	$1\frac{13}{15}$
15 Cruitzers, an Ort Gould	s	0	0	7
60 Cruitzers, a Gould	s	0	2	4
90 Cruitzers, a Rix Dollar	*	0	3	6
2 Goulds, a Hard Dollar	s	0	4	8
240 Cruitzers, a Ducat	G	0	9	4
Munich, Munster, Paderborn, &c.				
A Dute	c	0	0	$0\frac{7}{80}$
3 Dutes make a Cruitzer	c	0	0	$0\frac{21}{30}$
2 Cruitzers, an Albus	c	0	0	$0\frac{21}{40}$
8 Dutes, a Stiver	s	0	0	$0\frac{7}{10}$
3 Stivers, a Plapert	s	0	0	$2\frac{1}{10}$
4 Plaperts, a Copstuck	s	0	0	$8\frac{2}{5}$
40 Stivers, a Guilder	s	0	2	4
2 Guilders, a Hard Dollar	s	0	4	8
4 Guilders, a Ducat	G	0	9	4
Prague, Breslaw, &c. Presburg, and Buda, in Hungary.				
A Fening	*	0	0	$0\frac{7}{60}$
2 Fenings make a Dreyer	c	0	0	$0\frac{7}{30}$
3 Fenings, a Grosh	c	0	0	$0\frac{7}{20}$
4 Fenings, a Cruitzer	c	0	0	$0\frac{7}{15}$
2 Cruitzers, a White Grosh	c	0	0	$0\frac{14}{15}$
60 Cruitzers, a Gould	s	0	2	4

		£.	s.	d.
GERMANY—*continued.*				
90 Cruitzers, a Rix Dollar	*	0	3	6
2 Goulds, a Hard Dollar	S	0	4	8
4 Goulds, a Ducat	G	0	9	4
TURKEY.				
Constantinople, Smyrna, Cyprus, &c.				
A Mangar	C	0	0	$0\frac{3}{20}$
4 Mangars make an Asper	*	0	0	$0\frac{3}{5}$
3 Aspers, a Para	S	0	0	$1\frac{3}{5}$
5 Aspers, a Bestic	S	0	0	3
10 Aspers, an Ostic	S	0	0	6
20 Aspers, a Solota	S	0	1	0
80 Aspers, a Piastre	*	0	4	0
100 Aspers, a Caragrouch	S	0	5	0
10 Solotas, a Xeriff	G	0	10	0
PERSIA.				
Ispahan, Ormus, Gombroon, &c.				
A Coz	C	0	0	$0\frac{2}{5}$
4 Coz make a Bisti	C	0	0	$1\frac{3}{5}$
10 Coz, a Shahee	S	0	0	4
20 Coz, a Mamudi or Mamoudi	S	0	0	8
25 Coz, a Larin	S	0	0	10
4 Shahees, an Abashe or Abassi	S	0	1	4
5 Abashees, an Or	G	0	6	8
12 Abashees, a Bovello	G	0	16	0
50 Abashees, a Tomond or Toman	*	3	6	8
ARABIA.				
Mecca, Medina, Mocha, &c.				
A Carret	C	0	0	$0\frac{1}{8}$
$5\frac{1}{4}$ Carrets make a Caveer	C	0	0	$0\frac{156}{200}$
7 Carrets, a Comashee	C	0	0	$8\frac{9}{10}$
80 Carrets, a Larin	S	0	0	$10\frac{1}{8}$
18 Comashees, an Abyss	S	0	1	$4\frac{1}{5}$
60 Comashees, a Piastre	*	0	4	6
80 Caveers, a Dollar	S	0	4	6
100 Comashees, a Sequin	S	0	7	6
80 Larins, a Tomond	*	3	7	6
INDIA.				
Calcutta, Calicut, &c.				
A Pice	C	0	0	$0\frac{5}{32}$
4 Pices make a Fanam	C	0	0	$0\frac{5}{8}$
6 Pices, a Viz	C	0	0	$0\frac{15}{16}$
12 Pices, an Ana	S	0	0	$1\frac{7}{8}$
10 Anas, a Fiano	S	0	1	$6\frac{3}{4}$
16 Anas, a Rupee	S	0	2	6
2 Rupees, an English Crown	S	0	5	0
2 Rupees, a French Crown	S	0	5	0
56 Anas, a Pagoda	G	0	8	9
Madras, Pondicherry, &c. Coromandel Coast.				
A Cash, or Cas, or Casoe	C	0	0	$0\frac{3}{80}$
5 Cash make a Viz	C	0	0	$0\frac{3}{16}$
2 Viz, a Pice	C	0	0	$0\frac{3}{8}$
6 Pices, a Pical	S	0	0	$2\frac{3}{4}$
8 Pices, a Fanam	S	0	0	3
10 Fanams, a Rupee	S	0	2	6
2 Rupees, an English Crown	S	0	5	0
36 Fanams, a Pagoda	G	0	8	9
4 Pagodas, a Gold Rupee	G	1	15	0
Cambay, Surat, Din, Narwalla, &c.				
A Pecka	C	0	0	$0\frac{15}{32}$
2 Peckas make a Pice	C	0	0	$0\frac{15}{32}$
4 Pices, a Fanam	S	0	0	$1\frac{7}{8}$
5 Pices, a Viz	S	0	0	$2\frac{19}{32}$

INDIA—*continued.*

		£.	s.	d.
10 Pices, an Ana	S	0	0	$7\frac{1}{2}$
4 Anas, a Rupee	S	0	2	6
2 Rupees, an English Crown	S	0	5	0
14 Anas, a Pagoda	G	0	8	9
4 Pagodas, a Gold Rupee	G	1	15	0
Bombay, Dabul, &c. Malabar Coast.				
A Budgrook	*	0	0	$0\frac{27}{800}$
2 Budgrooks make a Ree	*	0	0	$0\frac{27}{400}$
5 Rez, a Pice	C	0	0	$0\frac{27}{80}$
16 Pices, a Laree	S	0	0	$5\frac{2}{3}$
20 Pices, a Quarter	S	0	0	$6\frac{3}{4}$
240 Rez, a Xeraphim	S	0	1	$4\frac{1}{5}$
4 Quarters, a Rupee	S	0	2	3
14 Quarters, a Pagoda	G	0	8	0
60 Quarters, a Gold Rupee	G	1	15	
Goa, Visapoor, &c. Malabar Coast.				
A Ree	*	0	0	$0\frac{27}{400}$
2 Rez make a Bazarco	C	0	0	$0\frac{27}{200}$
2 Bazarcos, a Pecka	C	0	0	$0\frac{27}{100}$
20 Rez, a Vintin	S	0	0	$1\frac{7}{20}$
4 Vintins, a Laree	S	0	0	$5\frac{2}{5}$
3 Larees, a Xeraphim	S	0	1	$4\frac{1}{5}$
42 Vintins, a Tangu	S	0	4	6
4 Tangus, a Paru	G	0	18	0
8 Tangus, a Gold Rupee	G	1	16	0
Siam, Pegu, Java, Ava, Malacca, &c.				
A Ceri	C	0	0	$0\frac{3}{40000}$
800 Cori make a Fettee	C	0	0	$0\frac{3}{50}$
125 Fettees, a Sataleer	S	0	0	$7\frac{1}{2}$
250 Fettees, a Sooco	S	0	1	3
500 Fettees, a Tutal	S	0	2	6
900 Fettees, a Dollar	S	0	4	6
2 Tutals, a Rial	S	0	5	0
5 Soocos, a French Crown	S	0	5	0
8 Sataleers, an English Crown	S	0	5	0

CHINA.

Pekin, Nankin, Canton, &c.				
A Caxa, Cachea, or Caya	*	0	0	$0\frac{2}{25}$
10 Caxa make a Candareen	C	0	0	$0\frac{4}{5}$
10 Candareens, a Mace	S	0	0	8
35 Candareens, a Rupee	S	0	2	3
2 Rupees, a Dollar	S	0	4	6
70 Candareens, a Rix Dollar	S	0	4	$4\frac{1}{2}$
7 Maces, a French Crown	S	0	4	8
2 Rupees, an English Crown	S	0	5	0
10 Maces, a Tale	*	0	6	8

JAPAN.

Jeddo, Meaco, &c.				
A Piti	C	0	0	$0\frac{1}{5}$
20 Pitis make a Mace or Aras	S	0	0	4
$14\frac{1}{2}$ Maces, an Oz. Silver	S	0	4	10
20 Maces, a Tale or Tael	S	0	6	8
29 Maces, an Ingot	G	0	10	0
13 Oz. Silver, an Oz. Gold	G	3	2	10
2 Oz. Gold, a Japaneses	G	6	5	4
2 Japaneses, a Double	G	12	10	8
21 Oz. Gold, a Cuttee	G	65	19	6

EGYPT.

Alexandria, Cairo, Sayd, &c.				
An Asper	C	0	0	$0\frac{5}{9}$
3 Aspers make a Medin	S	0	0	$1\frac{2}{3}$

EGYPT—*continued.*		£.	s.	d.
24 Medins, an Italian Ducat	s	0	3	4
80 Aspers, a Piastre	*	0	4	0
30 Medins, a Dollar	s	0	4	6
96 Aspers, an Ecu	s	0	5	0
32 Medins, a Crown	s	0	5	0
200 Aspers, a Sultanin	G	0	10	0
70 Medins, a Pargo Dollar	*	0	10	6
BARBARY.				
Algier, Tunis, Tripoli, &c.				
An Asper	c	0	0	0¾
3 Aspers make a Medin	s	0	0	1⅔
10 Aspers, a Rial, Old Plate	s	0	0	6¾
2 Rials, a Double	s	0	1	1½
4 Doubles, a Dollar	s	0	4	6
24 Medins, a Silver Chequin	s	0	3	4
30 Medins, a Dollar	s	0	4	2
180 Aspers, a Chequin	G	0	10	1½
15 Doubles, a Pistole	G	0	16	10½

APPENDIX, No. II.

CATALOGUE OF TRADES AND OCCUPATIONS.

The following is a Catalogue of such Trades and Occupations as are ordinarily followed in the Metropolis, and other large cities of Great Britain, with an averaged estimate of the Capitals required to commence the exercise of them respectively.

The reader of discernment will appreciate such an attempt by the utility of its general design, rather than by the actual precision of its execution in every particular instance; because he must immediately perceive that no rules can be laid down on such a subject, which do not necessarily involve numerous exceptions: those, however, may be reasonably considered as cases out of the *ordinary course,* to which alone the Editor of a work for the *ordinary purposes* of life ought to confine himself. If a mere existence be sought by the young beginner, his object, at least in all the inferior trades, may probably be obtained with a smaller capital than is insisted on in this representation; if a *début* of splendour and celebrity be his pursuit, the requisite means can only be limited by the extent and magnitude of his purpose. At all events, it must be observed that the account here exhibited refers solely to the capitals required for *establishing* tradesmen, and does not involve the intricate considerations of long credit, probable losses, and other concomitant liabilities incident to the subsequent continuance and pursuit of the numerous trades here exemplified.

	£.		£.
Anchorsmith	250	to	500
Agriculturist (generally)	1000	to	3000
Accountant and Arbitrator	200	to	300
Appraiser and Furniture Broker	150	to	300
Auctioneer and Appraiser	250	to	1000
Accoutrement and Belt Maker, or Girdler	150	to	500
Agent, Army	1000	to	2000
—— Navy	100	to	250
—— Irish Linen	150	to	250
Apothecary	250	to	500
Architect and Surveyor	200	to	300
Attorney at Law	250	to	350
Armourer. See Brazier.			
Bobbin and Skein-wire Maker and Coverer	100	to	150
Bombazin Manufacturer, Warehouse	250	to	500
Back Maker	150	to	250

	£.	£.
Bacon Dealer and Smoker. See Factor.	100 to	250
Baker	200 to	500
Band-box Maker	20 to	30
Banker	5000 to	10000
Barber, Hair Cutter and Dresser	25 to	100
Basket Maker	50 to	150
Bead, Feather, and Flower Manufacturer	100 to	250
Bedstead and Wooden Chair Maker	50 to	150
Bell-founder. See Brass.		
—— Hanger. See Locksmith.		
Bird-cage Maker. See Wire-worker.		
Biscuit Baker	200 to	500
Blacking Maker	20 to	150
Blacksmith, (Horse Shoes, &c.)	30 to	100
Blackwell-Hall Factor. See Cloth-worker.		
Block Maker for Ships	200 to	300
—— Hat and Wig Block, and Skittle and Bowl Maker	50 to	100
Blind (Window) Maker	100 to	150
Blue Manufactory (Indigo)	100 to	300
Bookbinder	50 to	350
Bookseller	250 to	1000
Book Publisher	200 to	500
Boot and Shoe Maker	100 to	200
Box and Packing Case Maker	100 to	250
Brandy Merchant. See Wine.		
Brass Founder	150 to	850
Brazier (Shop)	300 to	600
Bricklayer	150 to	500
Breeches Maker	100 to	200
Brewer, Ale, with Table Beer	250 to	2000
——— Porter	500 to	10000
Bridle Cutler	50 to	150
Brush Maker (with Mops)	100 to	250
Builder	500 to	1000
Butcher	100 to	350
Button Seller and Shop	500 to	1000
Button Maker, Gold, Silver, Metal, Silk, and Thread	1000 to	2000
Brick Maker	100 to	300
Broker, of the Exchange	100 to	250
——— of Furniture. See Appraiser.		
——— Ship	150 to	300
Capillaire, and Colouring Maker for Wine, Beer, &c.	200 to	300
Cabinet Maker and Upholsterer	150 to	500
Calico Printer and Bleacher	300 to	600
Card Maker (Manufacturer of Pasteboard, &c.)	100 to	250
——— Playing Cards	250 to	1000
Carpenter	50 to	600
Carpet Manufacturer	250 to	500
Carver and Gilder, of Picture Frames, &c.	50 to	150
Chaser, of Gold and Silver	150 to	250
Cheesemonger, &c.	100 to	500
Chemist and Druggist	300 to	500
China and Glass Warehouse	150 to	500
Clasp Maker for Books	20 to	30
Clock Maker	100 to	250
Cloth Worker	250 to	500
Coach Builder	500 to	1000
—— Painter	50 to	100
—— Currier	400 to	800
—— Founder and Plater	150 to	200
—— Harness Maker	150 to	350
Coach-Master, or Proprietor	150 to	500
Coal Merchant	500 to	1000
—— Dealer, (called also Merchant)	200 to	300
Coffee-house Keeper	250 to	500
—— Shop	50 to	100

	£.	£.
Coffin Maker, and Furnishing Undertaker	150 to	250
—— Furniture Maker	50 to	100
Comb Maker	50 to	150
Cook and Confectioner	300 to	500
Cooper	100 to	500
Copper-plate Printer	50 to	150
Copper Smith	100 to	500
Cork Cutter	50 to	60
Corn Dealer, Factor or Chandler (Shop)	250 to	500
Currier	300 to	600
Counsellor	500 to	1000
Chip and Willow Hat Maker	100 to	250
Cutler, or Manufacturer of Knives, &c. (Shop)	400 to	500
Cow-keeper	300 to	600
Dentist, and Operator for the Teeth and Gums	50 to	150
Designer or Draughtsman for Manufactories	50 to	150
Diamond Cutter	100 to	150
Distiller and Rectifier	500 to	1000
——— of Malt	2000 to	6000
Dress and Pelisse Maker	50 to	150
Dyer and Scowerer	150 to	300
Drum, Tamborine. See Music.		
Earthen-ware, &c. Shop. And see China.	50 to	100
Edge Tool Maker	100 to	300
Embroiderer (with Spangles and Bugles.	50 to	150
Enameller, or Dial-plate Maker	60 to	100
Engineer (Civil) Engine Maker. Tool, Lathe, and Iron Machine Maker	250 to	1000
Engraver of Copper-plates	250 to	400
——— Seal and Silver	100	
Flatting Mill	150 to	250
Fan-stick Maker or Carver	25 to	50
Fan Maker, or Mounter	50 to	100
Factor, of Cloth, Butter (Salt) and Bacon, Cheese, Corn, &c.	250 to	500
Farrier (called Horse Doctor). And see Veterinarian	25 to	75
Fellmonger	100 to	500
File Cutter	100 to	150
Fish-hook Maker	50 to	100
Fishing-rod and Tackle maker	50 to	250
Fishmonger	50 to	250
Flax Dresser	50 to	100
Floor-cloth Painter	300 to	700
Flower and Feather Manufacturer	100 to	150
Founder, Iron	100 to	1000
Fringe Maker (Worsted) with Lace, Tassel and Trimmings	200 to	400
Fruiterer and Green Grocer	50 to	100
Fruit Dealer, Foreign	100 to	250
Fuller, or Tucker	250 to	500
Furrier	200 to	400
Furniture Printer (Shop)	250 to	500
Fustian Weaver	200 to	300
Gardener (Kitchen and Flower)	250 to	350
——— Market	150 to	300
Grazier	300 to	600
Gilder, House, or Sign Painter	200 to	400
Gardener, or Nurseryman	300 to	500
Gingerbread Baker	100 to	150
Girdler. See Accoutrement.		
Glass Grinder and Polisher, for Looking-glasses	100 to	250
—— Plate Glass Warehouse	500 to	1000
—— Window Glass Warehouse	250 to	1000
—— See also China.		

	£	£.
Glazier	100 to	250
Glover (Shop)	200 to	400
Gold Beater	150 to	250
Gold and Silver Lace Man, with Refiner	600 to	3000
Goldsmith (*i. e.* Silver Goods)	500 to	2000
Gold Ring, &c. Maker	100 to	250
Green Grocer. See Fruiterer.		
Grocer	500 to	800
Gunsmith	250 to	500
—— Engraver —— Inlayer —— Lock Maker —— Stocker or Finisher	100	
Haberdasher, generally	250 to	500
Hair Dresser and Cutter. See also Barber.	25 to	150
—— Merchant	150 to	1000
—— Ornamental Hair Maker	25 to	150
—— Horse Hair Manufacturer	50 to	100
Hardwareman	250 to	1000
Harness Maker, generally	150 to	300
Hat Maker, or Manufacturer (Beaver)	250 to	500
Hatter (Shop)	300 to	600
Hat (Silk), Coverer or Maker	100 to	300
— Straw Hat Maker's Shop	150 to	300
Hellier or Slater	50 to	150
Hemp and Flax Dresser	150 to	350
Herald Painter	50 to	100
Hop Factor (or Merchant)	500 to	2000
Horse Dealer	100 to	500
Hosier	250 to	500
Hot-presser, Calenderer and Glazier	200 to	350
House Painter	100 to	200
——— Ornamenter and Painter, or Decorator	150 to	300
Hame Maker (the iron of Harness)	50 to	100
Honey and Bees-wax Warehouse	200 to	400
Japan (Artificer)	100 to	200
——— Retail Dealer	300 to	500
——— Wholesale Dealer	1000 to	2000
Jack-smith	150 to	200
Jeweller and Watch Maker (Shop)	500 to	1000
——— Working	50 to	150
Ink Maker (Wholesale)	50 to	100
Job Warehouseman	500 to	1000
Joiner. And see Box Maker	100 to	300
Ironmonger, (Shop or Furnishing Ironmonger)	300 to	600
——————— Dealer in Bars, Steel Yard, or Iron Wharf	500 to	1000
Law Stationer. See Scrivener, Stationer.		
Lace Maker, of Gold and Silver. See Gold Lace-man	100 to	150
—— Furniture, with Trimmings, &c.	250 to	500
Lace Man, Dealer in Silk, Thread, and Cotton Lace	300 to	600
Lamp Maker, &c. with Oil, &c.	150 to	300
Lapidary	50 to	100
Last, Heel, and Patten Wood Maker	50 to	100
Land Surveyor	250 to	300
Leather Cutter. See Currier.		
Letter-founder, or Castor	500 to	1000
——— Case Maker	50 to	100
Linen Draper	250 to	600
Locksmith and Bell-hanger	50 to	60
Loriner, Bridle, Bit, and Stirrup Maker	100 to	150
Looking-glass Maker, or Silverer, &c.	200 to	500
Leather Gilder	150 to	250
Lime Burner	250 to	500

	£.	£.
Maltster, or Malt Maker	500 to	1500
Mangle, and Press Maker. See Press.		
Marbler, or Marble-Paper Maker	25 to	150
Mantua and Fancy Dress Maker	100 to	150
Map and Print Seller	250 to	500
Mariner	1000 to	3000
Mason (Stone)	250 to	500
Mast Maker	200 to	400
Mathematical and Optical Instrument Maker, &c.	300 to	1000
Medicines (Vendor of)	150 to	350
Mercer (Silk)	1500 to	3000
Merchant	2000 to	10000
Metal, Fan and Skylight Manufacturer	150 to	250
Millwright, or Maker	250 to	500
Milliner (Shop)	500 to	800
Mineral Water Warehouse	200 or	300
Music Seller	250 to	500
Musical Instrument Maker (Shop)	200 to	400
——— Flute and Fife Maker	100 to	250
——— Violin and Bass Viol Maker	100 to	250
——— Oboe, Clarionet, &c. Maker	100 to	250
Needle Maker	40 to	50
Net Maker	25 to	50
Newsman	50 to	300
Notary Public	200 to	500
Oil and Colour-man	250 to	500
Oil-man, Pickle and Fish Sauce Warehouse	250 to	1000
Optician. And see Mathematician	200 to	400
Organ Builder. See Piano Forte Maker.		
Packer, Pressman and Calenderer	150 to	300
Painter, House	150 to	250
——— Grainer, Marbler, and Ornamenter. See also Coach.	150 to	200
Paper-hanger	150 to	200
——— Stainer, and Stansil Decorater.	100 to	200
Paper-hanging Maker	250 to	500
Paper-Maker	500 to	1500
Parasol. See Umbrella.		
Pastry Cook, with Confectionary	50 to	150
Patten Maker, with Clogs for Women	50 to	100
——— Tie Maker	25 to	50
——— Wood Maker. See Last, &c.		
Paviour	100 to	150
Pawn-broker	1000 to	2000
Pencil Maker (Black Lead)	30 to	60
——— Camel Hair, Maker	25 to	30
Pearl Setter and Stringer. See Jeweller.		
Perfumer	150 to	300
Perriquier. See Wig.		
Pewterer, with Tin and Copper Work	300 to	600
Physician	500 to	1000
Picture-frame Maker	30 to	50
——— Carver and Gilder, &c.	30 to	100
Piece Broker, with Trimmings for Taylors	10 to	50
Piano-forte Maker, with Organs	200 to	500
Pin Maker	50 or	60
Pin and Needle Maker (Shop)	250 to	1000
Plaisterer and White-washer. And see Decorater.	50 to	100
Plaister Figure-maker.	50 to	250
Plater. See Coach-founder.		
Plane Maker	100 to	250
Plumber	100 to	150
Pocket book and Travelling-case Maker. And see Letter-case Maker	100 to	200
Porkman, and Sausage Maker. And see Butcher.	50 to	150
Potatoe Merchant	50 to	250

	£.	£.
Potatoe Dealer, (with Coals and Wood)	10 to	50
Potter, or Porcelaine Manufacturer	500 to	1500
——— of Coarse Earthenware	100 to	150
Poulterer, with Eggs, Sausages, &c.	20 to	60
Press, Chaff Cutter and Mangle Maker. See Stone.	150 to	250
Purveyor, *i. e.* the Procurer of certain Articles of Life, as Fish, Butter, Oil, Milk, Poultry, &c. all which see.		
Printer of Books, &c.	150 to	500
——— Cotton. See Calico Printer.		
Printer's Smith and Joiner	150 to	250
——— Ink Maker	50 to	150
Proctor	250 to	500
Provision Merchant, or Warehouse	100 to	500
Publican	150 to	500
Publisher. See Boookseller. Pamphlets.		
Pump Maker (Wood), and see Water-closet Maker	100 to	200
Pipe and Bucket Maker (Leather)	50 or	60
—— Maker. See Tobacco-pipe.		
Pen Cutter and Quill Dealer	100 to	250
Pilot	50	
Plumassier. See Feather.		
Planisher or Burnisher of Silver Goods	50 to	150
Rag Merchant	150 to	500
Refiner. See Goldsmith, Lace, Sweepwasher,		
Ribbon Weaver	50 to	100
——— Manufacturer, or Warehouse	250 to	500
Robe Maker	150 to	300
Rope Maker, Line and Twine Spinner	50 to	150
Rectifier. See Distiller.		
Rockinghorse Maker. See also Figure-block, &c.	20 to	50
Rule Maker, otherwise Scales and Gauging-rods	50 to	60
Sacking Weaver	150 to	200
Sack Maker	50 to	100
Saddler, with Whips, Bridle, and Harness	150 to	300
Sail Maker	500 to	1000
Saw Maker	30 to	50
Sawyer. See also Veneer and Inlay-wood Cutter.	50 to	60
Scale and Weight Maker, with Weighing Machine	100 to	250
Scotch Warehouseman, *i. e.* Shawl, Muslin, &c.	250 to	1000
Scrivener and Law Stationer	500 to	800
Sculpture and Statuary	250 to	500
Salesman of Clothes	100 to	150
——— Eggs and Poultry, ——— Butter (Fresh) ——— of Fish (Cured and Fresh) ——— of Fruit and Garden Produce	50 to	100
——— of Fish	50 to	250
——— of Cattle and Sheep, living	250 to	500
——— of Meat (dead or packed)	50 to	100
——— Manufacturers', (for Clothes, &c.)	250 to	500
——— Hide,	500 to	750
——— Hay	100 or	150
Seedsman, with Garden requisites	200 to	400
Ship Builder	500 to	5000
Ship Joiner	100 to	250
—— Carver and Ornamenter	50 to	150
—— Mast Maker	200 to	400
Shear Maker for Cloth Worker	100 to	300
Shoemaker, with Boots (Shop)	150 to	250
——— Shop, or Seller merely	100 to	150
——— Wooden	20 to	30
———'s Tools and Grindery Shops (Hilts)	50 to	150
Sign Painter, with Graining, Gilding, &c.	100 to	200
Silk Mercer (Warehouse)	1500 to	3000

	£.	£.
Silk Man	5000 to	15000
—— Throwster, or Thrower. And see Ribbon.	1000 to	2000
—— Weaver, Plain, Flowered (Brocade)	250 to	1000
Silver and Gold Thread Spinners	50 to	100
—— Smith, Working. See Goldsmith	150 to	250
————'s Shop, chiefly of Sundries, with Plated Goods, &c.	250 to	500
—— Spoon Maker	200 to	300
———— Threader, or Ornamenter	100 to	250
Skinner, now called Furrier, which see.		
Skin Dealer (Raw), of Sheep and Calves, also Hides. See Salesman (Hide).	100 to	500
Slop Merchant (Seller of Slops)	250 to	500
Slater. See Hellier.		
Smith (White) as Tire, House jobs, &c. See also Blacksmith, Silversmith, Founder.	100 to	200
Snuff Maker and Tobacconist's Shop	250 to	600
Soap Boiler—the Manufacturer. See Tallow.	1500 to	3000
Spectacle Maker. See Optician and Mathematical.	100 or	150
Spruce Beer Maker, with Ginger Beer	100 to	150
Stansil Painter. See Paper.		
Starch Maker	500 to	1000
Stationer (Unmixed)	400 to	800
——— with Books	100 to	350
——— Law, with Stamps, &c.	300 to	600
Stable Keeper, Livery. See Coach Master	200 to	500
Statuary. See Sculptor.		
Stone and Lime Dealer, or Wharf	300 to	500
—— Bottle and Jug Manufacturer	150 to	300
Stay and Corset Maker	50 to	100
Stick, (Walking) Maker, with Canes, &c.	20 to	50
Stocking Frame Maker. See Engineer.		
——— Weaver. *prov.* Stockinger	50 to	100
——— Trimmer. See Hosier, Haberdasher.	50 to	100
Stoves or Stove-grate Maker. See Ironmonger.		
Straw Hat Maker	100 to	200
—— Plait Dealer, or Warehouse. See Haberdasher, Hat.	250 to	350
Stucco Worker, or House Decorator, which see.		
Sugar Refiner, or Baker	750 to	2000
Surgeon	500 to	1000
Surgeon's Instrument Maker, with Trusses and Cutlery	150 to	300
Surveyor of Buildings. See also Land Surveyor.	200 to	300
Sweepwasher, with Refining	100 to	250
Sword Cutler	200 to	500
—— Belt. See Accoutrement.		
Shawl Manufacturer's Warehouse	500 to	1000
—— Warehouse, with *et ceteras*		
Steel Cutter	100	
Slaughterer	30 to	50
Tallow Chandler and Melter, (Candles and Soap.) See Soap. Wax.	500 to	1000
Tanner	500 to	1000
Tassel and Frog Maker, Worsted. See Fringe.		
———— for Gold, Silver, &c. See Button.		
Tavern Keeper. See also Cook. Coffee. Wine	600 to	1000
Taylor	100 to	500
Tea man, with Coffee (see also Grocer)	800 to	1500
—— Dealer, wholesale	1500 to	6000
Threader. See Silver.		
Tin Plate Worker	100 to	250
—— Shop. See also Brazier.	200 to	400
Tobacco and Snuff Dealer. See Snuff.	200 to	40
Tobacco Pipe Maker	50 to	150
Toyman, or Vender (Shop)	150 to	300
Toy Warehouse	500 to	750
—— Maker, generally	10 to	100
Trimming Maker. See Button. Fringe. Lace.		
Trunk and Travelling Case Maker. See Box and Packing Case	150 to	300

	£.	£.
Truss Maker, and Amender of Deformities. See also Surgical.	50 to	250
Turner in Brass, Iron or Steel. See Engine.		
——— in Ivory, or Hard Wood	100 to	150
——— Silver	150 to	250
——— Wood. See also Block.	50 to	100
Type Founder and Matrix Maker	500 to	1000
Timber Merchant	500 to	1500
——— and Deal Yard, with Mahogany, Veneer Satin Woods	250 to	500
——— Dealer; Jobber in Old Materials	10 to	100
Varnish Maker (and see Japan)	100 to	200
Vellum and Parchment Maker	50 to	250
——— Binder	50 to	150
Veneer and in-lay Wood Cutter	100 to	150
Veterinarian, or Horse Surgeon	200 to	300
Victualler (licensed). See Cook, Coffee House, Publican, Tavern, Wine.		
Upholsterer, or Upholder, and Cabinet Maker	250 to	1000
Umbrella Maker, or Coverer, (with Parasols)	50 to	250
——— Skeleton Maker	30 to	50
Undertaker (and see Cabinet, Upholsterer)	100 to	200
Vinegar Maker	500 to	3000
Warehouseman. For Cotton Goods	250 to	2000
Water-closet, and Lifting Pump Maker, and Plumber	150 to	200
Wax Chandler; including Sealing Wax Maker	250 to	500
—— and Tallow Chandler	200 to	400
Wheelwright	100 to	200
Whitening Maker	50 to	150
Whip Maker (and see Saddler)	30 to	100
Wig Maker, or Perruquier	25 to	150
Wine Merchant	1000 to	2500
—— and Brandy Merchant, or Retailer	300 to	600
—— (British) Manufacturer	150 to	750
Wire-drawer. See Bobbin	500 to	800
—— Worker, (i. e. Cages, Safes, and Fire Guards)	100 to	200
Wood Engraver for Books	50 to	100
—— Cutter, of Blocks for Cotton Printing, &c.	50 to	100
Wool Comber	150 to	200
—— Card Maker	50 to	100
—— Sorter, and Stapler	500 to	1000
Worsted, Dealer in	250 to	500
Woollen Draper	500 to	2000
Writing Desk, Copying Machine, &c. Maker	100 to	200
Whale-bone Merchant	500 to	1000
——— Manufacturer	200 to	500
Weaver. Broad Cloth	250 to	1000
———, Silk	250 to	1000
Watch Maker (Shop)	200 to	500
——— Manufacturer	500 to	1500
——— Case Maker	150 to	200
——— Motion Maker	20 to	50
——— Maker's and Jeweller's Tool Warehouse	150 to	300
Wharfinger	500 to	1000
Well Sinker, or Digger	50 to	100

APPENDIX, No. III.

ABSTRACT OF AN ACT

FOR

THE REPEAL OF THE SEVERAL DUTIES OF CUSTOMS

IMPOSED BY DIVERS PRECEDING STATUTES.

AND FOR

GRANTING OTHER DUTIES IN LIEU THEREOF,

Being the 59 Geo. 3. c. 52.

IT recites, First, that an act was made in the forty-ninth year of his present majesty's reign, for repealing the several duties of customs chargeable in Great Britain, and for granting in lieu thereof, certain other duties of customs and certain drawbacks in respect thereof.

Secondly, that by an act made in the 54th year of his present majesty's reign, certain duties of customs were imposed on goods, wares, and merchandise imported into Great Britain from any port or place within the limits of the charter granted to the united company of merchants of England trading to the East Indies.

Thirdly, that several new and additional duties of customs have from time to time been granted and made payable in Great Britain by several acts made since the making of the said recited acts.

Fourthly, that it is expedient that the several duties of customs now payable in Great Britain should be consolidated, and that for that purpose all duties of customs now payable in Great Britain should cease and determine, and that other duties of customs should be granted and made payable in lieu thereof, with the following exceptions, viz.

1st, So far as shall relate to the recovering, allowing, or paying any arrears of duties and drawbacks respectively, which may remain unpaid or not allowed on the 5th of July 1819, and all fines, penalties, or forfeitures relating thereto respectively, which shall have been incurred at any time on or before the said 5th of July.

2dly, The duties of package, scavage, baillage, or portage, and all other duties payable to the mayor and commonalty and citizens of the city of London, or to the lord mayor of the said city for the time being, or to any other city or town corporate within Great Britain, or any other special privilege or exemption to which any person or persons, or body or bodies politic or corporate, within Great Britain, is or are now entitled by law.

3dly, The duties on ships or vessels according to the tonnage thereof, granted and imposed by an act passed in the 39th year of the reign of his present majesty, for better regulating the port of London, and any act or acts for amending the same, or any of the duties granted and imposed by an act passed in the 45th year of the reign of his present majesty, for the more effectual performance of quarantine, and any act or acts for amending the same.

4thly, The duties on goods, wares, and merchandise imported, and on ships or vessels according to the tonnage thereof, granted and imposed by an act passed in the 55th year of the reign of his present majesty, as an indemnity to the South Sea Company for certain privileges of which they were deprived by that act, and of any act or acts for amending the same.

5thly, The provisions contained in two acts for the union of Great Britain and Ireland, the one made in the parliament of Great Britain, in the 39th and 40th years of his present majesty's reign, and the other made in the parliament of Ireland in the 40th year of his present majesty's reign, or in any other act or acts in force on or immediately before the said 5th of July 1819, by which any goods, wares or merchandise, the growth, produce, or manufacture of Ireland, imported into Great Britain from Ireland, or any goods, wares, or merchandise, the growth, produce, or manufacture of Great Britain, exported from Great Britain to Ireland, are respectively made liable to or are charged with or exempted from any duties of customs, whether countervailing or others,

or by which any drawbacks are allowed or given on the exportation of such goods, wares, or merchandise.

It then enacted, That from and after the 5th of July 1819, in lieu and instead of the subsidies and duties of customs hereby made to cease and determine, there shall be raised, levied, collected, and paid unto his majesty, his heirs and successors, in ready money, (except as hereinafter is provided,) without any discount whatever, upon goods, wares, and merchandise imported or brought into Great Britain, the several duties of customs as the same are respectively inserted, described, and set forth in figures in the tables to this act annexed, marked A. and B., and upon goods, wares, and merchandise exported from Great Britain, the several duties of customs as the same are respectively inserted, described, and set forth in figures in the table to this act annexed marked C., and upon goods, wares, and merchandise brought or carried coastwise from one port or place in Great Britain to any other port or place within Great Britain, the several duties of customs as the same are respectively inserted, described, and set forth in figures in the table to this act annexed marked D.; and upon ships or vessels, according to the tonnage thereof, entering inwards or outwards in any port of Great Britain from or to foreign parts, the several duties of customs as the same are respectively inserted, described, and set forth in figures in the table hereunto annexed marked E.; and that there shall also be paid or allowed the several drawbacks of the several duties of customs as the same are also respectively inserted, described, and set forth in figures in the said tables A. B. and D.; any law, custom, or usage to the contrary notwithstanding. And that such of the duties and drawbacks of customs by this act imposed, as shall arise in England and Scotland, shall be under the management of the commissioners of England and Scotland respectively, for the time being.

That from and after the said 5th of July 1819, all duties of customs and excise charged and paid on the importation into Great Britain of any foreign or colonial goods, wares, or merchandise, shall, on the exportation from Great Britain to Ireland of such goods, &c. be drawn back, and paid and allowed to the exporters of such goods, &c. subject to all such rules and regulations as are required by any act or acts in force in Great Britain immediately before the said 5th of July 1819.

That on the importation of any foreign goods, wares, or merchandise, into Great Britain, from Ireland, such import duty of customs shall be paid and payable as if such foreign goods, &c. had been imported from foreign parts, either directly from the place of their growth or produce, or not directly from such place, according as they were in fact at first so imported from foreign parts into Ireland; and that for the purpose of ascertaining whether any such goods, &c. were first imported into Ireland directly from the place of their growth or produce, or not directly from such place, it shall be specified and set forth in every cocket or clearance of any such foreign goods, &c. exported from Ireland to Great Britain, whether such goods, &c. were first imported directly from the place of their growth or produce, or not directly from such place, and the import duty of customs on such goods, &c. shall be payable accordingly on such goods when imported into Great Britain from Ireland; and if it shall not be expressed and set forth in such cocket or clearance of such goods, &c. whether the same were so first imported into Ireland directly from the place of their growth or produce or not, then and in such case such goods, &c. shall be deemed liable to such duties of customs on their importation into Great Britain from Ireland, as if the same had been imported from foreign parts, not directly from the place of their growth or produce; any thing in any act or acts to the contrary notwithstanding.

That the duties imposed by this act upon the importation of Buck Wheat, inserted, described, and set forth in the Table marked A. shall continue and be in force until the 25th day of March, 1821, and no longer.

That the duty of 6*s.* 3*d.*, specified in the Table marked A. on every 100lb. weight of Cotton Wool, not being the produce of and directly imported from any British colony or plantation in America, shall continue and be in force until and upon the 5th day of July, 1822, and no longer; and that all cotton wool, and waste of cotton wool, being the produce of, but not imported directly from any British colony or plantation in America, and all cotton wool, and waste of cotton wool, the produce of any other country or place which shall be so imported *on or before* the 5th day of January, 1820, shall be subject and liable to the duties upon every 100lb. weight thereof mentioned, specified, and set forth in the Tables marked A. and B.; and that all such cotton wool, and waste of cotton wool, which shall be so imported from and *after* the said 5th day of January, 1820, shall be subject to the duties in respect of the value thereof, mentioned, specified, and set forth in the said Tables marked A. and B.; provided always, that upon all cotton wool, or waste of cotton wool, which shall have been or shall be secured in warehouses without payment of duty at any time *previous* to the said 5th day of January, 1820, the duty of 8*s.* 7*d.* for every 100lb. weight thereof shall be charged and paid at any time, as well *after as before* the said 5th day of January, 1820, when such cotton wool shall be taken out of warehouse for home consumption.

That the duties imposed by this act, and specified, mentioned, and set forth in Table D., upon COALS or CULM brought or carried coastwise to any port or place within the principality of Wales, shall continue in force until the 1st of August, 1820, and no longer; and that *from and after* the said 1st of August, 1820, coals or culm brought or carried coastwise to any port or place within the said principality, shall be subject and liable to such and the like duties as coals or culm brought or carried coastwise into any port or place in England, except the port of London, are subject and liable to under this act, and the said Table D. thereto annexed, or shall be subject or liable to under any act in force, immediately before the said 1st of August, 1820.

That the duties on SUGAR imported, imposed by this act, and set forth in Tables A. and B., shall continue in force till the 25th of March, 1820, but no longer, and shall be accounted for according to 59 Geo. 3. c. 3.; a separate account of the same being kept at the several custom-houses.

That whenever it shall appear by notices in the *London Gazette*, that the average price of Brown or Muscovado SUGAR, of the British plantations, (ascertained, taken, and published in manner prescribed by law in Great Britain,) for any period required by law, shall be below *forty-nine* shillings the hundred weight, then and in such case it shall be lawful for the lord high treasurer, or the commissioners of his majesty's treasury, or any three of them for the time being, to suspend, until a new average shall be published in the said Gazette, according to law, the payment of *one* shilling in the hundred weight, part of the duty such sugar of the British plantations granted by this Act, and the Table marked A. thereto annexed; and the like sum of *one* shilling in the hundred weight, part of the duty of two pounds per hundred weight on sugar of the growth or produce of any place within the limits of the charter granted to the United Company of Merchants of England, trading to the East Indies, granted by this act, and the Table marked B. thereto annexed; and if such average price shall be below *forty-eight* shillings, then *two* shillings of the said duties respectively; and if such average price shall be below *forty-seven* shillings, then *three* shillings of such duties respectively; and to continue such suspension from time to time, if the case shall so require, according to the averages published as aforesaid.

And, that whenever it shall appear by notices, in like manner, that the average price of Brown or Muscovado Sugar, of the British plantations (ascertained and taken in like manner), for any period required by law, shall exceed *sixty* shillings the hundred weight, then and in such case, *one* shilling in the hundred weight, part of the duty of two pounds per hundred weight on East India sugar, imposed by Table B. annexed to this act, shall be suspended until a notice of a new average price of such sugar shall be published in manner aforesaid; and if such average price shall exceed the sum of *sixty-one* shillings the hundred weight, then *two* shillings in the hundred weight, part of the said duty, shall be so suspended; and in like manner if such average price of such sugar shall exceed *sixty-two* shillings the hundred weight, then *three* shillings in the hundred weight of the said duty shall be so suspended; if such average price of such sugar shall exceed *sixty-three* shillings the hundred weight, then *four* shillings of the said duty shall be so suspended; if such average price of such sugar shall exceed *sixty-four* shillings the hundred weight, then *five* shillings of the said duty shall be so suspended; if such average price of such sugar shall exceed *sixty-five* shillings the hundred weight, then *six* shillings of the said duty shall be so suspended; if such average price of such sugar shall exceed *sixty-six* shillings the hundred weight, then *seven* shillings of the said duty shall be so suspended; if such average price of such sugar shall exceed *sixty-seven* shillings the hundred weight, then *eight* shillings of the said duty shall be so suspended; if such average price of such sugar shall exceed *sixty-eight* shillings the hundred weight, then *nine* shillings of the said duty shall be so suspended; and if such average price of such sugar shall exceed *sixty-nine* shillings the hundred weight, then *ten* shillings, part of the said duty, shall be so suspended. Provided always, that nothing in this act, or any of the tables thereto annexed, shall extend to permit or allow any goods, wares, or merchandise whatever, to be imported into or exported from Great Britain in any way or manner contrary to any act or acts in force in Great Britain, on or immediately before the said 5th of July, 1819, except only so far as any such act or acts is expressly altered by this act, or in cases expressly provided for by this act; any duty, clause, or matter, in this act, or any of the tables thereto annexed, to the contrary notwithstanding.

That from and after the passing of this act, it shall not be lawful for the East India Company, or for any other person or persons, to expose any SILK HANDKERCHIEFS, of the manufacture of *Persia, China*, or the *East Indies*, to sale, for the purpose of being used or worn in Great Britain, and it shall not be lawful for the same to be used or worn in Great Britain, or to be sold or exposed to sale therein, but the same shall be subject to seizure and forfeiture, notwithstanding the 49 Geo. 3. c. 98., and the 55 Geo. 3. c. 93., by which acts the importation, on the payment of certain duties, and the sale and wearing of the same, were permitted; and the

person or persons who shall wear or use the same, or who shall sell or expose the same to sale, or shall have the same in his, her, or their custody or possession, shall be liable to such penalties and fines as if the said provisions in the said acts had never been had ormade.

That from and after the said 5th of July, 1819, until the 25th of March, 1820, no duty of customs shall be charged or payable upon SANTA MARIA WOOD, fit for naval purposes, imported into Great Britain from the Bay of Honduras, in British-built vessels, owned, navigated, and registered according to law; any thing in this act, or any of the tables thereto annexed, to the contrary notwithstanding: provided that such wood shall be regularly entered and landed under the care of the proper officers of the customs. Nor upon any TEAKE WOOD, fit for naval purposes, of the growth or production of any British colony, plantation, territory, or possession in Africa; provided that due entry be made thereof, and that such wood be landed in the presence of the proper officer at the port of importation.

That foreign goods, wares, and merchandise, which have been regularly imported into Great Britain, and afterwards exported from thence, and then re-imported into Great Britain, shall be subject and liable to all such duties of customs as are by this act granted upon importation of such goods, wares, and merchandise. But that nothing in this act shall extend to compel the proprietors of goods, wares, or merchandise, to pay the duties upon the importation or landing thereof in Great Britain, in any case where such goods, &c. might on or immediately before the said 5th of July, 1819, have been warehoused or otherwise secured without payment of duty; or in any case where the whole or any part of the duties on such goods, &c. are permitted to be secured by bond or otherwise, by virtue of any act of parliament in force in Great Britain, on and immediately before the said 5th of July, 1819; but that in all such cases the duties specified in the tables to this act annexed, marked A. and B., may be secured by bond or otherwise, in such manner and under such rules, regulations, restrictions, and conditions, as are contained in any such act, except where it is otherwise provided by this act: provided always, that in case the importer or proprietor of any goods, &c. which shall have been lodged in warehouses, or otherwise secured by virtue of any act of parliament in force on or immediately before the said 5th of July, 1819, and on which the duties due on the importation thereof, shall not have been paid, shall be desirous of taking any such goods out of such warehouse, &c. for the purpose of being used or consumed in Great Britain; then and in such case the duties imposed by this act shall be payable thereon.

That in case the importer or proprietor of any COTTON WOOL, or waste of cotton wool, the produce of any British colony or plantation in America, not being imported directly from thence, or of any cotton wool, or waste of cotton wool, the produce of any other country or place, which shall have been secured in warehouses at any time on or before the 5th of January, 1820, and on which the duties shall not have been fully paid on or before the said 5th of January, 1820, shall be desirous of taking any such cotton wool, or waste of cotton wool, out of such warehouse after the 5th of January, 1820, for the purpose of being used or consumed in Great Britain, then and in such case the duties imposed by this act, and the Tables A. and B. thereto annexed, on cotton wool, or waste of cotton wool, according to the value thereof, shall be payable and paid on such cotton wool, &c. so taken out of warehouse, notwithstanding it may have been imported and warehoused on or before the said 5th of January, 1820.

That it shall and may be lawful for the commissioners of the customs in England and Scotland respectively, by and with the consent and approbation of the commissioners of his majesty's treasury, or any three of them, upon proof to the satisfaction of the said commissioners of the customs, that orders were given for the purchase of any SHEEP'S WOOL, or LAMB'S WOOL, at any time before the passing of this act, and that such sheep's wool, or lamb's wool, shall be imported into Great Britain at any time after the passing of this act, to admit such sheep's wool, or lamb's wool, to entry upon payment of the duty of one penny per pound only; and such sheep's wool or lamb's wool so imported, in pursuance of any such orders, shall be subject and liable to the said duty of one penny per pound, and no more, on importation into Great Britain; any thing in this act, or the tables thereto annexed, to the contrary notwithstanding.

That nothing in this act contained shall extend or be construed to extend to alter or repeal any of the rules, regulations, or provisions, contained in 43 Geo. 3. c. 132., and 45 Geo. 3. c. 87., for the warehousing and securing of goods, &c. or in any other act or acts relating to the warehousing, securing, or removal of any such goods, &c. in force in Great Britain immediately before the said 5th of July, 1819, but that all such rules, &c. shall be applied and put in execution for the warehousing and securing of goods, &c. specified in the Table marked F. to this act annexed, and subject to any duties under this act, as fully and effectually, to all intents and purposes, as if the same were repeated and re-enacted in this act (except so far as the same are altered by this act): provided nevertheless, that nothing herein con-

tained shall be construed to extend to permit any goods, &c. to be delivered from any warehouse or place for the purpose of being used or consumed in Great Britain, unless such goods could have been lawfully so delivered, to be used or consumed in Great Britain, before the said 5th of July, 1819.

That from and after the said 5th of July, 1819, it shall and may be lawful to import into Great Britain from the islands of Jersey, Guernsey, or Alderney, and also from Ireland, any WINE whatever, in bottles or flasks, as well for sale as for private use, in packages, each of which shall contain at the least six dozen reputed quart bottles or flasks, on payment of the several and respective duties, as well of customs as excise, due and payable on the importation of such wines into Great Britain; provided that such wines shall be imported in British or Irish built ships or vessels, owned, navigated, and registered, according to law, and in such manner, and under the like rules, regulations, conditions, and restrictions, and shall be subject and liable to the like penalties and forfeitures, as are provided and in force in relation to the importation of French wines, in bottles or flasks, imported into Great Britain. And from and after the said 5th of July, it shall and may be lawful to import into Great Britain, from any parts within the limits of the charter granted to the United Company of Merchants of England, trading to the East Indies, any wine whatever in bottles, on payment of the several and respective duties, as well of customs as excise, due and payable on the importation of such wines into Great Britain: provided always, that the importer of such wine, or his known agent or factor, shall make a declaration before the officer of the customs at the port of importation, stating the nature and quantity of such wine, and that the same is for private use, and not intended to be sold, and that such wine shall be regularly entered and landed under the care of the proper officer of the customs.

And from and after the said 5th of July, it shall be lawful for the commissioners of the customs in England, or any four of them, and for the commissioners of customs in Scotland, or any three of them respectively, to repay or allow to the importers, owners, proprietors, or consignees, of any foreign spirits, wine, or other liquors, which shall be lost by accidental staving on shipboard, or in the unshipping thereof before the landing thereof, the duties of customs which shall have become payable, or shall have been paid, for or in respect of such spirits, wine, &c. and to remit the duties of customs, and to cancel and vacate the customs bond for or in respect of all such spirits, wine, &c. for which no such duties shall have been paid, but for which security shall have been given by bond for the warehousing thereof: provided always, nevertheless, that proof shall be made to the satisfaction of the said respective commissioners, that such spirits, wine, or other liquors, were lost by such accidental staving, and not from any want of due care or precaution on the part of the importer, owner, proprietor, or consignee thereof, or his, her, or their agent.

That the duties imposed by this act, and made payable according to the weight, tale, gauge, measure, or value of any goods, wares, or merchandise, shall be charged and payable upon any greater or less weight, number, quantity, or value thereof than the weight, number, quantity, or value particularly inserted, described, and set forth in any of the tables hereunto annexed, in proportion to the actual weight, number, quantity, or value of such goods, wares, or merchandise. And in all cases where by the Tables marked A. and C. to this act annexed, the duties of customs imposed upon the importation or exportation of goods, wares, and merchandise, are charged, not according to the weight, tale, gauge, or measure, but according to the value thereof, such value shall be taken and considered as the same shall be at the port of importation or exportation in Great Britain, without any abatement or deduction whatever, except of so much as the duties payable on the importation or exportation thereof shall amount to; and that such value shall be ascertained by the declaration of the importer, exporter, or proprietor of such goods, wares, or merchandise, so imported or exported, or of his known agent or factor, in such manner and form, and under all such rules, regulations, and provisions, with respect to such declaration, and subject to all such forfeitures and penalties, as are prescribed, directed, and imposed for ascertaining and collecting duties to be paid according to the value thereof, by any act or acts in force in Great Britain immediately before the said 5th of July, 1819. Provided always, that in the case of cotton wool, and the waste of cotton wool, the growth, produce, or manufacture of any place within the limits of the charter granted to the India Company, the duties whereon are payable according to the value thereof, and which hath been or shall be imported by persons other than the said company, and which shall be sold at any sale made by the said company, such value shall be ascertained in like manner and form, and under all such rules, regulations, and provisions, as are prescribed, directed, and imposed for the ascertaining the value of any other goods, wares, or merchandise, sold at such sale; and in the case of any such cotton wool, &c. not sold at any sale made by the said company, the value thereof shall be ascertained in such manner and form, and under all such rules, regu-

lations, and provisions, and subject to such forfeitures and penalties, as are prescribed and imposed for the ascertaining the value of any goods, &c. contained in schedule A. and C. to this act annexed.

And in all cases where by the Table marked B. to this act annexed, the duties of customs imposed on the importation of any goods, wares, and merchandise enumerated in the said table, are charged according to the gross price at which such goods shall be sold at the sales of the East India Company, or according to the value thereof, such price or value respectively shall be ascertained in such manner and form, and under all such regulations and provisions, and subject to such forfeitures and penalties, as are prescribed and imposed for ascertaining the price or value of such goods by any act or acts in force immediately before the said 5th of July, 1819, as if the same were repeated and re-enacted in this act. Provided only, that in estimating the value of British-made Salt exported from Great Britain, it shall and may be lawful for the exporter or proprietor, or his known agent or factor, to deduct so much money from the value of such salt as shall be equal to the amount of the duty of excise paid thereon at the time of the entry of such salt for the purpose of being exported, and the value so ascertained shall be deemed and taken to be the true and real value of such salt at the port of exportation; any thing in this act, or any other act, to the contrary notwithstanding.

That all rules, regulations, conditions, and restrictions, made, established, or directed for the remitting or allowing of any deduction of any duties on account of damage or otherwise, or for the better securing the revenue of customs in Great Britain, or for regulating the importation or exportation of any goods, wares, or merchandise into or from Great Britain, or the bringing or carrying any goods, wares, or merchandise coastwise, or from port to port within Great Britain, or the entering, landing, or shipping of any goods, wares, or merchandise whatever, in Great Britain, and all provisions, clauses, matters, and things relating thereto, contained in any act or acts of parliament in force in Great Britain immediately before the passing of this act, shall be and the same are hereby declared to be and remain in full force and effect, and shall be applied to the subject of this act, and for carrying the same into execution, as fully and effectually to all intents and purposes as if all such were repeated and re-enacted in this present act, except only so far as the same are repealed or altered or otherwise provided for by this act.

That no allowance or abatement shall at any time be made out of or from the duties by this act, and the tables thereto annexed, imposed upon any Currants, Figs, or Raisins, for or on account or in respect of any damage which such currants, figs, or raisins may have sustained in any voyage or otherwise; any law, custom, or usage to the contrary notwithstanding.

That from and after the said 5th of July 1819, if any Broken Glass, fit only to be re-manufactured, shall be imported or brought into Great Britain, all such broken glass, together with the package or packages in which the same shall be found, shall be forfeited, and shall and may be seized by any officer of customs or excise; and all persons importing the same, or aiding or assisting therein, or in the landing, removing, or concealing, or receiving the same, knowing it to have been so imported or brought, shall forfeit and lose the sum of 100*l.*, to be prosecuted, recovered, and applied as other penalties by the laws relating to duties of customs and excise.

That no China or Porcelain ware, nor any articles, goods, or wares ornamented with or manufactured wholly or partly of Or Moulu, shall be imported or brought into any port in Great Britain, except at the ports of London, Plymouth, Bristol, Liverpool, Hull, Newcastle, Leith, and Greenock, upon pain of forfeiture of all such articles, goods, or wares aforesaid respectively, together with the chests, cases, and other packages respectively containing such wares respectively; and all such wares, cases, and other packages respectively containing the same, shall and may be seized by any officer or officers of the customs or excise.

That Fish of every kind or sort whatever of British taking and curing, caught or taken in any part of the ocean by the crews of any ships or vessels built in Great Britain or Ireland, or the islands of Jersey, Guernsey, or Man, or in any of the colonies, plantations, islands, or territories which now or at the time of building such ships or vessels did belong, or which may hereafter belong to or be in the possession of his majesty, his heirs or successors, and wholly belonging to and owned by his majesty's subjects, and navigated and registered according to law, shall and may be imported into Great Britain in ships built, owned, navigated, and registered as aforesaid, without payment of any duty of customs whatever; any thing in this act or any other act or acts to the contrary thereof in anywise notwithstanding: provided always, that before such fish shall be admitted to entry, the master or other person having the command of the ship or vessel in which such fish shall be imported, shall make oath before the collector or other chief officer of the customs at the port of importation, that such fish was actually caught, taken, and cured wholly by his majesty's subjects.

That from and after the said 5th of July 1819, before any Blubber, Train Oil, Spermaceti Oil, Head Matter, or Whale

Fins, the produce of fish or creatures living in the sea, imported into Great Britain as being taken and caught on the banks and shores of the island of Newfoundland, and parts adjacent, wholly by his majesty's subjects carrying on such fishery from that island, or as being taken and caught wholly by his majesty's subjects usually residing in any of the Bahama or Bermuda islands, or as being taken and caught in the gulph of Saint Lawrence, or on the shores of any British colony or plantation in North America, or the parts adjacent, wholly by his majesty's subjects usually residing in any of the said colonies or plantations, and carrying on such fishery from thence, shall be admitted to entry on payment of the duty imposed on such blubber, train oil, &c. by this act and the table marked A. thereto annexed, the master or other person having or taking the charge or command of the vessel in which the same shall be imported, shall deliver to the collector or other chief officer of the customs at the port of importation, a certificate under the hand and seal of the governor or deputy governor of Newfoundland, or of such other British colony or plantation, or of the collector or other chief officer of the customs of the port or place in Newfoundland, or in such other British colony or plantation where such train oil, blubber, &c. shall have been taken on board, or if no such governor or deputy governor, or collector or other chief officer of the customs shall be residing there, then a certificate shall be produced under the hand and seal of the naval officer or other principal officer of such port or place, or of one of his majesty's justices of the peace for the district, testifying that oath had been made before him by the shipper of such blubber, train oil, &c., that the same was really and *bonâ fide* the produce of fish or creatures living in the sea, actually caught and taken wholly by his majesty's subjects carrying on such fishery, and usually residing in the said island of Newfoundland, or in his majesty's European dominions, or by his majesty's subjects usually residing in such other British colony or plantation, and carrying on such fishery from thence; and the master or other person having or taking the charge or command of the vessel in which the blubber or train oil shall be imported into Great Britain, shall make oath before the collector or other chief officer at the port of importation, that the blubber, train oil, &c. so imported, is the same as mentioned and referred to in the said certificate; and the importer or consignee of such blubber, train oil, &c. shall also make oath before the collector or comptroller, or other proper officer of the customs, at the time of entry, that to the best of his or their knowledge and belief the blubber, train oil, &c. so imported was actually caught and taken by British subjects usually residing in the island of Newfoundland, or in his majesty's European dominions, or by his majesty's subjects usually residing in such other British colony or plantation, and carrying on such fishery from thence; and on failure of such certificate being produced, and proof on oath as aforesaid being made, such blubber, train oil, &c. shall be deemed and taken to be of foreign fishing, and shall be charged with the duty imposed by this act, and the table marked A. thereto annexed, on such articles of foreign fishery. But the payment of the several duties of customs by this act imposed on the importation of such oil, &c. taken and caught as aforesaid, and also the duties payable on Cranberries, Fox Skins, Otter Skins, Seal Skins, Wolf Skins, Bear Skins, Cat Skins, Beaver Skins, and on Timber, being the produce of Newfoundland, and imported directly from thence, as the same are respectively described and set forth in figures in the table marked A. annexed to this act, shall be suspended, and the said duties shall not be charged or payable on any such articles so imported, until the 5th of July 1824 inclusive, and also, that the duty by this act imposed on goods, wares, and merchandise exported from Great Britain to the said island of Newfoundland, as described and set forth in the table hereunto annexed marked C., and also the tonnage duties payable on ships or vessels entering inwards or outwards from or to the said island of Newfoundland in any port of Great Britain, as set forth in the table hereunto annexed marked E., shall be in like manner suspended, and shall not respectively be charged or payable until the 5th of July 1824, inclusive; any thing in this act to the contrary notwithstanding: provided always, that such goods, wares, and merchandise shall be duly entered and landed, and shall be subject in every respect to all the regulations required by law.

That the several duties of Tonnage imposed by this act, as described in the table hereto annexed marked E., on ships and vessels entering outwards or inwards to or from foreign parts, shall be paid to the proper officer of the customs; and that no officer of the customs whatsoever, or any deputy or clerk of such officer, shall permit or suffer any ship or vessel to break bulk, or any part of her cargo to be discharged; nor shall issue any order nor grant any document for the unshipping or landing any goods, wares, or merchandise brought or imported by any ship or vessel, subject and liable to the payment of the duties of tonnage, until the said duties have been fully paid to the proper officer of the customs; or in case any doubt or dispute shall arise as to the true tonnage thereof, so that a perfect entry cannot be passed, then in every such case a

sufficient deposit shall be made of the said duties with such officer as aforesaid, previous to any document being issued or granted for the unshipping or landing any part of the cargo of such ship or vessel so entering inwards as aforesaid; any law, or usage to the contrary notwithstanding; and the said duties shall be paid on every report inwards, and on every entry outwards of each and every ship and vessel, for each and every voyage which any such ship or vessel shall so report inwards or enter outwards at any port within Great Britain; and the tonnage of every such ship or vessel, being British-built or British-owned, shall be computed and taken according to the register thereof in Great Britain, under the provisions of 26 Geo. 3. c. 60. and the tonnage of every other ship or vessel, in case of any doubt or dispute relative thereto, shall be ascertained in Great Britain by admeasurement, in the mode and manner prescribed and directed by the said act: provided always, that nothing herein contained shall be construed to extend to alter or repeal any of the regulations contained in 56 Geo. 3. c. 9. respecting foreign packets or passage vessels entering or departing in any of the ports of Great Britain; but that all such regulations shall be applied to the duties on such packets, &c. specified and set forth in the table to this act annexed, marked E.

But nothing in this act contained shall be construed to extend to charge with the duty of tonnage imposed by this act, and the table marked E., any ship or vessel employed in the fisheries on any part of the coast of Great Britain, and not entering outwards for foreign parts, or any ship or vessel employed in bringing oysters from Jersey or Guernsey into any port in Great Britain, or to charge the said tonnage duty on any British or Irish built ship or vessel owned by British subjects, which is not required to be registered by any act of parliament in force in Great Britain or Ireland respectively, on or immediately before the said 5th of July, 1819, or on any ship or vessel whatsoever which shall enter outwards or inwards in ballast only; any thing in this act, or in the table marked E. to the contrary notwithstanding.

That the DRAWBACKS granted, allowed, and made payable upon goods, wares, and merchandise exported from Great Britain under or by virtue of any act or acts in force in Great Britain immediately before the said 5th of July, 1819, shall remain and continue payable with respect to such goods, wares, &c. which, having paid the duties imposed on the importation thereof by any act or acts in force immediately before the said 5th of July, shall, after the said 5th, be exported from Great Britain; and that the several and respective drawbacks, inserted, specified, and set forth in the tables to this act annexed, marked A. B. and D., shall be paid and allowed only on the exportation of such articles as shall have paid the duties imposed thereon by this act and the said tables thereto annexed.

That from and after the 5th of July, 1819, such drawback as is mentioned, specified, and set forth in the table or schedule marked B. to this act annexed, shall be allowed in respect of THROWN SILK exported from Great Britain, which shall be thrown in Great Britain from a larger quantity of raw silk imported into Great Britain from any place within the limits of the charter granted to the India Company: provided always, that oath be first made before the collector of the customs at the port of exportation by the throwster of such thrown silk, that the said thrown silk was produced solely from raw silk which had been so imported into Great Britain, and for which his majesty's customs and duties had been duly paid, and that the same was duly exported; his majesty's searcher also certifying the shipping thereof, and all such other requisites being duly performed as are necessary to be done and performed with regard to raw silk exported from Great Britain.

That no drawback of the duties of customs or excise shall be allowed on any WINE whatever which shall be exported or shipped for exportation from Great Britain after the said 5th of July, other than on wine in bottles which shall be shipped in packages each containing six dozen reputed quart bottles at the least: provided always, that nothing in this act contained shall be construed to extend to repeal or discontinue any drawback of the duties of customs on any sort of wine intended for the use of admirals, captains, and other commissioned officers serving in any of his majesty's ships of war, or for the use of commissioned officers of the royal marines, or of persons acting as such, for their consumption on board of such of his majesty's ships as they shall serve in, by any acts of parliament in force in Great Britain on or immediately before the said 5th of July, 1819.

That from and after the said 5th of July, 1819, such drawback as is mentioned, specified, and set forth in the table or schedule marked A. to this act annexed, shall be allowed in respect of any BRIMSTONE which shall be refined in Great Britain from a larger quantity imported rough, and shall be exported from thence upon oath being first made by the refiner thereof, before the collector of the customs at the port of exportation, that the said refined brimstone was produced solely from brimstone which had been imported into Great Britain unrefined, and for which his majesty's customs and duties had been duly paid, and that the same was duly exported; his majesty's

searcher also certifying the shipping thereof, and all such other requisites being duly performed as are necessary to be done and performed with regard to brimstone unrefined exported from Great Britain. And from and after the said 5th of July, a drawback of nine-tenths, and no more, of all such duties on importation as shall have been paid on any foreign brimstone, shall be allowed in respect of all such foreign brimstone as at any time after the said 5th of July, shall be used and consumed in Great Britain in making and preparing oil of vitriol; any thing in any act of parliament in force immediately before the said 5th of July to the contrary notwithstanding; and the amount of such drawback shall be ascertained, and paid and allowed to the manufacturers of such oil of vitriol, under the regulations and restrictions contained in an act of 50 Geo. 3. c. 40., and under and subject to the like penalties upon any manufacturer of such oil for delivering any false accounts in respect of foreign brimstone used and consumed in his manufactory, with intent to defraud his majesty, as are contained in the said act.

That from and after the 5th day of July, 1819, for all COALS used for any purpose relating to the carrying on the works for the manufacturing of tin plates at Pennygored, in the county of Pembroke, called the Pennygored Works, for which the duties granted by this act shall have been duly paid, a drawback shall be allowed of all such duties, not exceeding the sum of one thousand pounds in any one year: provided always, that the said drawback shall be paid upon the proofs and under the conditions required by an act 35 G. 3. c. 39. for allowing a drawback of the duties upon coals used in carrying on the said Pennygored works.

That from and after the said 5th of July, 1819, for all coals which shall be used in calcining or smelting copper or lead ore within the Isle of Anglesey, or which shall be used in fire-engines for draining water out of the mines of copper and lead within the said isle, for which the duties granted by this act shall have been duly paid, a drawback shall be allowed of all such duties: provided always, that the said drawback shall be paid upon the proofs required by an act 26 Geo. 3. c. 104. for allowing a drawback of the duties upon coals used in smelting copper, &c., and in fire-engines for draining water out of the mines, within the said isle.

That from and after the said 5th of July, 1819, a drawback of the whole duty specified in table D. to this act annexed, on STONE the production of Great Britain, brought coastwise from any port or place in Great Britain to any other port or place therein, shall be allowed in respect of such stone as at any time after the said 5th of July, shall be used and employed in Great Britain in making *barn floors;* and that the amount of such drawback shall be allowed to the person by whom such stone was used and employed, upon proof to the satisfaction of the commissioners of the customs that such duty was paid, and that such stone was so used and employed for such purpose as aforesaid: also a drawback of the duty specified in the said table D. on stone the production of Great Britain brought in like manner, shall be re-paid in respect of such stone as at any time after the said 5th of July, shall be used and employed in Great Britain in paving *streets and public ways* upon proof of the actual payment of such duty, and under such conditions, regulations, and restrictions, as shall from time to time be directed and made by the commissioners of his majesty's treasury of the united kingdom of Great Britain and Ireland, or any three of them, for that purpose.

That if any action or suit shall be brought or commenced against any person for any thing done in pursuance of this act, such action or suit shall be commenced within three calendar months next after the fact committed, and not afterwards, and shall be laid in the county or place where the cause of complaint did arise, and not elsewhere; and the defendant in every such action or suit may plead the general issue, and give this act and the special matter in evidence, at any trial to be had thereupon; and if the jury shall find for the defendant, or if the plaintiff shall be nonsuited, or discontinue his action or suit after the defendant shall have appeared, or if, upon demurrer, judgment shall be given against the plaintiff, the defendant shall have treble costs.

TABLES REFERRED TO IN THIS ACT.

TABLE (A).

A TABLE of the DUTIES of CUSTOMS payable on Goods, Wares, and Merchandise IMPORTED into Great Britain from Foreign Parts (except Goods, Wares, and Merchandise of the Growth, Produce, or Manufacture of any Place within the Limits of the Charter granted to the United Company of Merchants of England trading to the East Indies, and Goods imported from His Majesty's Settlement of the Cape of Good Hope, and the Territories and Dependencies thereof); and of the Drawbacks to be allowed on the Exportation of such Goods, Wares, and Merchandise.

TABLE (B).

A TABLE of the DUTIES of CUSTOMS payable on Goods, Wares, and Merchandise, being of the Growth, Produce, or Manufacture of any Place within the Limits of the Charter granted to the United Company of Merchants of England trading to the East Indies IMPORTED into Great Britain; and on Goods, Wares, and Merchandise IMPORTED into Great Britain from His Majesty's Settlement of the Cape of Good Hope, and the Territories and Dependencies thereof; and of the Drawbacks to be allowed on the Exportation of such Goods, Wares, and Merchandise.

TABLE (C).

A TABLE of the DUTIES of CUSTOMS payable on Goods, Wares, and Merchandise EXPORTED from Great Britain.

TABLE (D).

A TABLE of the DUTIES of CUSTOMS payable on Goods, Wares, and Merchandise brought or carried COASTWISE from one Port or Place to any other Port or Place within Great Britain; and of the Drawbacks to be allowed on the Exportation thereof from Great Britain.

TABLE (E).

A TABLE of the TONNAGE DUTIES of CUSTOMS payable on Ships or Vessels entering INWARDS or OUTWARDS (except in ballast) in any Port of Great Britain from or to Foreign Parts.

TABLE (F).

LISTS of ARTICLES which may be LODGED in WAREHOUSES, or otherwise secured, at approved Ports in Great Britain, under the Rules, Regulations, and Securities required by Law, without Payment, at the Time of the First Entry, of the Duties due on the Importation thereof.

TABLE (A).

A TABLE of the DUTIES of CUSTOMS payable on Goods, Wares, and Merchandise IMPORTED into Great Britain from Foreign Parts (except Goods, Wares, and Merchandise of the Growth, Produce, or Manufacture of any Place within the Limits of the Charter granted to the United Company of Merchants of England trading to the East Indies, and Goods imported from His Majesty's Settlement of the Cape of Good Hope, and the Territories and Dependencies thereof); and of the Drawbacks to be allowed on the Exportation of such Goods, Wares, and Merchandise.

TABLE (A).—INWARDS.	Duty.			Drawback.		
A.	£.	s.	d.	£.	s.	d.
Acacia, the ℔. - - -	0	2	0	0	1	4
Acetous Acid. See Vinegar.						
Acorus, the ℔. - - - -	0	0	10	0	0	6
Adianthum, the ℔. - - -	0	0	8	0	0	5
Agaric, the cwt. - - -	1	18	0	—		
Agates, *viz.*						
——— polished or otherwise manufactured, for every 100*l.* of the value - - -	60	0	0	—		
——— rough or unmanufactured, for every 100*l.* of the value	20	0	0	—		
Alderney, Island of. See Guernsey.						
Ale, See Beer.						
Alkali, *viz.*						
——— any article containing Soda or Mineral Alkali, whereof Mineral Alkali is the most valuable part, (such Alkali not being otherwise particularly charged with Duty)						

TABLE (A.) — INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Alkali — any article containing Soda, &c. — *continued, viz.*						
..... if not containing a greater proportion of such Alkali, than 20 per cent.						
..... imported in a British-built ship, the cwt. - - -	0	11	4	0	5	8
..... imported in a ship not British-built, the cwt. - - -	0	12	0	0	5	8
..... if containing more than 20 per cent. and not exceeding 25 per cent. of such Alkali,						
..... imported in a British-built ship, the cwt. - - -	0	15	0	0	7	6
..... imported in a ship not British-built, the cwt. - - -	0	15	8	0	7	6
..... if containing more than 25 per cent. and not exceeding 30 per cent. of such Alkali,						
..... imported in a British-built ship, the cwt. - - -	0	18	4	0	9	2
..... imported in a ship not British-built, the cwt. - - -	0	19	0	0	9	2
..... if containing more than 30 per cent. and not exceeding 40 per cent. of such Alkali,						
..... imported in a British-built ship, the cwt. - - -	1	3	4	0	11	8
..... imported in a ship not British-built, the cwt. - - -	1	4	0	0	11	8
..... if containing more than 40 per cent. of such Alkali,						
..... imported in a British-built ship, the cwt. - - -	1	10	0	0	15	0
..... imported in a ship not British-built, the cwt. - - -	1	10	8	0	15	0
Alkanet Root, the lb. - - - -	0	0	10	0	0	6
Alkermes, Confection of, the oz. - -	0	1	8	—		
Almond Paste, for every 100*l.* of the value - -	60	0	0	—		
Almonds, *viz.*						
——— Bitter, the cwt. - - -	1	11	8	1	8	0
——— Jordan, the cwt. - - -	4	15	0	4	4	0
——— of any other sort, the cwt. - -	2	7	6	2	2	0
——— Oil of. See Oil.						
Aloes, *viz.*						
——— Hepatica or Barbadoes Aloes, the lb. - -	0	1	3	0	0	10
——— Socotorina, imported directly from the place of their growth, the lb. - - -	0	2	6	0	1	8
..... imported not directly from the place of their growth, the lb. - -	0	3	9	0	2	6
——— of any other sort, the lb. - - -	0	0	9	0	0	6
Alum, the cwt. - - - - -	0	17	6	—		
——— Roch Alum, the cwt. - - -	0	11	8	—		
Amber, *viz.*						
——— Beads. See Beads.						
——— Oil of. See Oil.						
——— Rough, the lb. - - - -	0	1	8	0	1	1
——— not otherwise enumerated or described, for every 100*l.* of the value - - - -	60	0	0	—		
Ambergris, the oz. - - - -	0	5	0	—		
Ambra Liquida, the lb. - - - -	0	3	4	—		
America, United States of						
Note. — Upon the importation into any part of Great Britain of any goods, wares, or merchandise, being the growth, production, or manufacture of any of the territories of the United States of America, direct from the said territories in any ship or vessel built in the countries belonging to the said States, or any of them, or taken by any of the ships or vessels of war belonging						

TABLE (A.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
America — *continued.*						
to the Government, or any of the inhabitants of the said States, having commissions or letters of marque and reprisal from the government of the said States, and condemned as lawful prize in any Court of Admiralty there, such ship or vessel being owned by the subjects of the said States, or any of them, and whereof the master and three-fourths of the mariners are also subjects of the said States, no higher or other duties shall be charged or paid than such as are charged and payable upon goods, wares, and merchandise, of the like denomination or description, being the growth, production, or manufacture of any of the territories of the United States of America, and being imported in British-built ships or vessels navigated and registered according to law. See 56 Geo. 3. c. 15. which act is to continue in force so long as the convention between his Majesty and the United States of America shall continue in force.						
Ammi or Amios Seed. See Seed.						
Ammoniac, *viz.*						
——— Gum. See Gum Ammoniac.						
——— Sal. See Sal Ammoniac.						
Anacardium, the lb. - - - -	0	2	0	0	1	4
Anchor Stocks. See Wood.						
Anchovies. See Fish.						
Angelica, the lb. - - - -	0	0	10	0	0	6
Angusturæ Cortex. See Bark.						
Anime Gum. See Gum.						
Aniseed. See Seed.						
——— Oil of. See Oil.						
Annotto or Rocou, *viz.*						
——— Flag, the lb. - - - - -	0	0	5		—	
——— Roll, or any other sort, not otherwise enumerated or described, the lb. - - -	0	1	0		—	
Antimony, *viz.*						
——— Crude, the cwt. - - -	0	15	0		—	
——— Regulus of Antimony, the cwt. - -	2	0	0		—	
Apples, the bushel - - - -	0	4	0		—	
——— dried, the bushel - - - -	0	7	0		—	
Aquafortis, the cwt. - - - -	0	14	3		—	
Arabic Gum. See Gum.						
Arangoes, imported from Europe under licence for exportation to Africa, for every 100*l.* of the value -	3	3	4		—	
For the conditions, regulations, and restrictions, under which Arangoes may be so imported, see 5 Geo. 3. c. 30.						
Archelia. See Orchal.						
Argol, the cwt. - - - - -	0	4	9		—	
Aristolochia, the lb. - - - -	0	0	10	0	0	6
Armenian Bole, Armenic Bole } See Bole Armenic.						
Arquebusade Water. See Spirits.						
Arrow Root or Powder, the lb. - - -	0	0	2		—	
Arsenic, *viz.*						
——— White, the cwt. - - -	0	14	3		—	
——— of any other sort, the cwt. - - -	0	18	8		—	
Asafœtida, imported directly from the place of its growth, the lb. - - - -	0	0	10	0	0	6
——— imported not directly from the place of its growth, the lb. - - - -	0	1	3	0	0	9
Asarum Root, the lb. - - - -	0	0	8	0	0	5
Ashes, *viz.*						
——— Pearl and Pot, imported in a British-built ship, the cwt.	0	11	2		—	

TABLE (A.) — INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Ashes — *continued.*						
—— Pearl and Pot, imported in a ship not British-built, the cwt. - - -	0	12	0	—		
..... of the British Plantations in America, and imported directly from thence, the cwt.	0	1	8	—		
—— Soap and Wood, the cwt. - -	0	1	8	—		
—— not otherwise enumerated or described, for every 100*l.* of the value - - -	20	0	0	—		
Asphaltum, the lb. - - -	0	0	10	0	0	6
Asses, each - - - -	3	6	6	—		
Attar of Roses. *See* Otto of Roses.						
Auripigmentum. *See* Orpiment.						
B.						
Bacon or Hams, the cwt. - - - -	2	16	0	—		
Badger Skins. See Skins.						
Balaustia, the lb. - - -	0	0	10	—		
Balks. See Wood.						
Balls, *viz.* Washing Balls, the lb - - -	0	1	8	—		
Balm of Gilead. See Balsam.						
Balsam, *viz.* - - - -						
—— Canada, the lb. - - -	0	1	3	0	0	10
—— Copaiba or Capivi, the lb. - - -	0	2	0	0	1	4
—— Riga, the lb. - - -	0	1	0	—		
Riga Balsam is also subject to a Duty of Excise.						
—— Balm of Gilead, Balsam of Peru, of Tolu, and all Balsams not otherwise enumerated or described, the lb.	0	4	6	—		
Bandstring Twist, the Dozen Knots, each Knot containing 32 Yards - - -	0	5	0	—		
Barbadoes Tar. See Tar.						
Barilla. See Alkali.						
Bark, *viz.*						
—— Angustura Bark, the lb. - - -	0	2	0	0	1	4
—— Cascarilla Bark. See Eleutheria Bark in Bark.						
—— Cinchona Bark. See Peruvian Bark in Bark.						
—— Clove Bark, the lb. - - -	0	0	10	0	0	6
—— Eleutheria, or Cascarilla Bark, the lb. - -	0	2	0	0	1	4
—— Guiacum Bark, the cwt. - - -	1	8	0	0	18	8
—— Jesuits' Bark. See Peruvian Bark in Bark.						
—— Oak Bark, the cwt. - - -	0	0	8	—		
For the Conditions, Regulations, and Restrictions, under which Oak Bark may be imported on Payment of this Duty, see 12 Geo. 3. c. 50., continued by subsequent Acts, and by 52 Geo. 3. c. 18. made perpetual.						
..... Solid vegetable Extract from Oak Bark. See Extract.						
..... Black Oak, or Quercitron Bark, for the purpose of dyeing, imported from any country not in Europe, in casks containing not less than 150lb. net, the cwt. - -	0	2	0	—		
..... otherwise imported, for every 100*l.* of the value - -	20	0	0	—		
—— Peruvian, or Jesuits' Bark, the lb. - -	0	2	0	0	1	4
..... Extract, or Preparation of. See Extract.						
—— Red Mangrove Bark, imported in casks containing not less than 150lb. net, the cwt. - -	0	0	8	—		
..... otherwise imported, for every 100*l.* of the value - - -	20	0	0	—		
—— Sassafras Bark, the lb. - - -	0	0	8	0	0	5
—— Simarouba Bark, the lb. - - -	0	1	0	0	0	8
—— Winters Bark, the lb. - - -	0	0	8	0	0	5
—— Bark not otherwise enumerated or described, being for the use of dyers or of tanners, and for no other use or purpose whatever, for every 100*l.* of the value -	20	0	0	—		

TABLE (A).—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Bark — *continued.*						
—— Bark, not particularly enumerated or described, nor otherwise charged with duty, whether pulverised or not, the lb. - - - -	0	2	0	—		
Barley. See Corn.						
——— Hulled. See Pearl Barley.						
Barras, Dutch. See Canvas in Linen.						
Basins of Marble. See Marble Basins in Stone.						
Basket Rods, the bundle, not exceeding three feet in circumference at the band - -	0	3	2	—		
Baskets, for every 100*l.* of the value - -	50	0	0	—		
Bast Ropes, the cwt. - - - -	0	10	0	—		
Bast or Straw Hats or Bonnets. See Hats.						
———— Platting or other Manufacture of Bast or Straw for making Hats or Bonnets. See Platting.						
Battens, Batten Ends, } See Wood.						
Bay Berries. See Berries.						
Bay, Oil of. See Oil.						
Bay Yarn. See Woollen Yarn, in Yarn.						
Bdellium, imported directly from the place of its growth, the lb. - - -	0	1	8	0	1	7
——— imported not directly from the place of its growth, the lb. - - -	0	2	6	0	1	8
Beads, *viz.*						
——— Amber Beads, the lb. - -	0	12	0	—		
——— Coral Beads, the lb. - -	0	15	10	—		
——— Crystal Beads, the 1000 - -	1	8	6	—		
——— Jet Beads, the lb. - -	0	3	2	—		
——— Beads not otherwise enumerated or described, for every 100*l.* of the value - -	50	0	0	—		
Beans. See Corn.						
——— Kidney or French Beans, the bushel -	0	0	10	—		
Bear Skins, Beaver Skins, } See Skins.						
——— Wool. See Wool.						
Bed Feathers. See Feathers for Beds, in Feathers.						
Beds. See Feather Beds.						
Beech Boards. ——— Plank. ——— Quarters. } See Wood.						
Beer or Bigg. See Corn.						
Beer, *viz.*						
—— Mum, the barrel containing 32 gallons -	1	2	2	—		
—— Spruce Beer, the barrel containing 32 gallons -	1	7	0	—		
—— or Ale, of all other sorts, the barrel, containing 32 gallons - - - -	0	14	0	—		
Mum, Beer, and Ale, are subject also to a duty of excise.						
Bees' Wax. See Wax.						
Bell Metal. See Metal.						
Belvedere Raisins. See Raisins.						
Benjamin or Benzoin, the lb. - - -	0	2	0	0	1	4
Benzoin. See Benjamin.						
Bergamot, Essence of. See Essence.						
Berries, *viz.*						
——— Bay, the cwt. - - -	0	11	1	—		
——— Juniper, the cwt. - - -	0	11	1	—		
——— Yellow, for dyers' use, the cwt. - -	1	8	6	—		
——— Berries for dyers' use, not otherwise enumerated or described, the cwt. - - -	1	5	9	—		
——— Berries not for dyers' use, not otherwise enumerated or described, for every 100*l.* of the value -	50	0	0	—		
Bestials. See Man, Isle of.						

TABLE (A.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Bezoar Stones, the oz. - - -	0	2	6	—		
Bigg or Beer. See Corn.						
Birds, *viz.* Singing Birds, the dozen - -	0	8	0	—		
Bitumen Judaicum, the ℔. - - -	0	0	10	0	0	6
Blacking, the cwt. - - - -	3	12	0	—		
Black Latten, See Latten						
——- Lead. See Lead.						
Bladders, the dozen - - -	0	0	6	—		
Blocks of Marble. See Marble Blocks, in Stone.						
Blubber. See Train Oil, in Oil.						
Boards. See Wood.						
Bole Armenic or Armenian Bole, the cwt. - -	0	8	0	0	5	4
Bones of Cattle and other animals, and of Fish, except Whale-Fins, for every 100*l.* of the value - -	1	0	0	—		
Bonnets. See Hats.						
Books, Printed, or Manuscripts, *viz.*						
——— Half-bound or in any way Bound, the cwt. -	6	10	0	—		
——— Unbound, the cwt. - - -	5	0	0	—		
Borax or Tincal, *viz.*						
——- refined, the ℔. - -	0	1	8	—		
——- unrefined, the ℔. - - - -	0	0	8	—		
* Drawback on the exportation of Borax or Tincal refined in Great Britain from a larger quantity imported unrefined, the ℔. - - -	—			*0	0	8
For the conditions under which such Drawback can only be allowed, see 17 Geo. 2. c. 31.						
Botargo. See Fish.						
Bottles, *viz.*						
——— of Earth or Stone, the dozen - -	0	3	2	—		
Bottles of stone are subject also to a Duty of Excise.						
——— of Glass, covered with Wicker, the dozen quarts -	1	2	0	—		
——— of Green or common Glass, full or empty, not of less content than one pint, and not being Phials, the dozen quarts - - - -	0	8	0	—		
Subject also to a Duty of Excise.						
——— of Glass not otherwise enumerated or described, for every 100*l.* of the value - - -	80	0	0	—		
Note.—Flasks in which Wine or Oil is imported are not subject to duty.						
Bowsprit. See Masts, in Wood.						
Boxes of all sorts for every 100*l.* of the value - -	50	0	0	—		
Box Wood. See Wood.						
Brandy. See Spirits.						
Brass, *viz.*						
——— Manufactures of, not otherwise enumerated or described, for every 100*l.* of the value - -	50	0	0	—		
——- Powder of, for Japanning. See Powder.						
——— Wire. See Wire.						
Brazil. See Portugal.						
Brazil Wood. } See Wood.						
Braziletto Wood. } See Wood.						
Bricks or Clinkers, the 1000 - - -	1	2	6	—		
Brimstone, *viz.*						
————- rough, imported in a British-built ship, the cwt.	0	15	0	—		
..... imported in a ship not British-built, the cwt. - -	0	15	10	—		
* Drawback on the exportation of Brimstone in any way refined in Great Britain from a larger quantity imported rough, the cwt. - -	—			*0	15	0
For the conditions under which such Drawback can only be allowed, see the Act to which this Table is annexed.						
———— in Rolls, imported in a British-built ship, the cwt.	1	0	0	—		
..... imported in a ship not British-built, the cwt. - - -	1	0	8	—		

TABLE (A.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d
Brimstone—*continued.*						
in Flour imported in a British-built ship, the cwt.	1	3	9	—		
..... imported in a ship not British-built, the cwt. - - -	1	5	0	—		
For the conditions and regulations under which nine-tenths of the Duties of Customs paid on Brimstone, may be repaid on such as is used and consumed in making and preparing oil of vitriol, see 50 Geo. 3. c. 40., 55 Geo. 3. c. 66., and 56 Geo. 3. c. 81., and the Act to which this Table is annexed.						
Bristles, *viz.*						
——— dressed, imported in a British-built ship, the dozen lbs. - - -	0	12	0	—		
..... imported in a ship not British-built, the dozen lbs. - - -	0	13	0	—		
——— rough or undressed, imported in a British-built ship, the dozen lbs. - -	0	3	7	—		
..... imported in a ship not British-built, the dozen lbs. -	0	4	0	—		
Bronze Figures, not being Statues, for every 100*l.* of the value	50	0	0	—		
——— Powder. See Powder.						
——— Statues. See Statues.						
Bruges Thread. See Thread.						
Buck or Deer Skins. See Skins.						
Buck Wheat, the quarter containing eight bushels (until the 25th March, 1821) - - -	0	10	0	—		
Buffalo Hides. See Hides.						
——— Horns. See Horns.						
——— Tails. See Tails.						
Bugle, *viz.*,						
——— Great, the lb. - - -	0	3	2	—		
——— Small or Seed, the lb. - - -	0	4	9	—		
For the conditions, regulations, and restrictions under which Bugles may be warehoused on Importation, see 5 Geo. 3. c. 30.						
——— Great, to be warehoused, the dozen lbs. - -	0	1	7	—		
——— Small or Seed, to be warehoused, the dozen lbs. -	0	3	2	—		
When taken out of such warehouse to be used in Great Britain,						
——— Great, the lb. - - - -	0	3	2	—		
——— Small, or Seed, the lb. - - -	0	4	9	—		
Bullion and Foreign Coin of Gold or Silver, Duty-free.						
Bull Rushes, the load, containing 63 bundles - -	0	12	0	—		
Bulls' Hair. See Cow Hair, in Hair.						
——— Hides. See Buffalo Hides, in Hides.						
——— Horns. See Horns.						
——— Tails. See Buffalo Tails, in Tails.						
Burgundy Pitch. See Pitch.						
Burrachas. See Caoutchouc.						
Burrs for Mill Stones. See Stone.						
See also the Note under the head of Guernsey.						
Busts of Bronze. See Statues.						
Busts or Figures of Marble or Stone. See Sculptured Marble in Stone.						
——— not otherwise enumerated or described, for every 100*l.* of the value - -	50	0	0	—		
Butter, imported in a British-built ship, the cwt. - -	1	0	0	—		
——— imported in a ship not British-built, the cwt. - -	1	5	0	—		
C.						
Cables tarred or untarred, whether in use or otherwise, the cwt. -	1	1	6	—		
Cable Yarn. See Yarn.						
Cajaputa, Oil of. See Oil.						

TABLE (A.)—INWARDS.	Duty.			Drawback.		
	£.	s.	d.	£.	s.	d.
Cake Lac. See Lac, in Gum.						
Cakes made of Linseed. See Linseed Cakes.						
——— Rape Seed. See Rape Cakes.						
Calabar Skins. See Squirrel Skins, in Skins.						
Calaminaris Lapis. See Lapis.						
Calamus Aromaticus, the lb. - - -	0	0	10	0	0	6
Calicoes, printed, painted, stained, or dyed, and other Goods, being the product or manufacture of the East Indies, which are prohibited to be worn or used in Great Britain, imported from Europe under Licence for exportation to Africa, Duty-free.						
For the conditions, regulations, and restrictions under which such Calicoes may be so imported, see 5 Geo. 3. c. 30.						
Calves Skins. See Skins.						
Calves Velves, the cwt. - - -	0	11	6		—	
Cambogium. See Gamboge.						
Cambricks. See Linen.						
Camel Hair. See Hair.						
Camel or Mohair Yarn. See Yarn.						
Camomile Flowers, the lb. - - -	0	0	6	0	0	4
Camphor, *viz.*						
——— refined, the lb. - - -	0	2	6		—	
——— unrefined, the lb. - - -	0	1	3		—	
* Drawback on the Exportation of Camphor refined in Great Britain from a larger quantity imported unrefined, the lb. - - -		—		*0	1	3
For the conditions under which such such Drawback can only be allowed, see 17 Geo. 2. c. 31.						
Cam Wood. See Wood.						
Canada Balsam. See Balsam.						
Canary Seed. See Seed.						
Cancrorum Oculi, the lb. - - -	0	1	3	0	0	10
Candles, *viz.*						
——— Spermaceti, the lb - - -	0	2	6		—	
——— Tallow, the cwt. - - -	3	3	4		—	
——— Wax, the lb. - - -	0	2	6		—	
Candlewick, the cwt. - - -	4	8	8		—	
Cane Hats or Bonnets. See Hats.						
—— Platting or other Manufacture of Cane to make Hats or Bonnets. See Platting.						
Canella Alba, the lb. - - -	0	0	8	0	0	5
Canes, *viz.*						
—— Rattans, the 1000 - - -	1	0	0		—	
—— Reed Canes, the 1000 - -	1	6	6		—	
—— Walking, for every 100*l.* of the value - -	50	0	0		—	
Cantharides, the lb. - - -	0	3	6	0	2	4
Canvass. See Linen.						
Caoutchouc, or Elastic Gum, the lb. - -	0	0	5		—	
Cape of Good Hope. For the Duties and Drawbacks on goods, wares, and merchandise imported from the settlement of the Cape of Good Hope, and the territories and dependencies thereof. See Table (B.)						
Capers, the lb. - - - -	0	1	0		—	
Capita Papaverum, the 1000 - - -	0	3	6	0	2	4
Caps, *viz.*						
—— Cotton, for every 100*l.* of the value - -	50	0	0		—	
—— Worsted, for every 100*l.* of the value - -	50	0	0		—	
Capsicum. See Guinea Pepper, in Pepper.						
Caraway, Oil of, See Oil.						
——— Seed. See Seed.						
Cardamoms, the lb. - - - -	0	2	0	0	1	4
——— Extract or Preparation of. See Extract.						
Cards, *viz.* Playing Cards, the dozen packs - -	4	0	0		—	

TABLE (A.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Cariophyllorum Cortex. See Clove Bark, in Bark.						
——— Oleum. See Oil of Cloves.						
Carmenia Wool. See Goat Hair, in Hair.						
Carmine, the oz. - - - -	0	4	0	—		
Carpets, *viz.*						
——— of Turkey, under four yards square, the Carpet -	1	10	0	—		
..... four yards square, and not exceeding six yards square, the Carpet - -	5	10	0	—		
..... exceeding six yards square, the Carpet -	8	15	0	—		
——— not otherwise enumerated or described, for every 100*l.* of the value - - -	50	0	0	—		
Carrabe. See Succinum.						
Carriages of all sorts, for every 100*l.* of the value -	50	0	0	—		
Carrot Seed. } See Seed.						
Carthamus Seed. } See Seed.						
Carui Oleum. See Oil of Caraway.						
Cascarilla Cortex. See Eleutheria Bark, in Bark.						
Cashew Gum. See Gum.						
——— Nuts. See Nuts.						
Casks, empty, for every 100*l.* of the value - -	50	0	0	—		
Cassia, *viz.*						
——— Buds, the ℔. - - -	0	2	6	—		
——— Fistula, the ℔. - - -	0	0	10	0	0	6
——— Lignea, the ℔. - - - -	0	2	6	—		
——— Oil of. See Oil.						
Cast Iron. See Iron.						
Castor, the ℔. - - - -	0	5	0	0	3	4
——— Oil of. See Oil.						
——— Seed. See Seed.						
Casts of Busts, Statues, or Figures, the cwt. - -	0	2	6	—		
Catechu. See Terra Japonica.						
Catlings, Harpstrings, or Lutestrings, the Gross, containing twelve dozen knots - - -	0	6	4	—		
Cat Skins. See Skins.						
Cattle from the Isle of Man. See Man, Isle of.						
Caviare. See Fish.						
Cayenne Pepper. See Pepper.						
Chalk, prepared or otherwise manufactured, and not otherwise enumerated or described, for every 100*l.* of the value	40	0	0	—		
——— unmanufactured, and not otherwise enumerated or described, for every 100*l.* of the value - -	20	0	0	—		
Charts. See Maps.						
Cheese, imported in a British-built ship, the cwt. -	0	10	6	—		
——— imported in a ship not British-built, the cwt. -	0	13	0	—		
Chemical Oil. See Oil.						
Cherries, the cwt. - - - -	0	18	8	—		
——— dried, the ℔. - - -	0	0	8	—		
Chesnuts. See Nuts.						
Chillies. See Guinea Pepper, in Pepper.						
Chimney Pieces of Marble or Stone sculptured. See Sculptured Marble, in Stone.						
China Root, the ℔. - - -	0	1	3	0	0	10
China Ware or Porcelain, not otherwise enumerated or described, for every 100*l.* of the value - -	75	0	0	—		
Chip Hats or Bonnets. See Hats.						
Chip, Manufactures of, to make Hats or Bonnets. See Platting.						
Chromate of Lead, for every 100*l.* of the value - -	50	0	0	—		
Cider, the tun, containing 252 gallons - - Subject also to a Duty of Excise.	11	17	6	—		
Cinders, the ton, containing 20 cwt. - -	2	0	0	—		
Cinnabaris Nativa, the ℔. - - -	0	2	0	0	1	4
Cinnamon, the ℔. - -	0	3	6	0	3	2

TABLE (A.)—INWARDS.	Duty.			Drawback.		
	£.	s.	d.	£.	s.	d.
Cinnamon—*continued.*						
——— the Produce of, and imported from any British colony or plantation, the ℔. - -	0	2	6	0	2	3
——— imported under licence, the ℔ - -	0	3	6		—	
For the conditions, regulations, and restrictions, under which Cinnamon may be so imported, see 3 & 4 Ann. c. 4.; 8 Ann. c. 7.; 6 Geo. 1. c. 21.; and also 8 Geo. 1. c. 18., which is continued by several statutes, and by 49 Geo. 3. cap. 20. made perpetual.						
Cinnamomi Oleum. See Oil of Cinnamon.						
Citrat of Lime, the ℔. - - - -	0	1	6		—	
Citron preserved with salt, for every 100*l.* of the value -	20	0	0		—	
——— ..... Sugar. See Succades.						
Citron Water. See Spirits.						
Civet, the oz. - - - - - -	0	4	9		—	
Clap Boards. See Boards in Wood.						
Clinkers. See Bricks.						
Clocks, for every 100*l.* of the value - -	50	0	0		—	
Cloths, Woollen. See Wool, articles made of.						
Clover Seed. See Seed.						
Cloves, the ℔. - - - -	0	3	0	0	2	7
——— the produce of, and imported from, any British Colony or plantation, the ℔. - - -	0	2	0	0	1	9
——— imported under Licence, the ℔. - -	0	3	0		—	
For the conditions, regulations, and restrictions, under which Cloves may be so imported, see 3 & 4 Ann. c. 4.; 8 Ann. c. 7.; 6 Geo. 1. c. 21.; and also 8 Geo. 1. c. 18., which is continued by several statutes, and by 49 Geo. 3. c. 20. made perpetual.						
——— Oil of. See Oil.						
Coals, the ton, containing 20 cwt. - - -	2	0	0		—	
Cobalt, for every 100*l.* of the value - - -	20	0	0		—	
Cocculus Indicus, imported directly from the place of its growth, the ℔. - -	0	2	6		—	
——— imported not directly from the place of its growth, the ℔. - -	0	3	9		—	
——— Extract or Preparation of. See Extract.						
Cochineal, the ℔. - - - -	0	2	6		—	
——— Dust, the ℔. - - - -	0	0	5		—	
Coco Nuts, for every 100*l.* of the value. - - -	20	0	0		—	
——— Oil of. See Oil.						
Cocoa Nuts, duty free.						
Cocoa Nuts are subject to a duty of excise.						
Codilla of Flax, subject to duty as Flax, for which, see Flax.						
——— of Hemp, subject to duty as Hemp, for which, see Hemp.						
Coffee, duty free.						
Coffee is subject to a Duty of Excise.						
Coin, *viz.*						
——— of Copper. See Copper.						
——— Foreign, of Gold or Silver. See Bullion.						
Cole Seed. See Seed.						
Colocynth. See Coloquintida.						
Colophonia. See Rosin.						
Coloquintida, or Colocynth, imported directly from the place of its growth, the ℔. -	0	1	8	0	1	1
——— imported not directly from the place of its growth, the ℔. -	0	2	6	0	1	8
Colours for Painters. See Painters' Colours.						
Columbo Root, the ℔. - - - -	0	2	0	0	1	4
Comfits, the ℔. - - - -	0	2	6		—	
Coney Skins. See Skins.						
——— Wool. See Wool.						
Confection of Alkermes. See Alkermes.						

TABLE (A.) — INWARDS.	Duty. £. s. d.	Drawback. £. s. d.
Contrayervæ Radix. See Radix.		
Copaiba, or Capivi Balsam. See Balsam.		
Copal Gum. See Gum.		
Copper, *viz.*		
——— Ore, the cwt. - - - -	1 1 0	—
——— Old, fit only to be re-manufactured, the cwt. -	1 9 2	—
——— in Plates, and Copper Coin, the cwt. - -	3 0 0	—
——— unwrought, *viz.* - - - -		
——— ..... in Bricks or Pigs, Rose Copper, and all cast Copper, the cwt.	2 14 2	—
——— part wrought, *viz.*		
..... Bars, Rods, or Ingots hammered or raised, the cwt. - -	3 15 6	—
——— Wire. See Wire.		
——— Manufactures of Copper not otherwise enumerated or described, and Copper Plates engraved, for every 100*l.* of the value - - - -	50 0 0	—
Copperas, *viz.*		
——— Blue, the cwt. - - -	0 5 0	—
——— Green, the cwt. - - -	0 5 0	—
——— White, the cwt. - - -	0 12 0	—
Coral, *viz.*		
——— Beads. See Beads.		
——— in Fragments, the ℔. - - -	0 1 0	—
——— whole, polished, the ℔. - - -	0 12 0	—
..... unpolished, the ℔. - - -	0 5 6	—
Cordage tarred or untarred, whether in use or otherwise, (standing or running Rigging in use excepted,) the cwt. - - - -	1 1 6	—
Cordial Waters. See Spirits.		
Coriander Seed. See Seed.		
Cork, imported in a British-built ship, the cwt.	0 8 0	—
——— imported in a ship not British-built, the cwt. -	0 8 9	—
Corks, ready made, the ℔. - - - -	0 7 0	—
Corn, *viz.*		
All Corn, Meal, or Flour, the growth, produce or manufacture of any foreign country, which may by law be imported into Great Britain, may at all times be brought into, and warehoused therein, without payment of any duty whatever, and such Corn, Meal, or Flour having been so warehoused, may at all times be taken out of such warehouse, and exported according to law, without payment of any duty whatever; and any such Corn, Meal, or Flour, may be taken out of such warehouse and entered for home consumption in Great Britain, under the regulations and provisions required by law, without payment of any duty whatever, whenever foreign Corn, Meal, or Flour of the same sort may by law be admissible into Great Britain for home consumption. See 55 Geo. 3. c. 26.		
Foreign Corn, Meal, or Flour may be imported into Great Britain for home consumption, under and subject to the provisions and regulations in force, without payment of any duty whatever, whenever the average prices of the several sorts of British Corn, made up and published as required by law, shall be at or above the prices hereafter mentioned, *viz.* Whenever Wheat shall be at or above the price of eighty shillings per quarter; whenever Rye, Pease, and Beans shall be at or above the price of fifty-three shillings per quarter; whenever Barley, Beer, or Big shall be at or above the price of forty shillings per quarter; and whenever		

TABLE (A.) INWARDS.	Duty.	Drawback.
Corn—*continued.*	£. s. d.	£. s. d.
Oats shall be at or above the price of twenty-seven shillings per quarter. See 55 Geo. 3. c. 26.		
Whenever the average prices of British Corn, so made up and published, shall respectively be below the prices before stated, no foreign Corn, or Meal or Flour made from any of the respective sorts of foreign Corn before enumerated, shall be allowed to be imported into Great Britain for the purpose of home consumption, or taken out of warehouse for that purpose. See 55 Geo. 3. c. 26.		
The average price of the several sorts of British Corn by which the importation of foreign Corn, Meal, or Flour into Great Britain shall be regulated and governed, shall continue to be made up and published in the manner required by law, (See 31 Geo. 3. c. 30., 33 Geo. 3. c. 65., 44 Geo. 3. c. 109., 45 Geo. 3. c. 86.); but if at any time after the importation of foreign Corn, Meal, or Flour, shall be permitted under the provisions required by law, it shall appear that the average prices of the different sorts of British corn respectively, in the six weeks immediately succeeding the 15th of February, the 15th of May, the 15th of August, and the 15th of November, in each year, have fallen below the prices at which foreign Corn, Meal, or Flour, may be by law allowed to be imported for home consumption, no such foreign Corn, Meal, or Flour, shall be allowed to be imported into Great Britain for home consumption from any place between the rivers Eyder and Bidassoa, both inclusive, until a new average shall be made up and published in the London Gazette, for regulating the importation into Great Britain for the succeeding quarter. See 55 Geo. 3. c. 26.		
Any Corn, Meal, or Flour, being the growth, produce, or manufacture, of any British colony or plantation in North America, which may by law be imported into Great Britain, may respectively be imported for home consumption without payment of any duty, whenever the average prices of British Corn, made up and published as by law required, shall respectively be at or above the prices hereafter specified, *viz.* whenever the price of wheat shall be at or above 67*s.* per quarter; whenever the price of rye, pease, and beans, shall be at or above 44*s.* per quarter; whenever the price of barley, beer, or bigg, shall be at or above 33*s.* per quarter; and whenever the price of oats shall be at or above 22*s.* per quarter. See 55 Geo. 3. c. 26.		
Whenever the prices of British Corn respectively shall be below the prices before specified, Corn, or Meal or Flour made from any of the respective sorts of Corn herein-before enumerated, being of the growth, produce, or manufacture, of any British colony or plantation in North America, shall no longer be allowed to be imported into Great Britain for home consumption. See 55 Geo. 3. c. 26.		
Any Corn, Meal, or Flour, being of the growth, produce, or manufacture, of any British colony or plantation in North America, which may by law be imported into Great Britain, may at all times be permitted to be so imported and warehoused according to law, without payment of any duty whatever, and be taken out of such warehouse, and exported according to law without payment of any duty whatever. See 55 Geo. 3. c. 26.		

TABLE (A.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Corn — *continued.*						
Such Corn, Meal, or Flour, so warehoused, may be taken out of the warehouse and entered for home consumption in Great Britain, whenever Corn, Meal, or Flour, of the like description, imported direct from any such colony or plantation, shall be admissible by law for home consumption, but not otherwise. See 55 Geo. 3. c. 26.						
Note. — All foreign Corn, when delivered out of any ship or vessel in the port of London, is subject to a duty of 2*d.* per last of 10 quarters, to be paid to the Inspector of Corn Returns.						
Cornu Cervi Calcinatum, the lb. - - -	0	0	8	—		
Cortex. See Bark.						
Costus, the lb. - - - -	0	1	0	0	0	8
Cotton, *viz.*						
——— Caps. See Caps.						
——— Cloth of the Manufacture of the Isle of Man. See Man, Isle of.						
——— Manufactures of Cotton, or of any other article mixed with cotton, being chequered or striped, or printed, painted, stained, or dyed, after the manufacture, or in the thread or yarn before the manufacture, not being prohibited to be imported into, nor worn nor used in Great Britain, and not being particularly enumerated or described, nor otherwise charged with duty, for every 100*l.* of the value - -	75	0	0	—		
——— Manufactures of Cotton, not otherwise enumerated or described, for every 100*l.* of the value. -	50	0	0	—		
——— Stockings. See Stockings.						
——— Thread. See Thread.						
——— Wool, or Waste of Cotton Wool. See Wool.						
——— Yarn. See Yarn.						
Couhage, the lb. - - - -	0	1	3	0	0	10
Cow or Ox Hair. See Hair.						
—— Hides. See Buffalo Hides, in Hides.						
—— Horns. See Horns.						
—— Tails. See Buffalo Tails, in Tails.						
Cowitch. See Couhage.						
Cowries, imported from Europe under licence for exportation to Africa, for every 100*l.* of the value -	3	3	4	—		
For the conditions, regulations, and restrictions under which Cowries may be so imported. See 5 Geo. 3. c. 30.						
Crabs' Eyes. See Cancrorum Oculi.						
Cranberries, the gallon - - -	0	1	3	—		
The duty on Cranberries, being the produce of and imported directly from the island of Newfoundland, is suspended until the 5th day of July, 1824. See the Act to which this Table is annexed.						
Crayons, for every 100*l.* of the value - -	40	0	0	—		
Cream of Tartar, the cwt. - - -	0	15	10	—		
Crystal, *viz.*						
——— Beads. See Beads.						
——— Rough, for every 100*l.* of the value - -	20	0	0	—		
——— Cut, or in any way manufactured, for every 100*l.* of the value - - - -	60	0	0	—		
Cubebs, the lb. - - - -	0	2	0	—		
Cucumbers, *viz.*						
——— Pickled, the gallon - -	0	2	6	—		
——— Preserved in Salt and Water, for every 100*l.* of the value - - -	20	0	0	—		
Culm, the ton containing 20 cwt. - - -	2	0	0	—		
Cummin Seed. See Seed.						
Currants, imported in a British-built ship, the cwt. -	2	4	4	2	0	0

TABLE (A.) — INWARDS.	Duty.			Drawback.		
	£.	s.	d.	£.	s.	d.
Currants imported in a Ship not British-built, the cwt. -	2	7	6	2	0	0
Note.—No allowance of the Duty on Currants to be made on account of damage.						
Cuttle Shells, the 1000 - - -	0	12	6	—		
Cyder. See Cider.						
Cyprus, Turpentine of. See Turpentine.						
D.						
Damask Tabling, Towelling, or Napkining. See Linen.						
Dates, the cwt. - - - -	4	10	3	4	0	0
Deals. } See Wood.						
Deal Ends. } See Wood.						
Deer Skins. See Skins.						
Denia Raisins. See Raisins.						
Derelict, Foreign Liquors Derelict, Jetsam, Flotsam, Lagan, or Wreck, brought or coming into Great Britain, are subject to the same Duties, and entitled to the same Drawbacks as Liquors of the like kind regularly imported.						
Diagrydium. See Scammony						
Diamonds, Duty free.						
Diaper Tabling, Towelling, or Napkining. See Linen.						
Dice, the Pair - - - -	1	6	2	—		
Dimity. See Cotton Manufactures.						
Dittany, the lb. - - - -	0	1	0	0	0	8
Dog Skins. } See Skins.						
Dog Fish Skins. } See Skins.						
Dog Stones. See Stone.						
Down, imported in a British-built Ship, the lb. - -	0	1	3	—		
——— imported in a Ship not British-built, the lb. -	0	1	5	—		
Dragons' Blood. See Sanguis Draconis.						
Drawings. See Prints.						
Drillings. See Linen.						
Drugs, on which specific Duties are payable according to the Quantity. See the several Articles in alphabetical course.						
——— not particularly enumerated or described, nor otherwise charged with Duty, for every 100*l.* of the value -	50	0	0	—		
Duck. See Sail Cloth, in Linen.						
Dust, perfumed. See Hair Powder.						
Dutch Barras. See Canvass, in Linen.						
E.						
Earthenware, not otherwise enumerated or described, for every 100*l.* of the value - - -	75	0	0	—		
East Country Linen. See German Linen, in Linen.						
East India Goods. For the Duties and Drawbacks on Goods imported from places within the limits of the charter granted to the United Company of Merchants of England, trading to the East Indies, or from the Cape of Good Hope. See Table (B.)						
Ebony. See Wood.						
Eels. See Fish.						
Eggs, the 120 - - -	0	0	10	—		
Elastic Gum. See Caoutchouc.						
Elbing Canvass. See Canvass, in Linen.						
Elemi Gum. See Gum.						
Elephants' Teeth, *viz.*						
——— not exceeding the Weight of 21lbs. each Tooth, the cwt. - - - -	2	0	0	—		
——— exceeding the Weight of 21lbs. each Tooth, the cwt.	4	0	0	—		
Eleutheria Cortex. See Bark.						
Elk Hair. See Cow Hair, in Hair.						
——— Skins. See Skins.						

TABLE (A.) — INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Emeralds. See Jewels.						
Emery Stones. See Stone.						
Enamel, the ℔. - - - -	0	7	2		—	
Enulæ Campanæ Radix. See Radix.						
Eringii Radix. See Radix.						
Ermine Skins. See Skins.						
Essence, *viz.*						
——— of Bergamot or of Lemon, the ℔. - -	0	4	6		—	
——— of Spruce, for every 100*l.* of the value - -	20	0	0		—	
——— not otherwise enumerated or described, the ℔. -	0	4	6		—	
Euphorbium, the ℔. - - - -	0	0	8	0	0	5
Extract, *viz.*						
——— Cardamoms, - - } Extract or Preparation of, for every 100*l.* of the value - -	75	0	0		—	
——— Cocculus Indicus, - }						
——— Grains, *viz.* - - }						
..... Guinea Grains, }						
..... of Paradise, - }						
——— Liquorice, - - }						
——— Nux Vomica, - - }						
——— Oak Bark. Solid Vegetable Extract from Oak Bark, or other vegetable substances, to be used for the purpose of tanning leather, and for no other purpose whatever, the cwt. - -	0	3	0		—	
——— Opium, - - } Extract or Preparation of, for every 100*l.* of the value - -	75	0	0		—	
——— Pepper, *viz.* Guinea Pepper - - }						
——— Peruvian or Jesuits' Bark, Extract or Preparation of, the ℔. - - - -	0	5	0		—	
——— Quassia, Extract or Preparation of, for every 100*l.* of the value - - - -	75	0	0		—	
——— Radix Rhatinæ, Extract or Preparation of, the ℔. -	0	5	0		—	
——— Vitriol, Extract or Preparation of, for every 100*l.* of the value - - -	75	0	0		—	
——— Or preparation of any article not being particularly enumerated or described, nor otherwise charged with duty, for every 100*l.* of the value - -	50	0	0		—	
F.						
Faro Raisins. See Raisins.						
Feather Beds. See Feathers for Beds.						
Note.—The duty on Feather Beds is payable according to the quantity of feathers contained therein.						
Feathers, *viz.*						
——— for Beds, imported in a British-built ship, the cwt.	4	8	8		—	
..... imported in a ship not British-built, the cwt.	4	15	0		—	
——— Ostrich, dressed, the ℔. - -	2	15	6		—	
..... undressed, the ℔. - -	1	0	0		—	
——— not otherwise enumerated or described, *viz.*						
..... dressed, for every 100*l.* of the value -	50	0	0		—	
..... undressed, for every 100*l.* of the value	20	0	0		—	
Fennel Seed. See Seed.						
Fenugreek Seed. See Seed.						
Figs, imported in a British-built ship, the cwt. - -	1	1	6	0	19	0
—— imported in a ship not British-built, the cwt. - -	1	3	0	0	19	0
Note. — No allowance of the duty on Figs to be made on account of damage.						
Filtering Stones. See Stone.						
Fire Wood. See Wood.						
Fir Quarters. See Wood.						
—— Timber. See Timber in Wood.						
Fish, *viz.*						
—— Anchovies, the ℔. - - -	0	1	0		—	
—— Botargo, the ℔. - - - -	0	1	0		—	

TABLE (A.) — INWARDS.	Duty.			Drawback.		
	£.	s.	d.	£.	s.	d.
Fish — *continued.*						
—— Caviare, the cwt. - - -	0	12	0		—	
—— Eels, the ship's lading - - -	13	1	3		—	
—— Lobsters, duty free.						
—— Oysters, the Winchester bushel - -	0	1	6		—	
—— Stock Fish, the 120 - - -	0	5	0		—	
—— Sturgeon, the keg not exceeding 5 gallons - -	0	7	6		—	
—— Turbots, duty free.						
—— Fresh Fish, British-taken, and imported in British-built ships or vessels, duty free.						
—— Fish, British, taking and curing, duty free. For the conditions, regulations, and restrictions, under which any such Fish may be imported duty free, see the Act to which this Table is annexed.						
Fishers Skins. See Skins.						
Fishing Nets, Old. See Rags.						
Fish Oil. See Train Oil, in Oil.						
Fitches Skins. See Skins.						
Flanders Tiles. See Tiles.						
Flannel. See Wool, Articles made of.						
Flasks See Bottles.						
Flax, *viz.*						
—— dressed, imported in a British-built ship, the cwt. -	10	14	6		—	
..... imported in a ship not British-built, the cwt. -	11	3	6		—	
—— rough or undressed, imported in a British-built ship, the cwt. - - - -	0	0	5		—	
..... imported in a ship not British-built, the cwt.	0	0	8		—	
Flax Seed. See Seed.						
Flint Stones for Potters. See Stone.						
Flock Paper. See Paper.						
Flocks, the cwt. - - -	0	19	0		—	
Floss Silk. See Waste Silk, in Silk.						
Flotsam. See Derelict.						
Flour. See Corn.						
Flower Roots, for every 100*l.* of the value - -	20	0	0		—	
Flowers, Artificial, not made of silk, for every 100*l.* of the value	50	0	0		—	
Forest Seed. See Seed.						
Fossils, not otherwise enumerated or described, for every 100*l.* of the value - - -	20	0	0		—	
——— Specimens of. See Specimens.						
Fox Skins, —— Tails, } See Skins.						
Frames for Pictures, Prints or Drawings, for every 100*l.* of the value - - - -	50	0	0		—	
Frankincense. See Olibanum.						
French Beans. See Beans.						
Furriers' Waste, for every 100*l.* of the value - -	20	0	0		—	
Furs. See Skins.						
Fustic. See Wood.						
G.						
Galangal, imported directly from the place of its growth, the ℔. - - -	0	0	6	0	0	4
——— imported not directly from the place of its growth, the ℔. - - -	0	0	9	0	0	6
Galbanum, imported directly from the place of its growth, the ℔. - - -	0	1	4	0	0	10
——— imported not directly from the place of its growth, the ℔. - - -	0	2	0	0	1	3
Galley Tiles. See Tiles.						
Galls, the cwt. - - - -	0	11	2		—	
Gamboge, the ℔. - - - -	0	1	8	0	1	1
Garden Seed. See Seed.						

TABLE (A.) — INWARDS.	Duty.			Drawback.		
	£.	s.	d.	£.	s.	d.
Garnets, *viz.*						
——— cut, the lb. - - - -	1	10	0		—	
——— rough, the lb. - - -	0	10	0		—	
Gauze of Thread, for every 100*l.* of the value - -	50	0	0		—	
Geldings. See Horses.						
Gem Sal. See Sal.						
Geneva. See Spirits.						
Gentian, the lb. - - -	0	0	6	0	0	4
German Linen. See Linen.						
Germany, Turpentine of. See Turpentine.						
Gibraltar.						
For the conditions, regulations, and restrictions under which goods, wares, and merchandise of the growth or production of the dominions of the Emperor of Morocco may be imported from Gibraltar, on payment of such duties only as are or shall be payable on the like goods, when imported directly from Africa, see 27 Geo. 3. cap. 19.						
Gibraltar, Port of.						
For the duties and drawbacks on goods, wares, and merchandise, being of the growth, produce, or manufacture of any place within the limits of the charter granted to the United Company of Merchants of England trading to the East Indies, legally imported or brought into the Port of Gibraltar, and imported from thence into Great Britain, see Table B.						
Gilt Wire. See Wire.						
Ginger, the cwt. - - -	2	13	0		—	
——— the produce of the British plantations, colonies, or settlements in America, or of the West Coast of Africa, the cwt. - - -	1	3	0	1	0	0
——— preserved, the lb. - - -	0	3	2		—	
Ginseng, the lb. - - -	0	1	6	0	1	0
Glass, *viz.*						
—— Bottles. See Bottles.						
—— Crown, German Sheet, or any kind of Window Glass, not being Plate Glass, the cwt. - -	4	18	0		—	
—— Flint Glass, the cwt. - - -	6	3	0		—	
—— Plate Glass, for every square foot superficial measure	0	6	7		—	
—— Glass Manufactures, not otherwise enumerated or described, for every 100*l.* of the value - -	80	0	0		—	
Glass is also subject to a Duty of Excise.						
Glasses for Watches. See Watch Glasses.						
Glovers' Clippings, fit only to make glue, the cwt. -	0	4	9		—	
Glue, the cwt. - - -	0	12	0		—	
Goat Hair. See Hair.						
—— Skins. See Skins.						
—— Wool. See Goat Hair, in Hair.						
Gold Coin. See Bullion.						
—— Leaves. See Leaves.						
—— Plate. See Plate.						
Goods warehoused.						
For a list of those goods which may be warehoused, or otherwise secured on importation into Great Britain, without payment of duty in the first instance, see Table F.						
Goose Quills. See Quills.						
Grain. See Corn.						
Grains, *viz.*						
——— Guinea Grains, the lb. - - -	0	2	0		—	
..... Extract or Preparation of. See Grains in Extract.						
——— of Paradise, the lb. - - -	0	2	0		—	

TABLE (A.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Grains of Paradise—*continued.*						
..... Extract or Preparation of. See Grains in Extract.						
Granilla, the lb. - - - -	0	0	10	—		
Grapes, for every 100*l.* of the value - - -	50	0	0	—		
——— Rape of. See Rape of Grapes.						
Grave Stones. See Stone.						
Grease, the cwt. - - -	0	1	8	—		
Greaves for dogs, the cwt. - - -	0	2	0	—		
Grogram Yarn. See Yarn.						
Guaiacum Cortex. See Bark.						
——— Gum. See Gum.						
Guernsey, Island of.						
For the conditions, regulations, and restrictions under which goods, wares, and merchandise, of the growth, production, and manufacture of the islands of Guernsey; Jersey, Sark, or Alderney, (Salt excepted, see 38 Geo. 3. cap. 89. and Slate and also Stones not being Burr Stones, see 34 Geo. 3. cap. 51. and 42 Geo. 3. cap. 95.) may be imported from those islands by the inhabitants thereof, without payment of any duty, except such Excise or other duty as shall be payable for the like goods of the growth, production, and manufacture of Great Britain, see 3 Geo. 1. cap. 4. But foreign goods having been lawfully imported into the said islands, and foreign goods and commodities in part or fully manufactured in either of them, and which may legally be imported from thence into Great Britain, are subject to such duties as are payable for the like goods when imported from any foreign country of which they are the growth, product, or manufacture. See 3 Geo. 1. cap. 4.						
Guinea Grains. See Grains.						
——— Pepper. See Pepper.						
——— Wood. See Red Wood, in Wood.						
Gum, *viz.*						
—— Ammoniac, imported directly from the place of its growth, the lb. - -	0	1	3	0	0	10
..... imported not directly from the place of its growth, the lb. - - -	0	1	10	0	1	3
—— Anime, the lb. - - -	0	1	8	0	1	1
—— Arabic, the cwt. - - - -	0	12	0	—		
—— Cake Lac. See Lac, in Gum.						
—— Cashew, the cwt. - - -	0	7	6	0	5	0
—— Copal, the lb. - - - -	0	1	8	0	1	1
—— Elemi, the lb. - - -	0	0	8	0	0	5
—— Guaiacum, the lb. - - -	0	1	10	0	1	2
—— Juniper. See Gum Sandarach.						
—— Kino, or Gum Rubrum Astringens, the lb. -	0	1	6	0	1	0
—— Lac, *viz.*						
..... Cake Lac, the lb. - - -	0	0	5	0	0	3
..... Lac Dye, the lb. - - -	0	0	6	0	0	4
..... Lac Lake, the lb. - -	0	0	1	—		
..... Seed Lac, the lb. - - -	0	0	6	0	0	4
..... Shell Lac, the lb. - - -	0	0	8	0	0	5
..... Stick Lac, the cwt. - - -	1	0	0	0	13	4
—— Opoponax, imported directly from the place of its growth, the lb. - -	0	3	6	0	2	4
..... imported not directly from the place of its growth, the lb.	0	5	3	0	3	6
—— Rubrum Astringens. See Gum Kino.						
—— Sagapenum, imported directly from the place of its growth, the lb. - - -	0	0	10	0	0	6
..... imported not directly from the place of its growth, the lb. - -	0	1	3	0	0	9

TABLE (A.)—INWARDS.	Duty. £. s. d.	Drawback. £. s. d.
Gum—*continued.*		
—— Sandarach, or Juniper, the cwt. - -	0 19 0	0 12 8
—— Sarcocolla, imported directly from the place of its growth, the ℔. - -	0 0 10	0 0 6
..... imported not directly from the place of its growth, the ℔. - -	0 1 3	0 0 9
—— Seed Lac. See Lac, in Gum.		
—— Senegal, the cwt. - - -	0 12 0	—
..... imported from any port or place in Europe in a British-built ship, the cwt. - -	0 12 0	—
For the conditions, regulations, and restrictions under which Gum Senegal may be so imported, see 25 Geo. 2. cap. 32.		
—— Shell Lac. } See Lac, in Gum.		
—— Stick Lac. } See Lac, in Gum.		
—— Tacamahaca, the ℔. - - -	0 2 0	0 1 4
—— Tragacanth, imported directly from the place of its growth, the ℔.	0 1 0	0 0 8
..... imported not directly from the place of its growth, the ℔. - -	0 1 6	0 1 0
—— not particularly enumerated or described, nor otherwise charged with duty, for every 100*l.* of the value -	50 0 0	—
Gunpowder, the cwt. - - -	3 0 0	—
Gutting Canvass. See Canvass, in Linen.		
Gypsum, the ton, containing 20 cwt. - -	1 11 8	—
——— the produce of, and imported from any British colony, plantation, or settlement in America, the ton containing 20 cwt. - - -	0 1 3	—
H.		
Hair, *viz.*		
—— Camel's Hair, the ℔. - - -	0 1 8	—
—— Cow, Ox, Bull, or Elk Hair, the cwt. - -	0 18 4	—
—— Goats' Hair, or Turkey Goats' Wool, the ℔. -	0 0 6	—
—— Hats made of Hair. See Hats.		
—— Horse Hair, for every 100*l.* of the value - -	20 0 0	—
—— Human Hair, the ℔. - - -	0 5 0	—
—— Hair, not otherwise enumerated or described, for every 100*l.* of the value - - - -	20 0 0	—
Hair Powder, the cwt. - - -	9 15 0	—
——— perfumed, or perfumed Dust, the cwt. -	13 13 0	—
Hams. See Bacon.		
Handspikes. See Wood.		
Hare Skins. See Skins.		
—— Wool. See Wool.		
Harp Strings. See Catlings.		
Hart Horns. See Horns.		
Hats, *viz.*		
—— Bast, Chip, Cane, or Horse Hair Hats or Bonnets,		
..... each Hat or Bonnet not exceeding 22 inches in diameter, the dozen -	1 0 0	—
..... each Hat or Bonnet exceeding 22 inches in diameter, the dozen - -	2 0 0	—
—— Straw Hats or Bonnets,		
..... each Hat or Bonnet not exceeding 22 inches in diameter, the dozen -	3 8 0	—
..... each Hat or Bonnet exceeding 22 inches in diameter, the dozen - -	6 16 0	—
—— made of or mixed with Felt, Hair, Wool, or Beaver, the Hat - - - -	0 10 6	—
Hay, the load, containing 36 trusses, each truss being 56lbs.	1 4 0	—
Head Matter. See Train Oil, in Oil.		
Heath for Brushes, the cwt. - - -	0 9 2	—
Hellebore, the ℔. - - -	0 0 6	0 0 4

TABLE (A.)—INWARDS.	Duty. £. s. d.	Drawback. £. s. d.
Hemp, *viz.*		
——— dressed, imported in a British-built ship, the cwt. -	4 15 0	—
..... imported in a ship not British-built, the cwt.	5 0 0	—
——— rough or undressed, or any other vegetable substance of the nature and quality of undressed Hemp, and applicable to the same purposes,		
..... imported in a British-built ship, the cwt. -	0 9 2	—
..... imported in a ship not British-built, the cwt.	0 10 4	—
..... the produce of the British plantations in America, the ton containing 20 cwt.	0 8 0	—
——— Seed. See Seed.		
——— Oil. See Oil.		
Hessen Canvass. See Canvass, in Linen.		
Hides, *viz.*		
——— Buffalo, Bull, Cow, or Ox Hides in the Hair, not tanned, tawed, curried, or in any way dressed,		
..... imported in a British-built ship, the hide -	0 0 10	—
..... imported in a ship not British-built, the hide - - - -	0 2 6	—
..... tanned, and not otherwise dressed, the ℔.	0 1 0	—
——— Buffalo, Bull, Cow, or Ox Hides in the Hair, not being tanned, tawed, curried, or in any way dressed, imported from the West Coast of Africa, the hide - -	0 0 6	—
..... Tails. See Tails.		
——— Elk. See Skins.		
——— Horse, Mare, or Gelding, in the Hair, not tanned, tawed, curried, or in any way dressed,		
..... imported in a British-built ship, the hide -	0 0 10	—
..... imported in a ship not British-built, the hide	0 2 6	—
..... tanned, and not otherwise dressed, the ℔. -	0 1 0	—
——— Losh Hides, the ℔. - - -	0 1 8	—
——— Muscovy or Russia Hides, tanned or coloured, the ℔.	0 1 8	—
——— Hides, or pieces of Hides, raw or undressed, not particularly enumerated or described, nor otherwise charged with duty, imported from any British colony or plantation in America, for every 100*l.* of the value - - - -	5 17 6	—
——— Hides, or pieces of Hides, raw or undressed, not particularly enumerated or described, nor otherwise charged with duty, for every 100*l.* of the value -	20 0 0	—
——— Hides, or pieces of Hides, tanned, tawed, curried, or in any way dressed, not particularly enumerated or described, nor otherwise charged with duty, for every 100*l.* of the value - -	75 0 0	—
Hog's Lard. See Lard.		
Hones, the 100 - - - - -	1 3 0	—
Honey, the cwt. - - - - -	0 15 0	—
Hoofs of Cattle, for every 100*l.* of the value - -	20 0 0	—
Hoops, *viz.*		
——— of Iron, the cwt. - - - -	1 3 9	—
——— of Wood, the 1000 - - - -	0 15 0	—
Hops, the cwt. - - - -	8 11 0	—
Horns, Horn Tips, and pieces of Horns, not otherwise charged with duty, the cwt. - - -	0 5 0	—
Horse Hair. See Hair.		
——— Hats or Bonnets. See Hats.		
——— Hides. See Hides.		
Horses, Mares, or Geldings, each - - -	6 13 0	—
Hulled Barley. See Pearl Barley.		
Human Hair. See Hair.		

TABLE (A.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Hungary Water. See Spirits.						
Husks or Knubs of Silk. See Knubs, in Silk.						
Husse Skins. See Skins.						
I and J.						
Jalap, the lb. - - - - -	0	2	0	0	1	4
Jamaica Wood. See Brazilletto, Wood, in Wood.						
Japonica Terra. See Terra.						
Iceland Moss. See Lichen Islandicus, in Moss.						
Jersey, Island of. See Guernsey.						
Jessamine Oil. See Oil.						
Jesuits' Bark. See Peruvian Bark, in Bark.						
Jet, the lb. - - - - -	0	2	0	—		
—— Beads. See Beads.						
Jetsam. See Derelict.						
Jewels, Emeralds, Rubies, and all other precious Stones (except Diamonds), not otherwise enumerated or described, not set or in any way manufactured, for every 100*l.* of the value - - -	20	0	0	—		
——— set, or in any way manufactured, for every 100*l.* of the value - - - -	50	0	0	—		
Jews Pitch. See Bitumen Judaicum.						
India Rubbers. See Caoutchouc.						
Indian Corn or Maize. See Corn.						
Indigo, the lb. - - - -	0	0	5	—		
Ink for Printers, the cwt. - - -	1	1	0	—		
Inkle, *viz.*						
——— unwrought, the lb. - - -	0	0	10	—		
——— wrought, the lb. - - - -	0	5	2	—		
Ipecacuannæ Radix. See Radix.						
Ireland. The duties and drawbacks of customs on articles the growth, produce, or manufacture of Ireland, imported directly from thence, are not in any way altered, varied, or repealed by any thing herein contained. See the Act to which this Table is annexed.						
Iris Root. See Orice Root.						
Iron, *viz.*						
—— in Bars, or unwrought,						
..... the produce of any British colony or plantation in America, and imported from thence, the ton containing 20 cwt. - -	1	2	2	—		
..... the produce of any other country,						
..... imported in a British-built ship, the ton containing 20 cwt. - -	6	10	0	—		
..... imported in a ship not British-built, the ton containing 20 cwt. - -	7	18	4	—		
—— slit or hammered into rods, and iron drawn or hammered, less than $\frac{3}{4}$ of an inch square,						
..... imported in a British-built ship, the cwt. -	1	0	0	—		
..... imported in a ship not British-built, the cwt.	1	1	6	—		
—— Cast, for every 100*l.* of the value - -	20	0	0	—		
—— Hoops. See Hoops.						
—— old broken, and old cast Iron, the ton containing 20 cwt.	0	17	6	—		
—— Ore, the ton containing 20 cwt. - - -	0	8	9	—		
—— Pig Iron, the ton containing 20 cwt. - -	0	17	6	—		
..... the produce of, and imported from the British plantations in America, the ton containing 20 cwt. - - -	0	8	0	—		
—— Wire. See Wire.						
—— wrought, not otherwise enumerated or described, for every 100*l.* of the value - - -	50	0	0	—		

TABLE (A.)—INWARDS.	Duty. £. s. d.	Drawback. £. s. d.
Isinglass, the cwt. - - - -	2 7 6	—
——— the produce of, and imported from the British plantations in America, the cwt. - -	0 15 10	—
Juice of Lemons, Limes, or Oranges, the gallon -	0 1 3	—
Juniper Berries. See Berries.		
——— Gum. See Gum Sandarack.		
——— Oil of. See Oil.		
Junk, old. See Rags, old.		
K.		
Kelp. See Alkali.		
Kidney Beans. See Beans.		
Kid Skins. See Skins.		
Kino Gum. See Gum.		
Knees of Oak. See Wood.		
Knubs of Silk. See Knubs, in Silk.		
L.		
Lac. See Lac, in Gum.		
Lace, *viz.*		
—— Silk Lace, for every 100*l.* of the value - -	40 0 0	—
—— Thread Lace, *viz.*		
..... under 5*s.* the yard in value, the yard -	0 2 6	—
..... of 5*s.* and under 10*s.* the yard in value, the yard - -	0 4 0	—
..... of 10*s.* and under 15*s.* the yard in value, the yard - -	0 4 9	—
..... of 15*s.* and under 20*s.* the yard in value, the yard - -	0 6 9	—
..... of 20*s.* and under 25*s.* the yard in value, the yard - -	0 8 4	—
..... of 25*s.* the yard in value, or upwards, for every 100*l.* of the value	40 0 0	—
Lagan. See Derelict.		
Lake Lac. See Lac, in Gum.		
Lamb Skins, ——— Slink, } See Skins.		
Lamb's Wool. See Sheep's Wool, in Wool.		
Lamp Black, the cwt. - -	3 6 6	—
Lapis, *viz.*		
—— Calaminaris, the cwt. - -	0 8 0	—
—— Lazuli, the ℔. - - -	0 3 2	—
—— Tutiæ, the ℔. - -	0 0 8	—
Lard, the cwt. - - -	0 8 0	—
Lathwood. See Wood.		
Latten, *viz.*		
——— Black, the cwt. - - -	1 8 0	—
——— Shaven, the cwt. - -	2 10 0	—
——— Wire. See Wire.		
Lavender Flowers, the ℔. - -	0 0 10	—
——— Oil of. See Oil.		
——— Water. See Spirits.		
Lawns. See Linen.		
Lazuli Lapis. See Lapis.		
Lead, *viz.*		
—— Black, the cwt. - - -	0 4 0	—
—— Ore, the ton containing 20 cwt. - -	1 16 0	—
—— Pig, for every 100*l.* of the value - -	20 0 0	—
—— Red, the cwt. - - -	0 8 4	—
—— White, the cwt. - - -	0 10 4	—
Leaf Metal. See Metal.		
Leather, any article made of leather, or any manufacture wherein of leather is the most valuable part, not otherwise		

TABLE (A.)—INWARDS.	Duty. £. s. d.	Drawback. £. s. d.
Leather—*continued.*		
enumerated or described, for every 100*l.* of the value - - -	75 0 0	—
Leaves of Gold, the 100 leaves - -	0 3 0	—
Leaves of Roses, the ℔. - -	0 0 10	—
Lees of Wine. See Wine Lees.		
Lemons, imported in a British-built ship, the 1000	1 5 0	—
——— imported in a ship not British-built, the 1000 -	1 7 6	—
——— Essence of. See Essence of Bergamot.		
——— Juice of. See Juice.		
——— Peel of, the ℔. - - -	0 0 5	—
——— Preserved in salt and water, for every 100*l.* of the value - - -	20 0 0	—
..... in Sugar. See Succades.		
Lentiles, the bushel - - -	0 0 10	—
Leopard Skins. See Skins.		
Lexia Raisins. See Raisins.		
Lichen Islandicus. See Moss.		
Lignum, *viz.*		
——— Quassia. See Quassia.		
——— Rhodium. See Wood.		
——— Vitæ. See Wood.		
Lime Stones. See Stone.		
Limes, Juice of. See Juice.		
Limonum Cortex. See Lemons, Peel of.		
——— Sal. See Sal.		
Linen, *viz.*		
——— Cambrics and Lawns, commonly called French Lawns, plain, the piece not exceeding 8 yards in length, and not exceeding 7-8ths of a yard in breadth	0 9 6	0 4 0
more, the piece, payable on the first entry thereof, whether to be secured in warehouses or not - -	0 2 0	—
..... exceeding 8 yards in length, or exceeding 7-8ths of a yard in breadth, the piece, and in that proportion for a greater or less quantity - - -	0 12 0	0 5 0
more, the piece, payable on the first entry thereof, whether to be secured in warehouses or not - - -	0 2 6	—
——— Canvass, *viz.*		
..... Hessen Canvass or Dutch Barras,		
..... imported in a British-built ship, the 120 ells - -	2 13 1	1 2 4
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not	0 11 2	—
..... imported in a ship not British-built, the 120 ells - -	2 15 6	1 2 4
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not	0 11 8	—
..... Packing Canvass, Guttings, Spruce, Elbing, or Queensborough Canvass,		
..... imported in a British-built ship, the 120 ells -	1 15 8	0 15 0
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not	0 7 6	—
..... imported in a ship not British-built, the 120 ells - -	1 17 4	0 15 0
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not	0 7 10	—

TABLE (A.)—INWARDS.	Duty.	Drawback.
Linen—*continued.*	£. s. d.	£. s. d.
—— Damask Tabling, of the manufacture of the kingdom of the United Netherlands, *viz.*		
..... not exceeding 1 ell $\frac{1}{8}$ in breadth, the yard -	0 10 0	0 4 2
more, the yard, payable on the first entry thereof, whether to be secured in warehouses or not - -	0 2 0	—
..... exceeding 1 ell $\frac{1}{8}$ and under 2 ells in breadth, the yard - -	0 11 6	0 4 10
more, the yard, payable on the first entry thereof, whether to be secured in warehouses or not - -	0 2 6	—
..... of the breadth of 2 ells and under 3 ells in breadth, the yard - -	0 13 1	0 5 6
more, the yard, payable on the first entry thereof, whether to be secured in warehouses or not - -	0 2 9	—
..... of the breadth of 3 ells or upwards, the yard	0 19 0	0 8 0
more, the yard, payable on the first entry thereof, whether to be secured in warehouses or not - -	0 4 0	—
..... of the manufacture of Silesia, or of any other place not otherwise enumerated or described, the square yard -	0 2 6	0 1 0
more, the square yard, payable on the first entry thereof, whether to be secured in warehouses or not - -	0 0 6	—
—— Damask Towelling and Napkining of the manufacture of the kingdom of the United Netherlands, the yard - - -	0 4 0	0 1 8
more, the yard, payable on the first entry thereof, whether to be secured in warehouses or not - - -	0 0 10	—
—— Damask Towelling and Napkining of the manufacture of Silesia or of any other place not otherwise enumerated or described, the yard -	0 1 3	0 0 6
more, the yard, payable on the first entry thereof, whether to be secured in warehouses or not - - -	0 0 3	—
—— Diaper Tabling, of the manufacture of the Kingdom of the United Netherlands, *viz.*		
..... not exceeding 1 ell $\frac{1}{8}$ in breadth, the yard -	0 5 2	0 2 2
more, the yard, payable on the first entry thereof, whether to be secured in warehouses or not - - -	0 1 1	—
..... exceeding 1 ell $\frac{1}{8}$ and under 2 ells in breadth, the yard - - -	0 6 0	0 2 6
more, the yard, payable on the first entry thereof, whether to be secured in warehouses or not - -	0 1 3	—
..... of the breadth of 2 ells and under 3 ells in breadth, the yard - -	0 6 4	0 2 8
more, the yard, payable on the first entry thereof, whether to be secured in warehouses or not - -	0 1 4	—
..... of the breadth of 3 ells or upwards, the yard -	0 9 1	0 3 10
more, the yard, payable on the first entry thereof, whether to be secured in warehouses or not - -	0 1 11	—
—— Diaper Tabling of the manufacture of Silesia, or of any other place not otherwise enumerated or described, the yard - -	0 2 11	0 1 2
more, the yard, payable on the first entry		

TABLE (A.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Linen, Diaper Towelling, &c.—*continued.*						
thereof, whether to be secured in warehouses or not - -	0	0	7	—		
——— Diaper Towelling and Napkining of the manufacture of the kingdom of the United Netherlands, the yard - - -	0	2	1	0	0	10
more, the yard, payable on the first entry thereof, whether to be secured in warehouses or not - -	0	0	5	—		
——— Diaper Towelling and Napkining of the manufacture of Silesia, or of any other place not otherwise enumerated or described, the yard -	0	1	3	0	0	6
more, the yard, payable on the first entry thereof, whether to be secured in warehouses or not - -	0	0	3	—		
——— Drillings and Pack Duck, *viz.*						
..... imported in a British-built ship, the 120 ells -	4	11	1	1	18	4
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not - -	0	19	2	—		
..... imported in a ship not British built, the 120 ells - - -	4	15	0	1	18	4
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not - -	1	0	0	—		
——— German, Switzerland, East Country (except Russia), and Silesia Cloth, plain, *viz.*						
..... not exceeding 31½ inches in breadth,						
..... imported in a British-built ship, the 120 ells - - -	2	18	3	1	4	6
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not -	0	12	3	—		
..... imported in a ship not British-built, the 120 ells - -	3	0	4	1	4	6
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not -	0	12	8	—		
..... exceeding 31½ inches, and not exceeding 36 inches in breadth,						
..... imported in a British-built ship, the 120 ells - - -	6	2	9	2	11	8
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not -	1	5	10	—		
..... imported in a ship not British-built, the 120 ells - - -	6	6	8	2	11	8
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not -	1	6	8	—		
..... exceeding 36 inches in breadth,						
..... imported in a British-built ship, the 120 ells - - -	9	8	9	3	19	6
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not -	1	19	9	—		
..... imported in a ship not British-built, the 120 ells - - -	9	14	9	3	19	6
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not -	2	1	0	—		
——— Hinderlands, Brown, under 22½ inches in breadth,						
..... imported in a British-built ship, the 120 ells - -	1	13	3	0	14	0

TABLE—(A.) INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Linen, Hinderlands, &c.—*continued.*						
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not -	0	7	0	—		
..... imported in a Ship not British-built, the 120 ells - - -	1	14	10	0	14	0
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not -	0	7	4	—		
—— Lawns, *viz.*						
..... Silesia and all other Lawns, plain, (except Cambricks and French Lawns) not bleached in the kingdom of the United Netherlands,						
..... the piece not exceeding 8 Yards in length - - -	0	6	4	0	2	2
more, the piece, payable on the first entry thereof, whether to be secured in warehouses or not -	0	1	4	—		
..... Silesia and all other Lawns, plain, (except Cambricks and French Lawns) bleached in the kingdom of the United Netherlands,						
..... the piece not exceeding 8 yards in length - - -	0	7	11	0	3	4
more, the piece, payable on the first entry thereof, whether to be secured in warehouses or not -	0	1	8	—		
—— Linen of the manufacture of the kingdom of the United Netherlands, plain, not otherwise enumerated or described, *viz.*						
..... not exceeding 1 ell $\frac{1}{8}$ in breadth, the ell -	0	2	11	0	1	2
more, the ell, payable on the first entry thereof, whether to be secured in warehouses or not - - -	0	0	7	—		
..... exceeding 1 ell $\frac{1}{8}$ and under 2 ells in breadth, the ell - - - -	0	3	2	0	1	4
more, the ell, payable on the first entry thereof, whether to be secured in warehouses or not - - -	0	0	8	—		
..... of the breadth of 2 ells, and under 3 ells in breadth, the ell - - -	0	3	7	0	1	6
more, the ell, payable on the first entry thereof, whether to be secured in warehouses or not - - -	0	0	9	—		
..... of the breadth of 3 ells or upwards, the ell	0	5	2	0	2	2
more, the ell, payable on the first entry thereof, whether to be secured in warehouses or not - - -	0	1	1	—		
—— Pack Duck. See Drillings in Linen.						
—— Russia Linen, plain, *viz.*						
..... Towelling and Napkining of the manufacture of Russia,						
..... not exceeding 22½ inches in breadth,						
..... imported in a British-built ship, the 120 ells - -	1	11	5	0	13	2
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not -	0	6	7	—		
..... imported in a ship not British-built, the 120 ells - -	1	14	2	0	13	2
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not -	0	7	2	—		

TABLE — (A.) INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Linen — *continued.*						
—— Russia Linen, plain, not otherwise enumerated or described,						
..... not exceeding 22½ inches in breadth,						
..... imported in a British-built ship, the 120 ells - -	1	12	3	0	13	6
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not - -	0	6	9	—		
..... imported in a ship not British-built, the 120 ells - -	1	13	11	0	13	6
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not - -	0	7	1	—		
.... exceeding 22½ inches, and not exceeding 31½ inches in breadth,						
..... imported in a British-built ship, the 120 ells - -	2	11	3	1	1	6
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not - -	0	10	9	—		
..... imported in a ship not British-built, the 120 ells - -	2	13	1	1	1	6
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not - -	0	11	2	—		
..... exceeding 31½ inches, and not exceeding 36 inches in breadth,						
..... imported in a British-built ship, the 120 ells - -	3	16	0	1	12	0
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not - -	0	16	0			
..... imported in a ship not British-built, the 120 ells - -	3	19	4	1	12	0
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not - -	0	16	8	—		
..... exceeding 36 inches, and not exceeding 45 inches in breadth,						
..... imported in a British-built ship, the 120 ells - -	6	17	5	2	17	10
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not - -	1	8	11	—		
..... imported in a ship not British-built, the 120 ells - -	7	0	2	2	17	10
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not - -	1	9	6	—		
..... exceeding 45 inches in breadth,						
..... imported in a British-built ship, the 120 ells - -	9	10	0	4	0	0
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not - -	2	0	0	—		
..... imported in a ship, not British-built, the 120 ells - -	9	17	6	4	0	0
more, the 120 ells, payable on the first entry thereof, whether to be secured in warehouses or not - -	2	1	6	—		
—— Sail Cloth, or Sail Duck, *viz.*						
..... not exceeding 36 inches in breadth,						

TABLE (A.)—INWARDS.	Duty.			Drawback.		
	£.	s.	d.	£.	s.	d.
Linen,—Russia Linen, &c. *continued.*						
..... imported in a British-built ship, the 120 ells - -	5	7	4	—		
..... imported in a ship not British-built, the 120 ells - -	5	13	1	—		
..... exceeding 36 inches in breadth,						
..... imported in a British-built ship, the 120 ells - - -	8	19	3	—		
..... imported in a ship not British-built, 120 ells - - -	9	7	0	—		
——— Sails, for every 100*l.* of the value - -	104	9	2	—		
Note.—Foreign-made sails on board any ship or vessel belonging to any of his majesty's subjects, whether in use or not, are to be charged with the like Duties as foreign made sails imported by way of merchandise. See 19 Geo. 2. c. 27. and the 54 Geo. 3. c. 66.						
——— Linen, not being chequered or striped, or not being printed, painted, stained, or dyed, after the manufacture, or in the thread or yarn before the manufacture, and not being otherwise enumerated or described, for every 100*l.* of the value - -	63	6	8	26	13	4
more, for every 100*l.* of the value, payable on the first entry thereof, whether to be secured in warehouses or not - - -	13	6	8	—		
——— Linen, chequered or striped, or printed, painted, stained, or dyed, after the manufacture, or in the thread or yarn before the manufacture, not being prohibited to be imported into, nor worn, nor used in Great Britain, and not being otherwise enumerated or described, for every 100*l.* of the value	172	10	0	—		
——— German and Russia Linen, chequered or striped, the thread or yarn of which the same is made being coloured, stained, or dyed before the manufacture, exported to any island under the dominion of his majesty in the West Indies, in which description the Bahama Islands, and the Bermudas or Somers Islands are included, for every 100*l.* of the value	—			117	10	0
Linen Yarn. See Yarn.						
Linn Boards. See Boards, in Wood.						
Linseed. See Seed.						
——— Cakes, the cwt. - - -	0	0	2	—		
——— Oil. See Oil.						
Lion Skins. See Skins.						
Lipari Raisins. See Raisins.				—		
Liquorice Juice, or Succus Liquoritiæ, the cwt. - -	3	15	0	—		
——— Powder, the cwt. - - -	5	10	0	—		
——— Root, the cwt. - - -	3	3	4	—		
——— Extract or Preparation of. See Extract.						
Liquors. Foreign Liquors—Derelict, Jetsam, Flotsam, Lagan or Wreck, brought or coming into Great Britain, are subject to the same Duties, and entitled to the same Drawbacks as Liquors of the like kind regularly imported.						
Litharge of Gold or Silver, the cwt.	0	2	0	—		
Litmus, the cwt. - - - -	0	4	0	—		
Liverwort. See Lichen Islandicus, in Moss.						
Lobsters. See Fish.						
Logwood. See Wood.						
Long Pepper. See Pepper.						
Losh Hides. See Hides.						
Lucerne Seed. See Seed.						
Lupines, the cwt. - - -	0	5	0	—		
Lutestrings. See Catlings.						

TABLE (A.)—INWARDS.	Duty.			Drawback.		
M.	£.	s.	d.	£.	s.	d.
Mace, the lb. - - - -	0	4	6	0	4	0
—— the produce of, and imported from any British colony or Plantation, the lb. - - -	0	3	6	0	3	2
—— imported under licence, the lb. - -	0	4	6	—		
For the conditions, regulations, and restrictions under which Mace may be so imported, see 3 and 4 Ann. c. 4., 8 Ann. c. 7., 6 Geo. 1. c. 21., and also 8 Geo. 1. c. 18., which is continued by several statutes, and by 49 Geo. 3. cap. 20. made perpetual.						
—— Oil of. See Oil.						
Madder, *viz.*						
—— Mull Madder, the cwt. - -	0	2	0	—		
—— Madder Root, and all unmanufactured Madder, the cwt.	0	5	0	—		
—— Madder in any way manufactured, the cwt. -	0	15	0	—		
Mahogany. See Wood.						
Malta, Island of, and its dependencies.						
For the Duties and Drawbacks on goods, wares, and merchandise, being of the growth, produce, or manufacture of any place within the limits of the charter granted to the United Company of Merchants of England trading to the East Indies, legally imported or brought into the island of Malta or its dependencies, and imported from thence into Great Britain. See Table B.						
Man, Isle of.						
For the conditions, regulations, and restrictions under which the inhabitants of the Isle of Man may import directly from thence into Great Britain, bestials, or any goods, wares, or merchandise of the growth, produce, and manufacture of the said island, not being prohibited to be imported from thence; and Linen manufactures made in the Isle of Man of Hemp or Flax, not being the produce thereof; and also Cotton Yarn or Cotton Cloth of the manufacture of the said island, without payment of any Customs or Duties, except such Excise or other Duty as is or may be payable for the like goods or merchandize of the growth, produce, or manufacture of Great Britain, see 5 Geo. 3. c. 43., 20 Geo. 3. c. 42., 34 Geo. 3. c. 51., and 45 Geo. 3. c. 99.						
Mangrove Bark. See Bark.						
Manna, the lb. - - - -	0	1	3	0	0	10
Manuscripts. See Books.						
Maps and Charts, plain or coloured, each Map or Chart, or part thereof - - - -	0	2	0	—		
Marble. See Stone.						
Marbles for Children. See Toys.						
Mares. See Horses.						
—— Hides. See Horse Hides, in Hides.						
Marjoram, Oil of. See Oil.						
Marmalade, the lb. - - - -	0	1	3	—		
Martin {Skins. —— Tails.} See Skins.						
Mastich, imported directly from the place of its growth, the lb.	0	1	4	0	0	10
—— imported not directly from the place of its growth, the lb. - - - -	0	2	0	0	1	3
Masts. See Wood.						
Mats, *viz.*						
—— of Russia, imported in a British-built ship, the 100	1	3	9	—		
..... imported in a ship not British-built, the 100	1	5	0	—		
—— not otherwise enumerated or described, for every 100*l.* of the value - - - -	50	0	0	—		
Matting for every 100*l.* of the value - - -	50	0	0	—		
Mattresses, for every 100*l.* of the value - -	50	0	0	—		
Maw Seed. See Seed.						

TABLE (A.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Mead or Metheglin, the gallon - - -	0	0	6	—		
Subject also to a Duty of Excise.						
Meal. See Corn.						
Medals, *viz.*						
——— of Gold or Silver, Duty free.						
——— of any other sort, for every 100*l.* of the value -	20	0	0	—		
Medlars, the bushel - - -	0	5	0	—		
Melasses, the cwt. - - - -	1	3	9	—		
——— the produce of, and imported from the British plantations in America, the cwt. - -	0	10	0	—		
Melting Pots for Goldsmiths. See Pots.						
Mercury, prepared, for every 100*l.* of the value - -	50	0	0	—		
Metal, *viz.*						
——— Bell Metal, the cwt. - - -	1	0	0	—		
——— Leaf Metal (except of Leaf Gold) the packet containing 250 leaves - - - -	0	0	8	—		
Metheglin. See Mead.						
Mill Boards, the cwt. - - - -	3	8	2	—		
Millet Seed. See Seed.						
Mill Stones. See Stone.						
Mineral Water. See Water.						
Minerals, not otherwise enumerated or described, for every 100*l.* of the value - - -	20	0	0	—		
——— Specimens of. See Specimens.						
Mink Skins. See Skins.						
Mohair Yarn. See Camel Yarn, in Yarn.						
Molasses. See Melasses.						
Mole Skins. See Skins.						
Morels, the ℔. - - - - -	0	2	9	—		
Morocco. See Gibraltar.						
Moss, *viz.*						
——— Lichen Islandicus, or Liverwort, the ℔. -	0	0	8	—		
——— Rock, for dyers' use, the ton containing 20 cwt. -	1	15	0	—		
——— not otherwise enumerated or described, for every 100*l.* of the value - - - -	20	0	0	—		
Mules, each - - - - -	5	0	0	—		
Mum. See Beer.						
Musical Instruments, for every 100*l.* of the value -	50	0	0	—		
Musk, the oz.	0	5	0	0	3	4
Musquash Skins. See Skins.						
Mustard Seed. See Seed.						
Myrrh, imported directly from the place of its growth, the ℔.	0	1	8	0	1	1
——— imported not directly from the place of its growth, the ℔. - - - -	0	2	6	0	1	8
Myrtle Wax. See Wax.						
N.						
Napkining. See Linen.						
Nardus Celtica, the cwt. - - -	1	0	0	0	13	4
Nardus Indica. See Spikenard.						
Natron. See Alkali.						
Nest Boxes. See Boxes.						
Neats' Tongues. See Tongues.						
Neroli Oil. See Oil of Orange Flower.						
Nets, *viz.* Old Fishing Nets, fit only for making paper or pasteboard. See Rags.						
Nicaragua Wood. See Wood.						
Nutmegs, the ℔. - - - -	0	3	6	0	3	2
——— the produce of, and imported from any British colony or plantation, the ℔. - -	0	2	6	0	2	3
——— imported under licence, the ℔. - -	0	3	6	—		
For the conditions, regulations, and restrictions, under which Nutmegs may be so imported. See 3 and 4 Ann.						

TABLE (A.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Nutmegs—*continued.* c. 4.; 8 Ann. c. 7.; 6 Geo. 1. c. 21.; and also 8 Geo. 1. c. 18. which is continued by several statutes, and by 49 Geo. 3. c. 20. made perpetual.						
——— Oil of. See Oil.						
Nutria Skins. See Skins.						
Nuts, *viz.*						
—— Cashew Nuts, the lb.	0	2	0	0	1	4
—— Chesnuts, the bushel	0	4	0	—		
—— Pistachio Nuts, imported directly from the place of their growth, the lb.	0	0	10	—		
..... imported not directly from the place of their growth, the lb.	0	1	3	—		
—— Small Nuts, the bushel	0	4	0	—		
—— Walnuts, the bushel	0	4	0	—		
—— Nuts not otherwise enumerated or described, for every 100*l.* of the value	20	0	0	—		
Nux Vomica, the lb.	0	2	6	—		
——— Extract or Preparation of. See Extract.						
O.						
Oak Bark. See Bark.						
—— Boards. See Boards, in Wood.						
—— Knees. See Knees of Oak, in Wood.						
—— Plank, } See Wood.						
—— Timber, } See Wood.						
Oakum, the cwt.	0	4	9	—		
Oars. See Wood.						
Oatmeal, } See Corn.						
Oats, } See Corn.						
Ochre or Oaker, the cwt.	0	6	9	—		
Oculi Cancrorum. See Cancrorum Oculi.						
Oil, *viz.*						
— of Almonds, the lb.	0	0	10	—		
— of Amber or Succinum, the lb.	0	5	6	—		
— of Aniseed, the lb.	0	4	0	—		
— of Bay, the lb.	0	0	3	—		
— of Cajaputa, the oz.	0	1	0	—		
— of Caraway, the lb.	0	2	6	—		
— of Cassia, the oz.	0	5	0	—		
— of Castor, the lb.	0	1	3	—		
— Chemical Oil, not otherwise enumerated or described, the lb.	0	4	0	—		
— of Cinnamon, the oz.	0	5	0	—		
— of Cloves, the oz.	0	2	0	—		
— of Cocoa Nut, the cwt.	0	2	6	—		
— of Fennel, the lb.	0	4	0	—		
— Fish Oil. See Train Oil, in Oil.						
— of Hemp Seed, the tun containing 252 gallons	33	5	0	—		
— of Jessamine, the lb.	0	4	0	—		
— of Juniper, the lb.	0	2	0	—		
— of Lavender, the lb.	0	4	0	—		
— of Linseed, the tun containing 252 gallons	33	5	0	—		
— of Mace, the oz.	0	2	6	—		
— of Marjoram, the lb.	0	4	0	—		
— of Nutmegs, the oz.	0	2	6	—		
— of Olives, imported in a British-built ship, the tun containing 252 gallons	15	13	0	—		
..... imported in a ship not British-built, the tun containing 252 gallons	16	13	0	—		
— of Orange Flower or Neroli, the oz.	0	2	0	—		
— of Palm, the cwt.	0	2	6	—		
— perfumed Oil, not otherwise enumerated or described, the lb.	0	4	0	—		

TABLE (A).—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Oil—*continued.*						
— of Pine, the lb.	0	0	8	—		
— of Rape Seed, the tun containing 252 gallons	33	5	0	—		
— of Rhodium, the oz.	0	5	0	—		
— Rock Oil, the lb.	0	0	10	—		
— of Rosemary, the lb.	0	4	0	—		
— of Roses. See Otto of Roses.						
— of Rosewood, the oz.	0	5	0	—		
— Salad Oil. See Oil of Olives.						
— of Sandalwood, the oz.	0	2	6	—		
— of Sassafras, the lb.	0	2	6	—		
— Seal Oil. See Train Oil, in Oil.						
— Seed Oil, not otherwise enumerated or described, the tun containing 252 gallons	33	5	0	—		
— of Spike, the lb.	0	4	0	—		
— of Succinum. See Oil of Amber.						
— of Thyme, the lb.	0	4	0	—		
— Train Oil and Blubber, *viz.*						
..... Blubber, the produce of fish or creatures living in the sea, taken and caught by the crew of a British-built ship or vessel, wholly owned by his majesty's subjects usually residing in Great Britain, Ireland, or the islands of Guernsey, Jersey, Alderney, Sark, or Man, registered and navigated according to law, and imported in any such shipping, the tun containing 252 gallons	0	5	6	—		
..... Blubber, the produce of fish or creatures living in the sea, taken and caught on the banks and shores of the island of Newfoundland, and parts adjacent, wholly by his majesty's subjects carrying on such fishery from that island, or taken and caught wholly by his majesty's subjects usually residing in any of the Bahama or Bermudas Islands, or taken and caught in the Gulf of St. Lawrence, or on the shores of any British colony or plantation in North America, or the parts adjacent, wholly by his majesty's subjects usually residing in any of the said colonies or plantations, and carrying on such fishery from thence, and imported directly from such places, islands, colonies, or plantations, in a British-built ship or vessel, owned, navigated, and registered according to law, the tun containing 252 gallons	0	13	4	—		
For the suspension of the above duty on Blubber, imported directly from the island of Newfoundland until the 5th July, 1824, see the Act to which this Table is annexed.						
..... Blubber, the produce of fish or creatures living in the sea, taken and caught wholly by his majesty's subjects usually residing in any other British colony, plantation, territory, or settlement, and imported in a British-built ship or vessel, registered and navigated according to law, the tun containing 252 gallons	5	10	10	—		
For the conditions, regulations, and restrictions under which Blubber may be admitted to entry as British taken and caught, on payment of duty as before mentioned (as the case may be), see						

TABLE (A.)—INWARDS.	Duty.			Drawback.		
Oil—Train Oil and Blubber—*continued.*	£.	s.	d.	£.	s.	d.
the 49 Geo. 3. c. 98. and the Act to which this Table is annexed.						
..... Blubber, the produce of fish or creatures living in the sea, of foreign fishing, the tun containing 252 gallons - -	22	3	4	—		
For the conditions and regulations according to which the quantity of oil contained in Blubber, imported from the Greenland Seas, or Davis's Streights, is to be ascertained, see 39 & 40 Geo. 3. c. 51., and 43 Geo. 3. c. 68.						
..... Train Oil, the produce of fish or creatures living in the sea, taken and caught by the crew of a British-built ship or vessel, wholly owned by his majesty's subjects usually residing in Great Britain, Ireland, or the islands of Guernsey, Jersey, Alderney, Sark, or Man, registered and navigated according to law, and imported in any such shipping, the tun containing 252 gallons - -	0	8	3	—		
..... Train Oil, the produce of fish or creatures living in the sea, taken and caught on the banks and shores of the island of Newfoundland and parts adjacent, wholly by his majesty's subjects carrying on such fishery from that island, or taken and caught wholly by his majesty's subjects usually residing in any of the Bahama or Bermudas Islands, or taken and caught in the Gulf of St. Lawrence, or on the shores of any British colony or plantation in North America, or the parts adjacent, wholly by his majesty's subjects usually residing in any of the said colonies or plantations, and carrying on such fishery from thence, and imported directly from such places, islands, colonies, or plantations, in a British-built ship or vessel, owned, navigated, and registered according to law, the tun containing 252 gallons - -	1	0	0	—		
For the suspension of the above duty on Train Oil, imported directly from the Island of Newfoundland, until the 5th July, 1824, see the Act to which this Table is annexed.						
..... Train Oil, the produce of fish or creatures living in the sea, taken and caught wholly by his majesty's subjects usually residing in any other British colony, plantation, territory, or settlement, and imported in a British-built ship or vessel, registered and navigated according to law, the tun containing 252 gallons - -	8	6	3	—		
For the conditions, regulations, and restrictions under which Train Oil may be admitted to entry as British taken and caught, on payment of duty as before mentioned (as the case may be), see the 49 Geo. 3. c. 98., and the Act to which this Table is annexed.						
..... Train Oil, the produce of fish or creatures living in the sea, of foreign fishing, the tun containing 252 gallons - - -	33	5	0	—		
— Spermaceti Oil or Head Matter, the produce of fish or						

TABLE (A.)—INWARDS.	Duty.			Drawback.		
	£.	s.	d.	£.	s.	d.
Oil — Spermaceti Oil — *continued.* creatures living in the sea, taken and caught by the crew of a British-built ship or vessel, wholly owned by his majesty's subjects usually residing in Great Britain, Ireland, or the islands of Guernsey, Jersey, Alderney, Sark, or Man, registered and navigated according to law, and imported in any such shipping, the tun containing 252 gallons - -	0	8	3	—		
— Spermaceti Oil or Head Matter, the produce of fish or creatures living in the sea, taken and caught on the banks and shores of the island of Newfoundland and parts adjacent, wholly by his majesty's subjects carrying on such fishery from that island, or taken and caught wholly by his majesty's subjects usually residing in any of the Bahama or Bermudas Islands, or taken and caught in the Gulf of St. Lawrence, or on the shores of any British colony or plantation in North America, or the parts adjacent, wholly by his majesty's subjects usually residing in any of the said colonies or plantations, and carrying on such fishery from thence, and imported directly from such places, islands, colonies, or plantations in a British-built ship or vessel, owned, navigated, and registered according to law, the tun containing 252 gallons -	1	0	0	—		
For the suspension of the above duty on Spermaceti Oil or Head Matter, imported directly from the island of Newfoundland, until the 5th July, 1824, see the Act to which this Table is annexed.						
— Spermaceti Oil or Head Matter, the produce of fish or creatures living in the sea, taken and caught wholly by his majesty's subjects usually residing in any other British colony, plantation, territory, or settlement, and imported in a British-built ship or vessel, registered and navigated according to law, the tun containing 252 gallons - -	24	18	9	—		
For the conditions, regulations, and restrictions, under which Spermaceti Oil or Head Matter may be admitted to entry as British-taken and caught, on payment of duty as before mentioned (as the case may be), see the 49th Geo. 3. cap. 98. and the Act to which this Table is annexed.						
— Spermaceti Oil or Head Matter, the produce of fish or creatures living in the sea, of foreign fishing, the tun containing 252 gallons - - -	34	18	3	—		
— of Turpentine, the lb. - - -	0	0	8	—		
— of Vitriol, the lb. - - -	0	0	6	—		
— Walnut Oil, the lb. - - -	0	0	6	—		
— Whale Oil. See Train Oil, in Oil.						
— Oil, not particularly enumerated or described, nor otherwise charged with duty, for every 100*l.* of the value	50	0	0	—		
Oker. See Ochre.						
Olibanum, imported directly from the place of its growth, the cwt. - - -	2	7	6	1	11	8
——— imported not directly from the place of its growth, the cwt. - - - -	3	11	3	2	7	6
Olive Wood. See Wood.						
Olives, the gallon - - -	0	2	6	—		
——— Oil of. See Oil.						
Onion Seed. See Seed.						
Onions, the bushel - - - -	0	3	0	—		
Open Tapes. See Tapes.						
Opium, imported directly from the place of its growth, the lb.	0	9	0	0	6	0
——— imported not directly from the place of its growth, the lb. - - - -	0	13	6	0	9	0

TABLE (A.) — INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Opium — *continued.*						
——— Extract or Preparation of. See Extract.						
Opopanax Gum. See Gum.						
Orange Flower Oil. See Oil.						
Orange Flower Water, the gallon - - -	0	3	2		—	
Oranges, imported in a British-built ship, the 1000 -	1	5	0		—	
——— imported in a ship not British-built, the 1000 -	1	7	6		—	
——— Juice of. See Juice.						
——— Peel of, the ℔. - - -	0	0	6		—	
Orchal, Orchelia, or Archelia, the cwt. - -	0	16	8		—	
Orchelia. See Orchal.						
Ordinary Oil of Olives. See Oil.						
Ore, *viz.*						
— Copper. See Copper.						
— Gold. See Bullion.						
— Iron. See Iron.						
— Lead. See Lead.						
— Platina. See Platina.						
— Silver. See Bullion.						
— Ore not otherwise enumerated or described, for every 100*l.* of the value - - -	20	0	0		—	
—— Specimens of. See Specimens.						
Orpiment, the cwt. - - -	1	8	6		—	
Orrice or Iris Root, the cwt. - - -	1	8	6		—	
Orsedew, the ℔. - - -	0	1	3		—	
Ostrich Feathers. See Feathers.						
——— Wool. See Wool.						
Otter Skins. See Skins.						
Otto or Attar or Oil of Roses, the oz. - -	0	6	0		—	
Ounce Skins. See Skins.						
Outnal Thread. See Thread.						
Ox Hair. See Cow Hair, in Hair.						
—— Hides. See Buffalo Hides, in Hides.						
—— Horns. See Horns.						
—— Tails. See Buffalo Tails, in Tails.						
Oysters. See Fish.						
P						
Pack Duck. See Drillings, in Linen.						
Packing Canvass. See Canvass, in Linen.						
Pack Thread. See Thread.						
Painted Paper. See Paper.						
Painters' Colours, not otherwise enumerated or described, for every 100*l.* of the value - - -	50	0	0		—	
Paintings on Glass, for every 100*l.* of the value - -	80	0	0		—	
Subject also to a Duty of Excise.						
Paling Boards. See Boards, in Wood.						
Palm Oil. See Oil.						
Panthers' Skins. See Skins.						
Pantiles. See Tiles.						
Paper, *viz.*						
—— Brown Paper made of old rope or cordage only, without separating or extracting the pitch or tar therefrom, and without any mixture of other materials therewith, the ℔. - - -	0	0	10		—	
—— printed, painted, or stained Paper, or Paper Hangings, or Flock Paper, the yard square - -	0	1	7		—	
—— Waste Paper, or Paper of any other sort not particularly enumerated or described, nor otherwise charged with duty, the ℔. - - -	0	1	7		—	
Paradise, Grains of. See Grains.						
Parchment, the dozen sheets - - -	0	10	0		—	
Pasteboards, the cwt. - - - -	3	8	2		—	
Paving Stones. See Stone.						

TABLE (A.)—INWARDS.	Duty.			Drawback.		
	£.	s.	d.	£.	s.	d.
Paving Tiles. See Tiles.						
Pearl Ashes. See Ashes.						
Pearl Barley, the cwt. - - -	0	17	6	—		
Pearls, for every 100*l.* of the value - -	5	0	0	—		
Pears, the bushel - - - -	0	7	6	—		
——— dried, the bushel - - -	0	10	0	—		
Pease. See Corn.						
Pebble Stones. See Stone.						
Pellitory, the ℔. - - -	0	0	6	0	0	4
Pelts. See Skins.						
Pencils, for every 100*l.* of the value - -	50	0	0	—		
——— of Slate. See Slate Pencils.						
Pens, for every 100*l.* of the value - - -	50	0	0	—		
Peony Seed. See Piony Seed, in Seed.						
Pepper, *viz.*						
——— Cayenne Pepper, the ℔. - - -	0	2	6	—		
——— Guinea Pepper, Capsicum, or Chillies, the ℔. -	0	2	6	—		
Extract or Preparation of Guinea Pepper. See Extract.						
——— Long Pepper, the ℔. - - -	0	2	0	—		
Perfumed Dust. See Hair Powder.						
——— Oil. See Oil.						
Perry, the tun containing 252 gallons - -	17	1	0	—		
Subject also to a Duty of Excise.						
Peruvians Cortex. See Peruvian Bark, in Bark.						
Pickles of all sorts, not otherwise enumerated or described, the gallon - - - - -	0	5	0	—		
Picture Frames. See Frames.						
Pictures, *viz.*						
——— under two feet square, the picture - -	3	8	0	—		
——— of two feet square, and under four feet square, the picture - - - -	6	16	0	—		
——— of four feet square, or upwards, the picture -	10	4	0	—		
Pig Iron. See Iron.						
—— Lead. See Lead.						
Pill Boxes. See Boxes.						
Pimento, *viz.*						
——— of the British plantations, the ℔. - -	0	0	10	0	0	9
——— not of the British plantations, the ℔. - -	0	1	3	—		
Pine Oil. See Oil.						
Pink Root, the ℔. - - - -	0	0	10	0	0	6
Piony or Peony Seed. See Seed.						
Pipe Boards. See Boards, in Wood.						
Pistachio Nuts. See Nuts.						
Pitch, *viz.*						
—— imported in a British-built ship, the cwt. -	0	0	10	—		
—— imported in a ship not British-built, the cwt. -	0	0	11	—		
—— the produce of any British colony or plantation, the cwt. - - - -	0	0	9	—		
—— Burgundy Pitch, the cwt. - -	0	14	3	—		
—— Jews' Pitch. See Bitumen Judaicum.						
Plain Tiles. See Tiles.						
Plants, Shrubs, and Trees, alive, duty free.						
Plaister of Paris, the cwt. - - - -	0	2	6	—		
Plate, *viz.*						
—— battered, fit only to be re-manufactured. See Bullion.						
—— of Gold, the oz. troy - - -	3	16	9	—		
—— of Silver Gilt, the oz. troy - -	0	6	4	—		
—— of Silver, part Gilt, the oz. troy - -	0	6	0	—		
—— ..... ungilt, the oz. troy - -	0	4	6	—		
Plated Wire. See Gilt Wire, in Wire.						
Plate Glass. See Glass.						
Platina, the oz. - - -	0	1	0	—		

TABLE (A.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Platina—*continued.*						
——— Ore of, for every 100*l.* of the value - -	5	0	0	—		
Platting, or other manufactures to be used in or proper for making Hats or Bonnets, *viz.*						
——— of Bast, Chip, Cane, or Horse Hair, the ℔. -	0	6	0	—		
——— of Straw, the ℔. - - -	0	17	0	—		
Playing Cards. See Cards.						
Plums dried, the ℔. - - -	0	1	3	—		
Polishing Rushes, for every 100*l.* of the value - -	20	0	0	—		
——— Stones. See Stone.						
Polonia Wool. See Wool.						
Pomatum, for every 100*l.* of the value - -	50	0	0	—		
Pomegranates, the 1000 - - -	1	10	0	—		
——— Peels of, the cwt. - -	0	15	0	—		
Poppies Heads. See Capita Papaverum.						
Porcelain. See China Ware.						
Portugal, Territories and Dominions of the Crown of.						
Note.—Goods, wares, and merchandise, being of the growth, produce, or manufacture of any of the territories or dominions of the crown of Portugal, imported directly from any of the said territories or dominions, in a ship or vessel, built in any of the said territories or dominions, or taken by any ship or vessel of war, belonging to the Portuguese government, or by any ship or vessel belonging to any of the subjects of the territories or dominions aforesaid, having commissions and letters of marque and reprisals from the Portuguese government, and condemned as lawful prize in any Court of Admiralty of the said government, such ship or vessel being owned by subjects of the said government, and navigated with a master and three-fourths of the mariners at least subjects of the said government, may be entered and landed on payment of such duties of customs and excise, and no higher, as are payable on goods, wares, and merchandise of the like denomination or description, upon their importation from any other foreign country in British-built ships or vessels, owned, navigated, and registered according to law; and in cases where different duties are imposed upon any goods, wares, and merchandise, of the like denomination or description so imported from different foreign countries, then, upon payment of the lowest duties, which by law are required to be paid on the importation in British-built ships or vessels of any such goods, wares, or merchandise, from any foreign country; and on the exportation of such goods, wares, or merchandise, the same drawbacks shall be paid or allowed as on other goods of the like description exported; and on the exportation of any goods to the said territories or dominions, the same drawbacks shall be paid or allowed as on the exportation of goods of the like description, when exported to any of the islands, plantations, or colonies, belonging to the crown of Great Britain in America. See 51 Geo. 3. c. 47., which act is to be in force during the continuance of the treaty of amity, commerce, and navigation, concluded between his majesty and his royal highness the prince regent of Portugal. Signed at Rio de Janeiro, February, 19. 1810.						
Pot Ashes. See Ashes.						
Potatoes, the cwt. - - - -	0	2	0	—		
Pots, *viz.*						
—— Melting Pots for Goldsmiths, the 100 - -	0	3	2	—		
—— of Stone, for every 100*l.* of the value - -	50	0	0	—		

TABLE (A.) INWARDS.	Duty. £. s. d.	Drawback. £. s. d.
Pottery. See Earthenware.		
Powder, *viz.*		
—— of Brass, for japanning, the lb. - -	0 5 6	—
—— of Bronze, for every 100*l.* of the value - -	50 0 0	—
—— Gunpowder. See in G.		
—— Hair Powder. See in H.		
—— Powder, not otherwise enumerated or described, that will serve for the same uses as Starch, the cwt. -	9 10 0	—
Precious Stones. See Jewels.		
Printers' Ink. See Ink for Printers.		
Prints and Drawings, *viz.*		
—— Plain, not exceeding a foot square, each - -	0 1 0	—
..... exceeding a foot square, each - -	0 2 0	—
—— Coloured, not exceeding a foot square, each -	0 2 0	—
..... exceeding a foot square, each - -	0 4 0	—
Prunelle Sal. See Sal.		
Prunelloes, the lb. - - - -	0 1 3	—
Prunes, imported in a British-built ship, the cwt. -	1 7 6	—
—— imported in a ship not British-built, the cwt. -	1 8 6	—
Puddings. See Sausages.		
Pumice Stone. See Stone.		
Pyrmont Water. See Mineral Water, in Water.		
Q.		
Quassia, the cwt. - - -	8 17 6	—
—— Extract or Preparation of. See Extract.		
Quebec.		
For the conditions, regulations, and restrictions under which goods and commodities of the growth or production of any of the countries bordering on the province of Quebec, and legally brought by land or inland navigation into that province, may be imported from thence and charged with duty, or exempted therefrom in like manner as if such goods and commodities were of the growth or production of Quebec, and imported directly from thence. See 30 Geo. 3. c. 29.		
Quercitron, or Black Oak Bark. See Bark.		
Quern Stones. See Stone.		
Quicksilver, the lb. - - -	0 1 8	0 1 1
Quills, *viz.*		
—— Goose Quills, the 1000 - -	0 2 6	
—— Swan Quills, the 1000 - - -	0 12 0	—
Quinces, the 100 - - -	0 4 0	—
Quince Seed. See Seed.		
R.		
Raccoon Skins. See Skins.		
Radix, *viz.*		
—— Contrayervæ, the lb. - -	0 1 8	0 1 1
—— Enulæ Campanæ, the cwt. - -	0 13 6	0 9 0
—— Eringii, the lb. - - -	0 0 6	0 0 4
—— Ipecacuannæ, the lb. - -	0 4 0	0 2 8
—— Rhataniæ, the lb. - - -	0 2 0	0 1 4
..... Extract or Preparation of. See Extract.		
—— Senekæ, the lb. - - -	0 1 9	0 1 2
—— Serpentariæ, or Snake Root, the lb. - -	0 1 9	0 1 2
Rag Stones. See Stone.		
Rags, *viz.*		
—— old Rags, old Ropes or Junk, or old Fishing Nets, fit only for making paper or pasteboard, the ton containing 20 cwt.		
..... imported in a British-built ship -	1 6 0	—
..... imported in a ship not British-built -	1 10 0	—

TABLE (A.)—INWARDS.	Duty.			Drawback.		
	£.	s.	d.	£.	s.	d.
Rags — *continued.*						
—— Woollen Rags fit only for the purpose of manure, the ton containing 20 cwt.,						
..... imported in a British-built ship -	0	13	0	—		
..... imported in a ship not British-built -	0	15	0	—		
Raisins, *viz.*						
——— Denia or Lexia, imported in a British-built ship, the cwt. - - -	1	0	0	0	18	0
..... imported in a ship not British-built, the cwt. - - -	1	1	0	0	18	0
——— of the Sun, imported in a British-built ship, the cwt.	2	2	6	1	18	0
..... imported in a ship not British-built, the cwt. - - -	2	3	6	1	18	0
——— of any other sort, imported in a British-built ship, the cwt. - -	1	2	0	1	0	0
..... imported in a ship not British-built, the cwt. - -	1	3	0	1	0	0
Note. — No allowance of the duty on Raisins to be made on account of damage.						
Rape Cakes, the cwt. - - - -	0	0	2	—		
—— Seed. See Seed.						
—— Seed Oil. See Oil.						
Rape of Grapes, the tun containing 252 gallons -	11	1	8	—		
Ratafia. See Cordial Water, in Spirits.						
Rattans. See Canes.						
Raw Linen Yarn. See Yarn.						
—— Silk. See Silk.						
Red Lead. See Lead.						
—— Mangrove Bark. See Bark.						
—— Wood. See Wood.						
—— Wool. See Wool.						
Reed Canes. See Canes.						
Rein Deer Tongues. See Tongues.						
Rennett, the gallon - - - -	0	0	6	—		
Resina Jalappæ, the ℔. - - -	0	6	9	0	4	6
Rhatany Root. See Radix Rhataniæ.						
Rhinehurst, the cwt. - - - -	0	14	3	0	9	6
Rhodium Lignum. See Lignum Rhodium, in Wood.						
——— Oil of. See Oil.						
Rhubarb, the ℔. - - - - -	0	4	0	0	2	8
Rice, *viz.*						
—— the produce of, and imported directly from any British colony, plantation, territory, or dominion,						
..... not being rough and in the husk, the cwt. -	0	5	0	—		
..... if rough and in the husk, the cwt. - -	0	2	6	—		
—— not being the produce of, and imported directly from any British colony, plantation, territory, or dominion, and Rice the produce of any other country or place,						
..... not being rough and in the husk, the cwt.	0	15	0	—		
..... if rough and in the husk, the cwt. - -	0	10	0	—		
Riga Balsam. See Balsam.						
Roch Alum. See Alum.						
Rock Moss. See Moss.						
—— Oil. See Oil.						
Rocou. See Annotto.						
Ropes of Bast. See Bast Ropes.						
—— New. See Cordage.						
—— Old. See Rags.						
Rose Copper. See Copper.						
Rosemary, Oil of. See Oil.						
Roses, Leaves of. See Leaves.						
—— Oil of. See Otto of Roses.						
Rose Wood. See Wood.						

TABLE (A.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Rose Wood—*continued.*						
——— Oil of. See Oil.						
Rosin or Calophonia,						
——— imported in a British-built ship, the cwt. -	0	4	9	—		
——— imported in a ship not British-built, the cwt.	0	5	6	—		
——— the produce of any of the dominions or plantations belonging to the Crown of Great Britain, the cwt. - - -	0	3	2	—		
Round Wood. See Wood.						
Rubies. See Jewels.						
Rum. See Spirits.						
Russia Linen. See Linen.						
——— Mats. See Mats.						
Rye. See Corn.						
S.						
Sabadilla Seed. See Seed.						
Sable Skins. See Skins.						
Saccharum Saturni, the ℔. - - -	0	0	10	0	0	6
Safflower, the cwt. - - - - -	0	8	9	—		
Saffron, the ℔. - - - - -	0	7	6	0	5	0
Sagapenum Gum. See Gum.						
Sail Cloth or Sail Duck. See Sail Cloth, in Linen.						
Sails. See Linen.						
Sal, *viz.*						
— Ammoniac, the ℔. - - - -	0	0	6	—		
— Gem, the cwt. - - - -	0	8	0	—		
— Limonum, the ℔. - - - -	0	4	9	—		
— Prunelle, the ℔. - - - -	0	0	6	—		
— Succini, the ℔. - - - -	0	3	2	—		
Salad Oil. See Oil of Olives.						
Salep or Salop, imported directly from the place of its growth, the ℔. - - - -	0	1	3	0	0	10
——— imported not directly from the place of its growth, the ℔. - - -	0	1	10	0	1	3
Salt, Duty free.						
Salt is subject to a Duty of Excise.						
Saltpetre, the cwt.	0	0	6	—		
Sand Boxes. See Boxes.						
Sandal Wood, Oil of. See Oil.						
Sandarach Gum. See Gum.						
Sanguis Draconis, imported directly from the place of its growth, the ℔. - -	0	1	8	0	1	1
——— imported not directly from the place of its growth, the ℔. - -	0	2	6	0	1	8
Santa Maria Wood. See Wood.						
Sarcocolla Gum. See Gum.						
Sark, Island of. See Guernsey.						
Sarsaparilla, the ℔. - - - -	0	1	3	0	0	10
Sassafras, the cwt. - - - - -	0	6	4	—		
——— Bark. See Bark.						
——— Oil of. See Oil.						
Saunders, *viz.*						
——— Red, the ton containing 20 cwt. - -	0	15	0	—		
——— White or Yellow, the ℔. - -	0	0	10	—		
Sausages or Puddings, the ℔. - - -	0	1	3	—		
Scaleboards, the cwt. - - - -	3	8	2	—		
Scammony, imported directly from the place of its growth, the ℔. - - -	0	6	4	0	4	2
——— imported not directly from the place of its growth, the ℔. - - - -	0	9	6	0	6	4
Scilla. See Squills.						
Scio, Turpentine of. See Turpentine.						
Sculptured Marble. See Stone.						

TABLE (A.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Sea Cow, Sea Horse, or Sea Morse Teeth, the cwt. -	3	4	0		—	
Sealing Wax. See Wax.						
Seal Oil. See Train Oil, in Oil.						
—— Skin. See Skins.						
Seed, *viz.*						
—— Ammi or Amios Seed, the ℔. - -	0	0	6		—	
—— Anniseed, the cwt. - - -	3	0	0		—	
—— Canary Seed, the cwt. - - -	3	0	0		—	
—— Caraway Seed, the cwt. - - -	1	0	0		—	
—— Carrot Seed, the ℔. - - -	0	0	9		—	
—— Carthamus Seed, the ℔. - - -	0	0	6		—	
—— Castor Seed, the ℔. - - -	0	1	0		—	
—— Cevadilla Seed. See Sabadilla Seed.						
—— Clover Seed, the cwt. - - -	1	0	0		—	
—— Cole Seed, the last - - - -	10	0	0		—	
—— Coriander Seed, the cwt. - - -	0	15	0		—	
—— Cummin Seed, the cwt. - - -	1	0	0		—	
—— Fennel Seed, the ℔. - - -	0	0	9		—	
—— Fenugreek Seed, the cwt. - -	0	9	6		—	
—— Flax Seed, the bushel - - -	0	0	5		—	
—— Forest Seed, for every 100*l.* of the value - -	25	0	0		—	
—— Garden Seed, not particularly enumerated or described, nor otherwise charged with duty, the ℔. - -	0	1	0		—	
—— Hemp Seed, the quarter containing eight bushels -	0	17	6		—	
..... the produce of, and imported from the British colonies or plantations in America, the quarter containing eight bushels - -	0	0	10		—	
—— Hemp Seed, and all other seeds not otherwise charged with duty, commonly made use of for the purpose of extracting oil therefrom, (whenever the price of middling British Rape Seed shall be at or above 17*l.* 10*s.* per last,) such seed being of the growth of any of the colonies, plantations, or provinces belonging to his majesty in North America, and imported from thence, the last containing ten quarters, each quarter containing eight bushels - - -	0	4	0		—	
For the conditions, regulations, and restrictions, under which such seed may be so imported on payment of the last-mentioned duty, see 15 Geo. 3. c. 34., and 30 Geo. 3. c. 41.						
—— Hemp Seed, and all other seeds not otherwise charged with duty, commonly made use of for the purpose of extracting the oil therefrom, (whenever the price of Middling British Rape Seed shall be at or above 20*l.* per last,) imported in a British ship from any country whatever, the last containing ten quarters, each quarter containing eight bushels - -	0	4	0		—	
For the conditions, regulations, and restrictions, under which such seed may be so imported on payment of the last-mentioned duty, see 15 Geo. 3. c. 34., 30 Geo. 3. c. 41. See also 35 Geo. 3. c. 117. continued by several statutes, and by 49 Geo. 3. c. 20. made perpetual.						
—— Linseed, the bushel - - -	0	0	5		—	
—— Lucerne Seed, the cwt. - - -	0	12	6		—	
—— Maw Seed, the cwt. - - -	3	0	0		—	
—— Millet Seed, the cwt. - - -	0	11	6		—	
—— Mustard Seed, the cwt. - - -	0	9	4		—	
—— Onion Seed, the cwt. - - - -	2	10	6		—	

TABLE (A.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Seed—*continued.*						
—— Piony, or Peony Seed, the ℔.	0	0	6	—		
—— Quince Seed, the ℔.	0	3	0	—		
—— Rape Seed, the last	10	0	0	—		
—— Sabadilla, or Cevadilla Seed, the ℔.	0	1	0	—		
—— Worm Seed, imported directly from the place of its growth, the ℔.	0	1	6	0	1	0
..... imported not directly from the place of its growth, the ℔.	0	2	3	0	1	6
—— Seed, not particularly enumerated or described, nor otherwise charged with duty, for every 100*l.* of the value	50	0	0	—		
Seed Lac. See Lac, in Gum.						
—— Oil. See Oil.						
Sena, imported directly from the place of its growth, the ℔.	0	1	3	0	0	10
—— imported not directly from the place of its growth, the ℔.	0	1	10	0	1	3
Senegal Gum. See Gum.						
Senekæ Radix, } See Radix.						
Serpentariæ Radix, } See Radix.						
Shaven Latten. See Latten.						
Shaving for Hats. See Platting.						
Sheep Skins. See Skins.						
—— Wool. See Wool.						
Shell Lac. See Lac, in Gum.						
Ships, with their tackle, apparel, and furniture (except sails) for every 100*l.* of the value	50	0	0	—		
—— Tonnage Duty thereon. See Table E.						
Shrubs. See Plants.						
Shumach. See Sumach.						
Sienna Terra. See Terra.						
Silesia Lawns. See Lawns, in Linen.						
—— Linen. See German Linen, in Linen.						
Silk, *viz.*						
—— Knubs or Husks of Silk, the ℔.	0	4	0	0	1	8
—— Raw Silk, the ℔.	0	5	6	0	2	9
—— Thrown Silk, dyed, the ℔.	2	5	6	0	19	2
..... not dyed, the ℔.	0	14	8	0	6	2
—— Waste or Floss Silk, not otherwise enumerated or described, the ℔.	0	4	0	0	1	8
Silk, Worm Gut, for every 100*l.* of the value	20	0	0	—		
Silver Coin. See Bullion.						
—— Plate. See Plate.						
—— Wire. See Wire.						
Simarouba Cortex. See Bark.						
Singing Birds. See Birds.						
Sisters' Thread. See Thread.						
Skates for sliding, for every 100*l.* of the value	50	0	0	—		
Skins and Furs, *viz.*						
—— Badger Skins, undressed, the skin	0	1	6	0	1	4
—— Bear Skins, undressed, the skin	0	4	6	—		
* ..... undressed, imported from any British colony, plantation, or settlement in America, the skin	0	2	6	—		
—— Beaver Skins, undressed, the skin	0	0	8	—		
* ..... undressed, imported from any British colony, plantation, or settlement in America, the skin	0	0	4	—		
—— Buck or Deer Skins. See Deer Skins.						
—— Calabar Skins. See Squirrel Skins.						
—— Calves' Skins in the Hair, not tanned, tawed, curried, or in any way dressed,						
..... imported in a British-built ship, the dozen skins	0	2	0	—		

TABLE (A.) — INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Skins, Calves' Skins — *continued.*						
..... imported in a ship not British-built, the dozen skins - - -	0	7	0	—		
..... tanned and not otherwise dressed, the lb.	0	1	0	—		
—— Cat Skins, undressed, the skin - -	0	0	6	—		
* ..... undressed, imported from any British colony, plantation, or settlement in America, the skin - - - -	0	0	3	—		
—— Coney Skins, undressed, the 100 skins - -	0	1	0	—		
—— Deer Skins, undressed, the skin - -	0	0	4	—		
..... undressed, imported from any British colony, plantation, or settlement in America, the skin - - -	0	0	2	—		
..... Indian, half dressed or shaved, the skin -	0	0	8	—		
—— Dog Skins in the Hair, not tanned, tawed, or in any way dressed,						
..... imported in a British-built ship, the dozen skins - - - - -	0	0	10	—		
..... imported in a ship not British-built, the dozen skins - - -	0	5	6	—		
—— Dog Fish Skins, undressed, the dozen skins -	0	5	2	—		
—— Elk Skins in the Hair, not tanned, tawed, curried, or in any way dressed,						
..... imported in a British-built ship, the skin -	0	1	0	—		
..... imported in a ship not British-built, the skin	0	2	0	—		
—— Ermine Skins, undressed, the skin - -	0	0	8	0	0	7
—— Fishers Skins, undressed, the skin - -	0	1	0	—		
..... undressed, imported from any British colony, plantation, or settlement in America, the skin - -	0	0	6	—		
—— Fitches Skins, undressed, the dozen skins - -	0	3	2	0	2	10
—— Fox Skins, undressed, the skin - -	0	0	8	—		
* ..... undressed, imported from any British colony, plantation, or settlement in America, the skin - - - -	0	0	4	—		
..... Tails, undressed, for every 100*l.* of the value -	20	0	0	—		
—— Goat Skins, *viz.*						
..... raw or undressed, imported in a British-built ship, the dozen skins -	0	2	10	—		
..... imported in a ship not British-built, the dozen skins	0	12	8	—		
..... tanned, the dozen skins - -	2	0	0	—		
—— Hare Skins, undressed, the 100 skins - -	0	5	6	—		
—— Husse Skins, undressed, the skin - -	0	0	6	—		
—— Kid Skins, in the Hair, the 100 skins - -	0	1	7	0	1	5
..... dressed, the 100 skins - -	2	0	0	—		
—— Kip Skins in the Hair, not tanned, tawed, curried, or in any way dressed,						
..... imported in a British built ship, the dozen skins - - - -	0	6	0	—		
..... imported in a ship not British-built, the dozen skins - - -	0	18	0	—		
..... tanned and not otherwise dressed, the lb. -	0	1	0	—		
—— Lamb Skins, *viz.*						
..... tanned, or tawed, the 100 skins -	2	0	0	—		
..... dressed in oil, the 100 skins -	4	0	0	—		
—— Leopard Skins, undressed, the skin - -	0	9	6	0	9	0
—— Lion Skins, undressed, the skin - -	0	6	0	—		
—— Martin Skins, undressed, the skin - -	0	0	6	—		
..... undressed, imported from any British colony, plantation, or settlement in America, the skin - - - -	0	0	3	—		
..... Tails, undressed, the 100 tails - -	0	16	3	0	15	6
—— Mink Skins, undressed, the skin - -	0	0	4	—		

TABLE (A.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Skins, Mink Skins — *continued.*						
..... undressed, imported from any British colony, plantation, or settlement in America, the skin - - -	0	0	2		—	
..... dressed, the skin - -	0	2	0		—	
—— Mole Skins, undressed, the dozen skins - -	0	0	6	0	0	5
—— Musquash Skins, undressed, the 100 skins	0	12	6		—	
—— Nutria Skins, undressed, for every 100*l.* of the value -	20	0	0		—	
—— Otter Skins, undressed, the skin - - -	0	1	6		—	
* ..... undressed, imported from any British colony, plantation, or settlement in America, the skin - - - -	0	1	0		—	
—— Ounce Skins, undressed, the skin - -	0	7	6		—	
—— Panther Skins, undressed, the skin - -	0	9	6		—	
—— Pelts of Goats, undressed, the dozen pelts - -	0	3	0		—	
..... dressed, the dozen pelts - - -	0	6	0		—	
..... of all other sorts, undressed, the 100 pelts -	0	17	0		—	
—— Raccoon Skins, undressed, the skin - -	0	0	2		—	
..... undressed, imported from any British colony, plantation, or settlement in America, the skin - - -	0	0	1		—	
—— Sable Skins, undressed, the skin - - -	0	8	4	0	7	6
..... Tails or Tips of Sable, undressed, the piece -	0	1	3	0	1	1
—— Seal Skins in the Hair, not tanned, tawed, or in any way dressed,						
..... imported in a British-built ship, the skin - - - -	0	0	3		—	
..... imported in a ship not British-built, the skin - - -	0	1	3		—	
..... cured with foreign salt, and imported in a British-built ship, the skin -	0	0	3		—	
..... of British taking, and imported directly from Newfoundland, the skin -	0	0	1		—	
..... cured with foreign salt, the skin	0	0	1		—	
For the suspension of the above duties on Seal Skins, imported directly from the island of Newfoundland, until the 5th July 1824, see the Act to which this Table is annexed.						
For the conditions, regulations, and restrictions, under which such skins may be so imported upon payment of the said duty, see 31 Geo. 3. c. 26., 32 Geo. 3. c. 22., and 49 Geo. 3. c. 20.						
—— Sheep Skins, undressed in the wool, the dozen skins -	0	2	3		—	
..... tanned or tawed, the 100 skins - -	2	0	0		—	
..... dressed in oil, the 100 skins - -	4	0	0		—	
—— Squirrel or Calabar Skins, undressed, the 100 skins -	0	11	6	0	10	4
..... tawed, the 100 skins -	0	17	6		—	
..... Tails, undressed, for every 100*l.* of the value - -	20	0	0		—	
—— Swan Skins, undressed, the skin - -	0	2	3		—	
—— Tyger Skins, undressed, the skin - - -	0	9	6	0	8	6
—— Weazel Skins, undressed, the 100 skins - -	0	4	9	0	4	3
—— Wolf Skins, undressed, the skin - -	0	2	0		—	
* ..... undressed, imported from any British colony, plantation, or settlement in America, the skin - -	0	1	0		—	
..... tawed, the skin - - -	0	17	6		—	
—— Wolverings, undressed, the skin - -	0	1	0		—	
..... undressed, imported from any British colony, plantation, or settlement in America, the skin - - -	0	0	6		—	
—— Skins and Furs, or Pieces of Skins and Furs, raw or undressed, not particularly enumerated or described,						

TABLE (A.)—INWARDS.	Duty.			Drawback.		
Skins—*continued.*	£.	s.	d.	£.	s.	d.
nor otherwise charged with duty, for every 100*l.* of the value - - - -	20	0	0	—		
—— Skins and Furs, or Pieces of Skins and Furs, tanned, tawed, curried, or in any way dressed, not particularly enumerated or described, nor otherwise charged with duty, for every 100*l.* of the value - -	75	0	0	—		
The duty on Skins, marked *, being the produce of and imported directly from the island of Newfoundland, is suspended until the 5th July, 1824. See the Abstract of the Act, to which this Table is annexed.						
Slate. See Stone.						
Slate Pencils, for every 100*l.* of the value - -	20	0	0	—		
Slate, Tables of, } Slates in Frames, } Slick Stones, } See Stone.						
Smalts, the lb. - - -	0	0	9½	—		
Smyrna Raisins. See Raisins.						
Snake Root. See Radix Serpentariæ.						
Snuff, Duty free.						
Snuff is subject to a Duty of Excise.						
Soap, *viz.*						
—— Ashes. See Ashes.						
—— Hard, the cwt. - - -	4	10	0	—		
—— Soft, the cwt. - - -	3	11	3	—		
Soapers' Waste, the ton containing 20 cwt. - -	0	3	2	—		
Socotorina Aloes. See Aloes.						
Soda. See Alkali.						
Spa Ware, for every 100*l.* of the value - -	50	0	0	—		
—— Water. See Mineral Water, in Water.						
Spanish Wool. See Wool.						
Spars. See Wood.						
Specimens of such minerals, fossils, or ores, which are not particularly enumerated or described, nor otherwise charged with duty, each specimen not exceeding in weight 14 lbs. the lb. -	0	0	2	—		
——— exceeding in weight 14 lbs. each, for every 100*l.* of the value - - -	20	0	0	—		
Speckled Wood. See Wood.						
Spelter, the cwt. - - - -	1	8	6	—		
Spermaceti, *viz.*						
——— Candles. See Candles.						
——— Fine, the lb. - - -	0	1	6	—		
——— Oil. See Train Oil, in Oil.						
Spike, Oil of. See Oil.						
Spikenard, or Nardus Indica, the lb. - - -	0	2	9	0	1	10
Spirits, *viz.*						
—— Arquebusade Water, Hungary Water, Lavender Water, or Usquebaugh, the gallon - -	0	5	6	—		
—— Brandy, imported in a British-built ship, the gallon	0	1	10	—		
..... imported in a ship not British-built, the gallon	0	2	0	—		
—— Citron Water, the gallon - - -	0	10	9	—		
—— Geneva, imported in a British-built ship, the gallon	0	1	10	—		
..... imported in a ship not British-built, the gallon	0	2	0	—		
—— Hungary Water, } —— Lavender Water, } See Arquebusade Water.						
—— Rum, the produce of any British colony or plantation in America, the gallon - -	0	1	3	—		
..... of any other sort, the gallon - -	0	1	6	—		
—— Usquebaugh. See Arquebusade Water.						
—— Spirits and Cordial, or Strong Waters not particularly enumerated or described, nor otherwise charged with duty, the gallon - - -	0	5	6	—		

TABLE (A.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Spirits—*continued.* Spirits are subject also to a Duty of Excise.						
—— Foreign Liquors—Derelict, Jetsam, Flotsam, Lagan, or Wreck, brought or coming into Great Britain, are subject to the same duties and entitled to the same drawbacks as liquors of the like kind, regularly imported.						
Spokes for Wheels. See Wood.						
Sponge, imported directly from the place of its growth, the ℔.	0	2	0	0	1	4
—— imported not directly from the place of its growth, the ℔. - - -	0	3	0	0	2	0
Spruce Beer. See Beer.						
—— Essence of. See Essence.						
—— Canvass. See Canvass, in Linen.						
Squills, dried, the cwt. - - - -	1	0	0		—	
—— not dried, the cwt. - - -	0	5	0		—	
Squirrel Skins. See Skins.						
Stag Horns. See Horns.						
Stained Paper. See Paper.						
Starch, the cwt. - - -	9	10	0		—	
Statuary - - - } See Sculptured Marble, in Stone.						
Statues of Marble or Stone sculptured } See Sculptured Marble, in Stone.						
—— of Bronze or any sort not otherwise charged with duty, the ℔. - - - -	0	0	3		—	
Stavesacre, the cwt. - - - -	1	8	0	0	18	8
Staves. See Wood.						
Steel, or any manufacture of Steel, not otherwise enumerated or described, for every 100*l.* of the value -	50	0	0		—	
—— Wire. See Wire.						
Stibium. See Antimony.						
Stick Lac. See Lac, in Gum.						
Sticks, *viz.* Walking Sticks, for every 100*l.* of the value -	50	0	0		—	
Stock Fish. See Fish.						
Stockings, *viz.*						
—— of Cotton, for every 100*l.* of the value - -	50	0	0		—	
—— of Thread or Worsted, for every 100*l.* of the value	50	0	0		—	
Stone, *viz.*						
—— Burs for mill-stones, the 100 - - - - See the note under the head of Guernsey.	3	16	0		—	
—— Dog Stones, not exceeding 4 feet in diameter, above 6 and under 12 inches in thickness, the pair -	6	3	6		—	
—— Emery Stones, the cwt. - -	0	2	0		—	
—— Filtering Stones, for every 100*l.* of the value -	50	0	0		—	
—— Flint Stones for potters, the ton containing 20 cwt.	0	2	6		—	
—— Grave Stones of Marble polished, each not containing more than 2 feet square, the foot square superficial measure - -	0	2	6		—	
..... unpolished, the foot square superficial measure -	0	0	10		—	
..... not of Marble, polished or unpolished, the foot square superficial measure -	0	0	6		—	
—— Lime Stone, for every 100*l.* of the value - -	20	0	0		—	
—— Marble Basins, Tables, Mortars, and other polished Marble (except Grave Stones and Paving Stones, polished, each not containing more than 2 feet square,) the foot square superficial measure -	0	3	2		—	
—— Marble Blocks, the solid foot - -	0	6	4		—	
—— Marble Busts, ... Chimney Pieces sculptured, ... Statues, } See Sculptured Marble.						
—— Marble Paving Stones polished, each not containing more than 2 feet square, the foot square superficial measure - - - -	0	0	10		—	

TABLE (A.)—INWARDS.	Duty. £. s. d.	Drawback. £. s. d.
Stone—*continued.*		
—— Marble Paving Stones, rough, the foot square, superficial measure - - - -	0 0 6	—
—— Mill Stones above 4 feet in diameter, or if 12 inches in thickness, or upwards, the pair - -	11 8 0	—
—— Paving Stones, not of Marble, the 100 feet square, superficial measure - - -	0 12 0	—
—— Pebble Stones, the ton containing 20 cwt. -	0 13 6	—
—— Polishing Stones, for every 100*l.* of the value -	20 0 0	—
—— Pumice Stones, the ton containing 20 cwt. -	1 13 4	—
—— Quern Stones, under 3 feet in diameter, and not exceeding 6 inches in thickness, the pair -	0 8 9	—
..... 3 feet in diameter, and not above 4 feet in diameter, and not exceeding 6 inches in thickness, the pair - -	0 17 6	—
—— Rag Stones, for every 100*l.* of the value -	20 0 0	—
—— Sculptured Marble and Statuary, the cwt. -	0 2 6	—
Note.—If any Statue, Group of Figures, or other Stone or Marble Ornament carved out of the same block shall exceed one ton weight, the duty to be charged thereon shall be estimated at the rate payable for one ton weight, and no more.		
—— Slate, the produce of the islands of Guernsey, Jersey, Sark, Alderney, or Man, and imported from those islands respectively, for every 100*l.* of the value - - -	26 8 0	—
..... of any other country, not otherwise enumerated or described, for every 100*l.* of the value -	66 10 0	—
—— Slates in Frames, the dozen - - -	0 3 0	—
—— Slick Stones, the 100 - -	0 8 0	—
—— Statuary. See Sculptured Marble.		
—— Stone the produce of the islands of Guernsey, Jersey, Sark, Alderney, or Man, and imported from those islands respectively, for every 100*l.* of the value -	26 8 0	—
See the Note under the head of Guernsey.		
For the conditions, regulations, and restrictions, under which Burr Stones, being the produce of Guernsey, Jersey, Sark, Alderney, or Man, may be imported duty free, see 42 Geo. 3. c. 95.		
—— Stone, sculptured. See Sculptured Marble.		
—— Stone to be used for the purpose of Lithography, the cwt. - - -	1 0 0	—
—— Whetstones, the 100 - - -	0 8 9	—
—— Stones not particularly enumerated or described, nor otherwise charged with duty, for every 100*l.* of the value - - -	66 10 0	—
—— Stone Bottles. See Bottles.		
Storax or Styrax, *viz.*		
—— Calamita, imported directly from the place of its growth, the lb. - - -	0 2 0	0 1 4
..... imported not directly from the place of its growth, the lb. - -	0 3 0	0 2 0
—— Liquida, imported directly from the place of its growth, the lb. - - -	0 3 4	0 2 2
..... imported not directly from the place of its growth, the lb. - - -	0 5 0	0 3 4
—— in the tear or gum, imported directly from the place of its growth, the lb. - -	0 8 4	0 5 6
..... imported not directly from the place of its growth, the lb. -	0 12 6	0 8 4
Straw Hats or Bonnets. See Hats.		
—— Platting. See Platting.		
Stuffs of all sorts, made of or mixed with wool, for every 100*l.* of the value - - -	50 0 0	—

TABLE (A.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Sturgeon. See Fish.						
Styrax. See Storax.						
Succades, the lb. - - - -	0	3	2		—	
Succini Sal. See Sal.						
Succinum, the lb. - - - -	0	1	8	0	1	1
——— Oil of. See Oil of Amber, in Oil.						
Succus Liquoritiæ. See Liquorice Juice.						
Sugar, *viz.*						
——— not of the British Plantations,						
..... White or Clayed Sugar, the cwt. -	4	6	8		—	
..... Brown or Muscovado Sugar, the cwt. -	3	3	0		—	
——— of the British Plantations,						
..... White or Clayed Sugar, the cwt. -	1	15	0		—	
..... Brown or Muscovado Sugar, the cwt. -	1	10	0		—	
Whenever it shall appear by notice in the London Gazette, that the average price of Brown or Muscovado Sugar shall be below 49*s.* the cwt., it shall be lawful for the lords of his majesty's treasury to suspend, until a new average shall be published, 1*s.* the cwt. part of the duty on sugar; and if the average price shall be below 48*s.*, 2*s.* the cwt. of such duty; and if the average price shall be below 47*s.* then 3*s.* the cwt. of such duty, and to continue from time to time, if the case shall so require, according to the average price so published. See the Abstract of the Act, to which this Table is annexed.						
——— Refined Sugar, the cwt. - - -	8	8	0		—	
Note. — The duties on sugar imported are to continue in force until the 25th March 1820. See the Abstract of the Act, to which this Table is annexed.						
Sugar Candy, *viz.*						
——— Brown, the cwt. - - - -	5	12	0		—	
——— White, the cwt. - - - -	8	8	0		—	
Sulphur, Impressions, for every 100*l.* of the value - -	50	0	0		—	
——— Vivum. See Brimstone.						
Sumach, the cwt. - - - -	0	1	7		—	
Sun, Raisins of the. See Raisins.						
Swan Quills. See Quills.						
——— Skins. See Skins.						
Sweep Washers' Dirt, containing Bullion. See Bullion.						
Sweet Wood. See Wood.						
Switzerland Linen. See German Linen, in Linen.						
T.						
Tables of Marble, polished. See Marble in Stone.						
——— Slate. See Stone.						
Tacamahaca Gum. See Gum.						
Tails, *viz.*						
——— Buffalo, Bull, Cow, or Ox Tails, the 100 - -	0	6	0		—	
——— Fox Tails, ——— Martin Tails, ——— Sable Tails, ——— Squirrel or Calabar Tails, } See Skins.						
Talc, the lb. - - - - -	0	0	8		—	
Tallow, imported in a British-built ship, the cwt. - -	0	3	2		—	
——— imported in a ship not British-built, the cwt. -	0	4	0		—	
——— Candles. See Candles.						
Tamarinds, the lb. - - - -	0	0	8		—	
Tapes, *viz.*						
——— Open, for every 100*l.* of the value - -	50	0	0		—	
——— Worsted, for every 100*l.* of the value - -	50	0	0		—	
Tapestry, not of Silk, for every 100*l.* of the value - -	50	0	0		—	
Tapioca, the lb. - - - - -	0	0	6		—	

TABLE (A.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Tar, *viz.*						
—— imported in a British-built ship, the last containing 12 barrels, each barrel not exceeding 31½ gallons	1	1	6	—		
—— imported in a ship not British-built, the last containing 12 barrels, each barrel not exceeding 31½ gallons -	1	3	0	—		
—— the produce of any British colony or plantation, the last containing 12 barrels, each barrel not exceeding 31½ gallons - - - -	0	19	6	—		
—— Barbadoes Tar, the lb. - - -	0	0	5	—		
Tares, for every 100*l.* of the value - - -	20	0	0	—		
Tarras, the bushel - - - -	0	1	3	—		
Tartar, Cream of. See Cream of Tartar.						
Tea, imported from Europe under licence, duty free. For the conditions, regulations, and restrictions under which tea may be so imported, see 18 Geo. 2. cap. 26. 6 Geo. 3. cap. 13. and 16 Geo. 3. cap. 51. Tea is subject to a duty of excise.						
Teake Wood. See Wood.						
Teasles, the 1000 - - - -	0	1	8	—		
Teeth, *viz.*						
—— Elephants' Teeth. See in E.						
—— Sea Cow, Sea Horse, or Sea Morse Teeth. See in S.						
Telescopes, for every 100*l.* of the value - - -	50	0	0	—		
Terra, *viz.*						
—— Japonica, or Catechu, the lb. - - -	0	0	10	—		
—— Sienna, the cwt. - - - -	1	11	8	—		
—— Umbra, the cwt. - - -	0	12	0	—		
—— Verde, the cwt. - - -	0	16	0	—		
Thread, *viz.*						
—— Bruges Thread, the dozen lbs. - -	1	10	6	—		
—— Cotton Thread, for every 100*l.* of the value - -	50	0	0	—		
—— Outnal Thread, the dozen lbs. - -	1	10	6	—		
—— Pack Thread, the cwt. - - -	1	10	6	—		
—— Sisters' Thread, the lb. - - -	0	8	4	—		
—— Whited Brown Thread, the dozen lbs.	1	16	6	—		
—— not otherwise enumerated or described, for every 100*l.* of the value - - - -	50	0	0	—		
—— Stockings. See Stockings.						
Thrown Silk. See Silk.						
Thyme, Oil of. See Oil.						
Ticking, for every 100*l.* of the value - -	50	0	0	—		
Ticks, for every 100*l.* of the value - - -	50	0	0	—		
Tiles of all sorts, for every 100*l.* of the value - -	50	0	0	—		
Timber. See Wood.						
Tin, the cwt. - - - -	5	9	3	—		
Tincal. See Borax.						
Tin Foil, for every 100*l.* of the value - -	50	0	0	—		
Tobacco, duty free. Tobacco is subject to a duty of excise.						
Tobacco Pipes, for every 100*l.* of the value - -	50	0	0	—		
Tongues, the dozen - - - -	0	3	6	—		
Tonnage Duty on ships or vessels entering inwards from foreign parts, see Table E.						
Tooth Powder, for every 100*l.* of the value - -	50	0	0	—		
Tornsal or Turnsole, the cwt. - - -	0	10	0	—		
Tortoise Shell, the lb. - - - -	0	4	0	—		
Touch Stones, for every 100*l.* of the value - -	20	0	0	—		
Tow, imported in a British-built ship, the cwt. - -	0	9	6	—		
—— imported in a ship not British built, the cwt. -	0	10	4	—		
Toys, for every 100*l.* of the value - - -	50	0	0	—		
Tragacanth Gum. See Gum.						
Train Oil. See Oil.						
Treacle of Venice, the lb. - - -	0	3	6	—		

TABLE (A.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Trees. See Plants.						
Truffles, the ℔. - - - -	0	5	6		—	
Turbith, imported directly from the place of its growth, the ℔.	0	2	6	0	1	8
——— imported not directly from the place of its growth, the ℔. - - - -	0	3	9	0	2	6
Turbots. See Fish.						
Turkey Carpets. See Carpets.						
Turkey Goats' Wool. See Goat Hair, in Hair.						
Turmerick, the ℔. - - - - -	0	0	8	0	0	5
Turnery, not otherwise enumerated or described, for every 100*l.* of the value - - -	50	0	0		—	
Turnsole. See Tornsal.						
Turpentine, *viz.*						
——— Common, the cwt. - - -	0	4	4		—	
——— of Venice, Scio, or Cyprus, the ℔.	0	0	10	0	0	6
——— of Germany or any other place, not otherwise enumerated or described, the cwt. - -	1	6	2		—	
——— Oil of. See Oil.						
Tutiæ Lapis. See Lapis.						
Twine, the cwt. - - - -	1	11	0		—	
Twist for Band Strings. See Band String Twist.						
Tyger Skins. See Skins.						
V.						
Valonia, the cwt. - - - -	0	2	6		—	
Vanelloes, the ℔. - - - -	0	16	8		—	
Varnish, not otherwise enumerated or described, for every 100*l.* of the value - - - -	50	0	0		—	
Vases, *viz.*						
——— of Stone or Marble sculptured. See Sculptured Marble, in Stone.						
——— of any other sort, for every 100*l.* of the value -	50	0	0		—	
Vellum, the skin - - - -	0	7	2		—	
Velves. See Calves' Velves.						
Venice Treacle. See Treacle.						
——— Turpentine. See Turpentine.						
Verdigris, *viz.*						
——— Common, the ℔. - - -	0	3	4		—	
——— Crystallized, or otherwise manufactured, the ℔. -	0	6	6		—	
Verde Terra. See Terra.						
Verjuice, the tun containing 252 gallons - -	61	7	0		—	
Vermicelli, the ℔. - - - -	0	0	8		—	
Vermilion, the ℔. - - - - -	0	2	0	0	1	4
Vetches. See Tares.						
Ufers. See Wood.						
Vinegar, or Acetous Acid, the tun containing 252 gallons -	61	7	0		—	
Vinelloes. See Vanelloes.						
Vitriol, Extract or Preparation of. See Extract.						
——— Oil of. See Oil.						
Umber. See Terra Umbra.						
Vomica Nux. See Nux Vomica.						
Usquebaugh. See Spirits.						
W.						
Wafers, the ℔. - - - -	0	1	3		—	
Wainscoat Boards. See Boards, in Wood.						
——— Logs. See Wood.						
Walking Canes. See Canes.						
——— Sticks. See Sticks.						
Walnut Oil. See Oil.						
Walnuts. See Nuts.						
Warehoused Goods.						
For a list of those goods which may be warehoused, or otherwise secured on importation into Great Britain,						

TABLE (A.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Warehoused Goods—*continued.*						
without payment of duty in the first instance, see Table F.						
Washing Balls. See Balls.						
Waste, *viz.*						
—— Cotton Waste. See Cotton Wool, in Wool.						
—— Silk Waste. See in Silk.						
Watch Glasses, for every 100*l.* of the value - - Subject also to a duty of excise.	80	0	0	—		
Watches of Gold, Silver, or other Metal, for every 100*l.* of the value - - - - -	50	0	0	—		
Water, *viz.*						
—— Arquebusade, —— Citron, —— Cordial, —— Hungary, —— Lavender, } See Spirits.						
—— Mineral or Natural Water, the dozen bottles or flasks, each bottle or flask not exceeding three pints -	0	4	0	—		
—— Strong Water. See Spirits.						
Wax, *viz.*						
—— Bees' Wax, unmanufactured, the cwt. - -	3	6	6	—		
..... White or manufactured, the cwt. -	6	3	6	—		
—— Myrtle Wax, the lb. - - -	0	1	0	—		
—— Sealing Wax, for every 100*l.* of the value -	50	0	0	—		
—— Candles. See Candles.						
Weasel Skins. See Skins.						
Weld, the cwt. - - - -	0	2	9	—		
Whale Fins, *viz.*						
—— taken and caught by the crew of a British-built ship or vessel wholly owned by his majesty's subjects usually residing in Great Britain, Ireland, or the islands of Guernsey, Jersey, Alderney, Sark, or Man, registered and navigated according to law, and imported in any such shipping, the ton containing 20 cwt. -	2	7	6	—		
—— taken and caught on the banks and shores of the island of Newfoundland and parts adjacent, wholly by his majesty's subjects, carrying on such fishery from that island, and residing therein, and imported directly from thence in a British-built ship or vessel, registered and navigated according to law, the ton containing 20 cwt. - - -	3	3	4	—		
For the suspension of the above duty on whale fins imported directly from the island of Newfoundland, until the 5th of July, 1824, see the Abstract of the Act, to which this Table is annexed.						
—— taken and caught wholly by his majesty's subjects usually residing in any of the Bahamas or Bermudas islands, or in any British colony or plantation in North America, and imported in a British-built ship or vessel, registered and navigated according to law, the ton containing 20 cwt. - - -	4	15	0	—		
—— taken and caught wholly by his majesty's subjects usually residing in any other British colony, plantation, territory, or settlement, and imported in a British-built ship or vessel registered and navigated according to law, the ton containing 20 cwt. - - -	6	6	8	—		
—— of foreign fishing, the ton containing 20 cwt.	95	0	0	—		

TABLE (A.)—INWARDS.	Duty. £. s. d.	Drawback. £. s. d.
Whale Fins—*continued.* For the conditions, regulations, and restrictions, under which Whale Fins may be admitted to entry as of British fishing, see 49 Geo. 3. c. 98., and the Abstract of the Act, to which this Table is annexed.		
Whale Oil. See Train Oil, in Oil.		
Wheat. See Corn.		
—— Flour. See Corn.		
Whetstones. See Stone.		
Whipcord, the lb. - - -	0 1 0	—
White Boards for Shoemakers. See Boards, in Wood.		
Whited Brown Thread. See Thread.		
White Lead. See Lead.		
Wick Yarn. See Yarn.		
Wine, *viz.*		
—— the produce of his majesty's settlement of the Cape of Good Hope, or the territories or dependencies thereof, imported directly from thence,		
..... in a British-built ship, the tun containing 252 gallons - - - -	14 7 0	12 19 0
..... in a ship not British-built, the tun containing 252 gallons - - -	15 8 0	12 19 0
For the conditions, regulations, and restrictions under which Cape Wine must be imported and admitted to entry, see 54 Geo. 3. c. 77.		
—— French Wine,		
..... imported in a British-built ship, the tun containing 252 gallons - -	66 3 0	59 17 0
..... imported in a ship not British-built, the tun containing 252 gallons - -	70 7 0	59 17 0
—— German Wine, —— Hungary Wine, } See Rhenish Wine.		
—— Madeira Wine,		
..... imported in a British-built ship, the tun containing 252 gallons - -	44 2 0	39 18 0
..... imported in a ship not British-built, the tun containing 252 gallons - -	47 5 0	39 18 0
For the duty on Madeira Wine imported in a Portuguese ship or vessel, see the Note on Portugal Wine. - -		
—— Portugal Wine,		
..... imported in a British-built ship, the tun containing 252 gallons - -	43 1 0	38 17 0
..... imported in a ship not British-built, the tun containing 252 gallons.	46 4 0	38 17 0
Note.—Wine of the produce of any of the territories or dominions of the crown of Portugal, imported into Great Britain directly from any of the said territories or dominions, in a ship or vessel built therein, or taken by any ship or vessel of war belonging to the Portuguese government, or by any ship or vessel belonging to any of the subjects of the territories or dominions aforesaid, having commissions or letters of marque and reprisal from the Portuguese government, and condemned as lawful prize in any Court of Admiralty of the said government, such ship or vessel so importing, being owned by subjects of the said		

TABLE (A.)—INWARDS.	Duty.			Drawback.		
Wine, Portugal Wine—*continued.*	£.	s.	d.	£.	s.	d.
government, and navigated with a master and three-fourths of the mariners at least subjects thereof, may be entered and landed on payment of such duties of customs and excise, and no higher, as are payable on such wine when imported into Great Britain in a British-built ship. See 51 Geo. 3. c. 47., which Act is to be in force during the continuance of the Treaty of Amity, Commerce, and Navigation, concluded between his majesty and his royal highness the prince regent of Portugal. Signed at Rio de Janeiro, the 19th of February, 1810.						
—— Rhenish, German, and Hungary Wine,						
..... imported in a British-built ship, the tun containing 252 gallons -	66	3	0	59	17	0
..... imported in a ship not British-built, the tun containing 252 gallons - -	70	7	0	59	17	0
—— Spanish Wine, and Wine not otherwise enumerated or described,						
..... imported in a British-built ship, the tun containing 252 gallons - -	43	1	0	38	17	0
..... imported in a ship not British-built, the tun containing 252 gallons - -	46	4	0	38	17	0
For the conditions, regulations, and restrictions, under which a drawback shall be allowed of all the duties of customs on certain quantities of wine, in certain proportions intended for the use of admirals, captains, and other commissioned officers employed in his majesty's service, for their actual consumption on board such ships as they shall serve in, or for the use of commissioned officers of the royal marines, or of persons acting as such, for their consumption, on board such of his majesty's ships as they shall serve in, see 33 Geo. 3. c. 48., 35 Geo. 3. c. 10., 38 Geo. 3. c. 33., 45 Geo. 3. c. 45., 49 Geo. 3. c. 98., and 53 Geo. 3. c. 44.						
—— entered for Prisage, in any of those ports in England and Wales, where the right of prisage has not been purchased by the crown, under the authority of the acts of 43 Geo. 3. c. 156., and 46 Geo. 3. c. 79., *viz.*						
—— the produce of his majesty's settlement of the Cape of Good Hope, or the territories or dependencies thereof, imported directly from thence, so entered for prisage,						
..... in a British-built ship, the tun containing 252 gallons - - -	12	19	0	11	18	0
..... in a ship not British-built, the tun containing 252 gallons - -	14	0	0	11	18	0
—— French Wine, so entered for prisage,						
..... imported in a British-built ship, the tun containing 252 gallons - -	58	16	0	51	9	0
..... imported in a ship not British-built, the tun containing 252 gallons - -	63	0	0	51	9	0
—— German Wine. } See Rhenish Wine						
—— Hungary Wine. } See Rhenish Wine						
—— Madeira Wine, so entered for prisage,						

TABLE (A.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Wine, Madeira Wine—*continued.*						
..... imported in a British-built ship, the tun containing 252 gallons - -	39	18	0	35	13	0
..... imported in a ship not British-built, the tun containing 252 gallons - -	43	1	0	35	13	0
See the Note under the head of Portugal Wine.						
—— Portugal Wine, so entered for prisage,						
..... imported in a British-built ship, the tun containing 252 gallons - -	38	17	0	35	14	0
..... imported in a ship not British-built, the tun containing 252 gallons - -	42	0	0	35	14	0
See the Note under the head of Portugal Wine.						
—— Rhenish, German, and Hungary Wine, so entered for prisage,						
..... imported in a British-built ship, the tun containing 252 gallons - -	56	14	0	52	10	0
.... imported in a ship not British-built, the tun containing 252 gallons - -	59	17	0	52	10	0
—— Spanish Wine, and Wine not otherwise enumerated or described, so entered for prisage,						
..... imported in a British-built ship, the tun containing 252 gallons - -	38	17	0	35	14	0
..... imported in a ship not British-built, the tun containing 252 gallons - -	42	0	0	35	14	0
Wine is also subject to a duty of excise.						
For the conditions under which a drawback can only be allowed on the exportation of any Wine from Great Britain, see the Abstract of the Act, to which this Table is annexed.						
—— Lees, subject to the same duty as Wine, but no drawback is allowed on Lees of Wine exported.						
Winteranus Cortex. See Winter's Bark, in Bark.						
Wire, *viz.*						
—— Brass or Copper, not otherwise enumerated or described, the cwt. - - -	5	14	0	—		
—— Gilt or plated, for every 100*l.* of the value - -	50	0	0	—		
—— Iron, not otherwise enumerated or described, the cwt.	5	18	9	—		
—— Latten, the cwt. - - - -	5	9	3	—		
—— Silver, for every 100*l.* of the value - -	50	0	0	—		
—— Steel, the lb. - - -	0	1	10	—		
Woad, the cwt. - - - -	0	6	6	—		
Wolf Skins. See Skins.						
Wolverings. See Skins.						
Wood, *viz.*						
—— Anchor Stocks, *viz.*						
..... imported in a British-built ship, the piece -	0	8	4	—		
..... imported in a ship not British-built, the piece	0	8	9	—		
..... of the growth and production of the British colonies or plantations in America, and imported directly from thence. the piece	0	0	10	—		
—— Balks, *viz.*						
..... under 5 inches square, and under 24 feet in length,						
..... imported in a British-built ship, the 120						
..... imported in a ship not British-built, the 120 - - -	18	2	7	—		
	18	9	0	—		
All Balks, being 5 inches square or upwards, are subject and liable to the duties payable on Fir Timber. See Fir Timber.						
..... of all sorts, under 8 inches square, of the growth and production of the British colonies or plantations in America, and imported directly from thence, the 120 - -	0	16		—		

TABLE (A.)—INWARDS.	Duty.			Drawback.		
Wood—*continued.*	£.	s.	d.	£.	s.	d.
—— Bar Wood, the ton, containing 20 cwt. - -	0	15	0	—		
—— Battens, *viz.*						
..... 8 feet in length, and not exceeding 20 feet in length, not above 7 inches in width and not exceeding 2¾ inches in thickness,						
..... imported in a British-built ship, the 120	10	11	6	—		
..... imported in a ship not British-built, the 120 - - -	10	16	2	—		
..... exceeding 20 feet in length, not above 7 inches in width, or if exceeding 2¾ inches in thickness,						
..... imported in a British-built ship, the 120	21	3	0	—		
..... imported in a ship not British-built, the 120 - - -	21	12	4	—		
—— Batten Ends, *viz.*						
..... under 8 feet in length, not above 7 inches in width, and not exceeding 2¾ inches in thickness,						
..... imported in a British-built ship, the 120	3	11	3	—		
..... imported in a ship not British built, the 120 - - -	3	13	8	—		
..... under 8 feet in length, not above 7 inches in width, and exceeding 2¾ inches in thickness,						
..... imported in a British-built ship, the 120	7	5	0	—		
..... imported in a ship not British-built, the 120 - - -	7	9	0	—		
—— Battens and Batten Ends of all sorts, of the growth and production of the British colonies or plantations in America, and imported directly from thence, the 120 - - - -	0	8	4	—		
—— Beech Plank, two inches in thickness or upwards,						
..... imported in a British-built ship, the load containing 50 cubic feet -	2	8	9	—		
..... imported in a ship not British-built, the load containing 50 cubic feet	2	10	0	—		
..... of all sorts, of the growth and production of the British colonies or plantations in America, and imported directly from thence, the 120 -	0	8	4	—		
—— Beech Quarters, *viz.*						
..... under 5 inches square, and under 24 feet in length,						
..... imported in a British-built ship, the 120 - - -	4	10	8	—		
..... imported in a ship not British-built, the 120 - -	4	12	3	—		
..... 5 inches square, and under 8 inches square, or if 24 feet in length or upwards,						
..... imported in a British-built ship, the 120 - - -	12	3	6	—		
..... imported in a ship not British-built, the 120 - - -	12	7	10	—		
..... of all sorts under 8 inches square of the growth and production of the British colonies or plantations in America, and imported directly from thence, the 120 -	0	16	3	—		
—— Boards, *viz.*						
..... Beech Boards, *viz.*						
..... under 2 inches in thickness, and under 15 feet in length,						

TABLE (A.) — INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Wood, Boards, Beech Boards, &c. — *continued.*						
..... imported in a British-built ship, the 120 - -	4	9	6	—		
..... imported in a ship not British-built, the 120 - -	4	13	6	—		
..... under 2 inches in thickness, and if 15 feet in length or upwards,						
..... imported in a British-built ship, the 120 - -	8	19	0	—		
..... imported in a ship not British-built, the 120 - -	9	7	0	—		
..... Clap Boards, *viz.*						
..... not exceeding 5 feet 3 inches in length, and under 8 inches square,						
..... imported in a British-built ship, the 120 - - -	6	2	0	—		
..... imported in a ship not British-built, the 120 - -	6	5	0	—		
..... of the growth and production of the British colonies or plantations in America, and imported directly from thence the 120 - - -	0	12	4	—		
..... Linn Boards, or White Boards for Shoemakers, *viz.*						
..... under 4 feet in length, and under 6 inches in thickness,						
..... imported in a British-built ship, the 120 - - -	6	16	6	—		
..... imported in a ship not British-built, the 120 - -	7	1	0	—		
..... 4 feet in length, or 6 inches in thickness or upwards,						
..... imported in a British-built ship, the 120 - -	13	13	0	—		
..... imported in a ship not British-built, the 120 - -	14	2	0	—		
..... Oak Boards, *viz.*						
..... under 2 inches in thickness, and under 15 feet in length,						
..... imported in a British-built ship, the 120 - -	18	1	0	—		
..... imported in a ship not British-built, the 120 - -	18	13	9	—		
..... under 2 inches in thickness, and if 15 feet in length or upwards,						
..... imported in a British-built ship, the 120 - - -	36	2	0	—		
..... imported in a ship not British-built, the 120 - -	37	7	6	—		
..... Paling Boards, *viz.*						
..... hewed on one side, and not exceeding 7 feet in length,						
..... imported in a British-built ship, the 120 - -	1	17	3	—		
..... imported in a ship not British-built, the 120 - -	1	18	10	—		
..... hewed on one side, and exceeding 7 feet in length,						
..... imported in a British built ship, the 120 - -	3	14	6	—		
..... imported in a ship not British-built, the 120 - -	3	17	8	—		

TABLE (A.)—INWARDS.	Duty. £. s. d.	Drawback. £. s. d.
Wood, Boards—*continued.*		
..... Pipe Boards, *viz.*		
..... above 5 feet 3 inches in length, and not exceeding 8 feet in length, and under 8 inches square,		
..... imported in a British-built ship, the 120 - - -	9 3 0	—
..... imported in a ship not British-built, the 120 - -	9 5 3	—
..... exceeding 8 feet in length, and under 8 inches square,		
..... imported in a British-built ship, the 120 - - -	18 6 0	—
..... imported in a ship not British-built, the 120 -	18 10 6	—
..... of all sorts exceeding 5 feet 3 inches in length, and under 8 inches square, of the growth and production of the British colonies or plantations in America, and imported directly from thence, the 120. - - -	0 19 6	—
..... Wainscot Boards, *viz.*		
..... the foot containing 12 feet in length and 1 inch in thickness, and so in proportion for any greater or lesser length or thickness,		
..... imported in a British-built ship	0 5 6	—
..... imported in a ship not British-built - - -	0 6 4	—
—— Boards of all sorts, not otherwise enumerated or described, of the growth and production of the British colonies or plantations in America and imported directly from thence, the 120 - -	0 8 4	—
—— Bowsprits. See Masts.		
—— Boxwood, of the growth and production of the British colonies, plantations, or settlements in America, or of the West Coast of Africa, and imported directly from thence respectively, the ton containing 20 cwt.	1 13 4	—
..... of the growth and production of any other country or place, or if otherwise imported, the ton containing 20 cwt. -	7 18 6	—
—— Brazil Wood, not particularly enumerated or described, nor otherwise charged with duty, for every 100*l.* of the value - - - -	20 0 0	—
—— Braziletto or Jamaica Wood, the ton containing 20 cwt. - - - -	0 16 8	—
—— Cam Wood, the ton containing 20 cwt. - -	0 15 0	—
—— Deals, *viz.*		
..... above 7 inches in width, being 8 feet in length, and not above 10 feet in length, and not exceeding $1\frac{1}{2}$ inch in thickness,		
..... imported in a British-built ship, the 120	8 2 6	—
..... imported in a ship not British-built, the 120 - - -	8 7 0	—
A drawback is allowed on deals above 7 inches in width, being 8 feet in length, and not above 10 feet in length, and not exceeding $1\frac{1}{2}$ inch in thickness, which shall have been used and employed in any of the mines of tin, lead, or copper, in the counties of Devon or Cornwall.		

TABLE (A.) — INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Wood, Deals — *continued.*						
..... having been imported in a British-built ship, the 120 - -	-		-	4	1	3
..... having been imported in a ship not British built, the 120 -	-		-	4	3	6
For the conditions and regulations under which the drawback shall be paid or allowed on such deals so used and employed, see 51 Geo. 3. c. 43. and 53 Geo. 3. c. 105.						
..... above 7 inches in width, being 8 feet in length, and not above 20 feet in length, and not exceeding $3\frac{1}{4}$ inches in thickness, (except deals not above 10 feet in length, and not exceeding $1\frac{1}{2}$ inch in thickness),						
..... imported in a British-built ship, the 120	20	15	8		—	
..... imported in a ship not British-built, the 120 - - -	12	10	8		—	
..... above 7 inches in width, being 8 feet in length, and not above 20 feet in length, and exceeding $3\frac{1}{4}$ inches in thickness,						
..... imported in a British-built ship, the 120	41	11	4		—	
..... imported in a ship not British-built, the 120 - - -	43	1	4		—	
..... above 7 inches in width, exceeding 20 feet in length, and not exceeding 4 inches in thickness,						
..... imported in a British-built ship, the 120	51	9	2		—	
..... imported in a ship not British-built, the 120 - - -	52	16	2		—	
..... (not being timber 8 inches square or upwards) above 7 inches in width, exceeding 20 feet in length, and exceeding 4 inches in thickness,						
..... imported in a British-built ship, the 120	100	6	0		—	
..... imported in a ship not British-built, the 120 - - -	101	17	9		—	
——— Deal Ends, *viz.*						
..... above 7 inches in width, being under 8 feet in length, and not exceeding $3\frac{1}{4}$ inches in thickness,						
..... imported in a British-built ship, the 120	7	1	9		—	
..... imported in a ship not British-built, the 120 - - -	7	7	3		—	
..... above 7 inches in width, being under 8 feet in length, and exceeding $3\frac{1}{4}$ inches in thickness,						
..... imported in a British-built ship, the 120	13	14	9		—	
..... imported in a ship not British-built, the 120 - - -	14	5	0		—	
——— Deals and Deal Ends of all sorts of the growth and production of the British colonies or plantations in America, and imported directly from thence, the 120 -	0	8	4		—	
——— Ebony of the growth and production of the British colonies, plantations, or settlements, in America, or of the west coast of Africa, and imported directly from thence respectively, the ton containing 20 cwt. - - -	0	15	0		—	
..... of the growth and production of any other country or place, or if otherwise imported, the ton containing 20 cwt.	24	14	0		—	

TABLE (A.) — INWARDS.	Duty. £. s. d.	Drawback. £. s. d.
Wood — *continued.*		
—— Firewood, not fit or proper to be used other than as such, *viz.*		
..... the fathom 6 feet wide, and 6 feet high,		
..... imported in a British-built ship -	0 19 0	—
..... imported in a ship not British-built -	0 19 10	—
..... of the growth and production of the British colonies or plantations in America, and imported directly from thence, the fathom 6 feet wide, and 6 feet high - - -	0 0 10	—
—— Fir Quarters, *viz.*		
..... under 5 inches square, and under 24 feet in length,		
..... imported in a British-built ship, the 120	18 2 7	—
..... imported in a ship not British-built, the 120	18 9 0	—
Fir Quarters being 5 inches square or upwards, are subject and liable to the duties payable on Fir Timber. See Fir Timber.		
..... of all sorts, under 8 inches square, of the growth and production of the British colonies or plantations in America, and imported directly from thence, the 120 -	0 16 3	—
—— Fir Timber. See Timber.		
—— Fustic, the ton containing 20 cwt. - -	1 4 6	—
—— Guinea Wood. See Red Wood.		
—— Handspikes, *viz.*		
..... under 7 feet in length,		
..... imported in a British-built ship, the 120 - - -	2 7 6	—
..... imported in a ship not British-built, the 120 - - -	2 9 1	—
..... 7 Feet in length or upwards,		
..... imported in a British-built ship, the 120 - - -	4 15 0	—
..... imported in a ship not British-built, the 120 - - -	4 18 2	—
..... of the growth and production of the British colonies or plantations in America, and imported directly from thence,		
..... under 7 feet in length, the 120 -	0 2 3	—
..... 7 Feet in length, or upwards, the 120	0 6	—
—— Knees of Oak, *viz.*		
..... under 5 inches square,		
..... imported in a British-built ship, the 120 - - -	0 12 0	—
..... imported in a ship not British-built, the 120 - - -	0 12 8	—
..... 5 inches square, and under 8 inches square,		
..... imported in a British-built ship, the 120 - - -	4 17 6	—
..... imported in a ship not British-built, the 120 - - -	5 1 6	—
.... 8 inches square or upwards,		
..... imported in a British-built ship, the load containing 50 cubic feet -	1 11 0	—
..... imported in a ship not British-built, the load containing 50 cubic feet -	1 13 4	—
.. .. of the growth and production of the British colonies or plantations in America, and imported directly from thence,		

TABLE (A.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Wood, Knees of Oak—*continued.*						
..... under 8 inches square, the 120 -	0	8	4	—		
..... 8 inches square or upwards, the load containing 50 cubic feet -	0	5	6	—		
——— Lathwood, *viz.*						
..... in pieces under 5 feet in length, the fathom 6 feet wide and 6 feet high,						
..... imported in a British-built ship -	4	17	6	—		
..... imported in a ship not British-built,	5	1	6	—		
..... in pieces 5 feet in length or upwards, the fathom, 6 feet wide, and 6 feet high,						
..... imported in a British-built ship -	7	5	0	—		
..... imported in a ship not British-built -	7	8	0	—		
..... of the growth and production of the British colonies or plantations in America, and imported directly from thence in pieces of all sorts, the fathom 6 feet wide and 6 feet high. -	0	6	0	—		
——— Lignum Rhodium, the cwt. - - -	1	0	0	—		
——— Lignum Vitæ of the growth and production of the British colonies, plantations, or settlements in America, or of the west coast of Africa, and imported directly from thence respectively, the ton containing 20 cwt. - -	0	11	2	—		
..... of the growth and production of any other country or place, or if otherwise imported, the ton containing 20 cwt. - - -	4	12	8	—		
——— Logwood, the ton containing 20 cwt. - -	0	9	2	—		
——— Mahogany of the growth of Bermuda, or of any of the Bahama Islands, and imported directly from thence respectively; and Mahogany imported directly from the Bay of Honduras in British-built ships cleared out from the port of Belise, the ton containing 20 cwt. - - - - -	3	16	0	—		
..... imported not directly from Bermuda, or from any of the Bahama islands, or imported not directly from the Bay of Honduras; or any Mahogany being of the growth of any other country or place, the ton containing 20 cwt. - - - -	11	17	6	—		
——— Masts, Yards, or Bowsprits, *viz.*						
..... 6 inches in diameter, and under 8 inches,						
..... imported in a British-built ship, each	0	9	6	—		
..... imported in a ship not British-built, each - - - -	0	11	0	—		
..... 8 inches in diameter, and under 12 inches,						
..... imported in a British-built ship, each	1	6	2	—		
..... imported in a ship not British-built, each - - - -	1	7	9	—		
..... 12 inches in diameter, or upwards,						
..... imported in a British-built ship, the load containing 50 cubic feet - -	3	5	0	—		
..... imported in a ship not British-built the load containing 50 cubic feet -	3	8	0	—		
..... of the growth and production of the British colonies or plantations in America, and imported directly from thence,						
..... 6 inches in diameter and under 8 inches, each - -	0	3	2	—		
..... 8 inches in diameter and under 12 inches, each - -	0	8	4	—		

TABLE (A.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Wood, Masts, Yards, or Bowsprits, &c.—*continued.*						
..... 12 inches in diameter or upwards, the load containing 50 cubic feet -	1	10	6	—		
For the conditions, regulations, and restrictions under which Masts, Yards, and Bowsprits fit for naval purposes, of the growth or produce of any British colony or plantation in North America, may be imported from thence Duty free, see 46 Geo. 3. c. 117. continued by subsequent acts, and by the 55 Geo. 3. c. 86. further continued until the 25th March 1820.						
——— Nicaragua Wood, the ton containing 20 cwt. -	1	6	2	—		
——— Oak Plank, *viz.*						
..... 2 inches in thickness, or upwards,						
..... imported in a British-built ship, the load containing 50 cubic feet -	5	16	6	—		
..... imported in a ship not British-built, the load containing 50 cubic feet -	6	0	6	—		
..... of all sorts, of the growth and production of the British colonies or plantations in America, and imported directly from thence, the 120. - -	0	8	4	—		
——— Oak Timber. See Timber.						
——— Oars, *viz.*						
..... imported in a British-built ship, the 120 -	14	19	3	—		
..... imported in a ship not British-built, the 120 -	15	8	9	—		
..... of the growth and production of the British colonies or plantations in America, and imported directly from thence, the 120 - -	0	19	6	—		
——— Olive Wood, of the growth and production of the British colonies, plantations, or settlements in America, or of the west coast of Africa, and imported directly from thence respectively, the ton containing 20 cwt. - -	0	12	4	—		
..... of the growth and production of any other country or place, or if otherwise imported, the ton containing 20 cwt. - -	8	9	6	—		
——— Red or Guinea Wood, the ton containing 20 cwt. -	0	15	0	—		
——— Rose Wood, the cwt. - - -	1	0	0	—		
——— Round Wood, *viz.*						
..... in pieces under 8 inches square, and under 6 feet in length,						
..... imported in a British-built ship, the 120 - -	2	4	9	—		
..... imported in a ship not British-built, the 120 - - -	2	6	4	—		
..... in pieces under 8 inches square, and if 6 feet in length or upwards,						
..... imported in a British-built ship, the 120 - -	4	9	6	—		
..... imported in a ship not British-built, the 120 - -	4	12	8	—		
..... of the growth and production of the British colonies or plantations in America, and imported directly from thence in pieces of all sorts under 8 inches square, the 120 - - -	0	3	2	—		
——— Santa Maria Wood, for every 100*l.* of the value -	20	0	0	—		
For the conditions and regulations under which Santa Maria Wood, fit for naval purposes, imported from the Bay of Honduras, may be admitted to entry duty free, until the 25th of						

TABLE (A.)—INWARDS.	Duty. £. s. d.	Drawback. £. s. d.
Wood, Santa Maria Wood—*continued.* March, 1820. See the Act to which this Table is annexed.		
—— Spars, *viz.*		
..... under 22 feet in length, and under 4 inches in diameter, exclusive of the bark,		
..... imported in a British-built ship, the 120 -	2 16 3	—
..... imported in a ship not British-built, the 120	2 19 6	—
..... 22 feet in length or upwards, and under 4 inches in diameter, exclusive of the bark,		
..... imported in a British-built ship, the 120 -	4 17 6	—
..... imported in a ship not British-built, the 120 - - -	5 1 6	—
..... 4 inches in diameter, and under 6 inches in diameter, exclusive of the bark,		
..... imported in a British-built ship, the 120 -	10 11 6	—
..... imported in a ship not British-built, the 120 - - -	10 19 4	—
..... of the growth and production of the British colonies or plantations in America, and imported directly from thence, of all sorts under 6 inches in diameter, exclusive of the bark, the 120 - -	0 16 3	—
—— Speckled Wood of the growth and production of the British colonies, plantations, or settlements in America, or of the west coast of Africa, and imported directly from thence respectively, the ton containing 20 cwt. -	0 16 3	—
... . of the growth and production of any other country or place, or if otherwise imported, the ton containing 20 cwt. - -	8 14 2	—
—— Spokes for Wheels, *viz.*		
..... not exceeding 2 feet in length,		
..... imported in a British-built ship, the 1000 - - -	3 7 4	—
..... imported in a ship not British-built, the 1000 - - -	3 10 1	—
..... exceeding 2 feet in length,		
..... imported in a British-built ship, the 1000 - - -	6 14 8	—
..... imported in a ship not British-built, the 1000 - - -	7 0 2	—
..... of all sorts, of the growth and production of the British colonies or plantations in America, and imported directly from thence, the 1000 - - -	0 6 4	—
—— Staves, *viz.*		
..... not exceeding 36 inches in length, not above 3 inches in thickness, and not exceeding 7 inches in breadth,		
..... imported in a British-built ship, the 120 -	1 6 2	—
..... imported in a ship not British-built, the 120 - - -	1 7 0	—
..... above 36 inches in length, and not exceeding 50 inches in length, not above 3 inches in thickness, and not exceeding 7 inches in breadth,		
..... imported in a British-built ship, the 120	2 9 2	—
..... imported in a ship not British-built, the 120 - - -	2 10 9	—
..... above 50 inches in length, and not exceeding 60 inches in length, not above 3 inches in thickness, and not exceeding 7 inches in breadth,		

TABLE (A.) — INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Wood, Staves — *continued.*						
..... imported in a British-built ship, the 120	3	5	0	—		
..... imported in a ship not British-built, the 120 - - -	3	7	4	—		
..... above 60 inches in length, and not exceeding 72 inches in length, not above 3 inches in thickness, and not exceeding 7 inches in breadth,						
..... imported in a British-built ship, the 120	4	15	10	—		
..... imported in a ship not British-built, the 120 - - -	4	18	2	—		
..... above 72 inches in length, not above 3 inches in thickness, and not exceeding 7 inches in breadth,						
..... imported in a British-built ship, the 120	5	8	6	—		
..... imported in a ship not British-built, the 120 - - -	5	14	0	—		
..... Staves being the growth and production of any of the United States of America, or of the growth and production of East or West Florida, and imported directly from thence respectively, not exceeding 1½ inch in thickness, shall be charged with one-third part only of the duties hereinbefore imposed on Staves,						
..... above 3 inches in thickness, or above 7 inches in breadth, and not exceeding 5 feet 3 inches in length, shall be deemed Clap Boards, and pay duty accordingly.						
..... above 3 inches in thickness, or above 7 inches in breadth, and exceeding 5 feet 3 inches in length, shall be deemed Pipe Boards, and pay duty accordingly.						
..... Staves of the growth and production of the British colonies or plantations in America, and imported directly from thence, of all sorts not exceeding 50 inches in length, the 120	0	1	3	—		
..... of all sorts exceeding 50 inches in length, the 120 - -	0	2	6	—		
——— Sweetwood, *viz.*						
..... of the growth and production of the British colonies, plantations, or settlements in America, or of the west coast of Africa, and imported directly from thence respectively, the ton containing 20 cwt.	0	16	3	—		
..... of the growth and production of any other country or place, or if otherwise imported, the ton containing 20 cwt. -	10	13	0	—		
——— Teake Wood, the load containing 50 cubic feet -	1	10	0	—		
For the conditions and regulations under which Teake Wood, of the growth and production of any British colony, plantation, territory, or possession in Africa, fit for naval purposes, may be admitted to entry, without payment of duty, until the 25th March 1820, see the Act to which this Table is annexed.						
——— Timber, *viz.*						
..... Fir Timber, of the growth of Norway, and imported directly from thence, 8 inches square, and not exceeding 10 inches square,						

TABLE (A.) — INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Wood, Timber, *viz.* Fir Timber — *continued.*						
..... in a British-built ship, the load containing 50 cubic feet - -	3	5	0		—	
..... in a ship not British-built, the load containing 50 cubic feet - -	3	8	0		—	
A drawback is allowed on Fir Timber, being 8 inches square and not exceeding 10 inches square, of the growth of Norway, and imported directly from thence, which shall have been used or employed in any of the mines of tin, lead, or copper, in the counties of Devon and Cornwall,						
..... having been imported in a British-built ship, the load containing 50 cubic feet - -	-		-	2	13	6
..... having been imported in a ship not British-built, the load containing 50 cubic feet - -	-	-	-	2	16	3
For the conditions and regulations under which the drawback shall be paid or allowed on such timber so used and employed, see 51 Geo. 3. c. 43. 51 Geo. 3. c. 93. and 53 Geo. 3. c. 105.						
..... Fir Timber, of the growth of Norway, and imported directly from thence, exceeding 10 inches square,						
..... in a British-built ship, the load containing 50 cubic feet - -	3	5	0		—	
..... in a ship not British-built, the load containing 50 cubic feet - -	3	8	0		—	
..... not otherwise charged with duty, 8 inches square or upwards,						
..... imported in a British-built ship, the load containing 50 cubic feet -	3	5	0		—	
..... imported in a ship not British-built, the load containing 50 cubic feet	3	8	0		—	
..... Fir Timber of the growth and production of the British colonies or plantations in America, and imported directly from thence, 8 inches square or upwards, the load containing 50 cubic feet	0	2	6		—	
..... Oak Timber, 8 inches square or upwards,						
..... imported in a British-built ship, the load containing 50 cubic feet -	3	1	9		—	
..... imported in a ship not British-built, the load containing 50 cubic feet -	3	5	0		—	
..... of the growth and production of the British colonies or plantations in America, and imported directly from thence, 8 inches square or upwards, the load containing 50 cubic feet	0	5	6		—	
..... Timber of all sorts not particularly enumerated or described, nor otherwise charged with duty, being 8 inches square or upwards,						
..... imported in a British-built ship, the load containing 50 cubic feet -	1	12	6		—	

TABLE (A.)—INWARDS.	Duty.			Drawback.		
	£.	s.	d.	£.	s.	d.
Wood, Timber—*continued.*						
..... imported in a ship not British-built, the load containing 50 cubic feet -	1	14	0	—		
..... Timber of all sorts not particularly enumerated or described, nor otherwise charged with duty, of the growth and production of the British colonies or plantations in America, and imported directly from thence, being 8 inches square or upwards, the load containing 50 cubic feet - - -	0	2	6	—		
For the conditions, regulations, and restrictions under which Timber fit for naval purposes, of the growth and produce of any British colony or plantation in North America, may be imported from thence duty free, see 46 Geo. 3. c. 117. continued by subsequent Acts, and by 55 Geo. 3. c. 86. further continued until the 25th March 1820.						
The duty on Timber being the produce of, and imported directly from the island of Newfoundland, is suspended until the 5th July 1824. See the Act to which this Table is annexed.						
—— Ufers, *viz.*						
..... under 5 inches square, and under 24 feet in length,						
..... imported in a British-built ship, the 120 - - -	18	2	7	—		
..... imported in a ship not British-built, the 120 - - -	18	9	0	—		
..... all Ufers being 5 inches square or upwards, are subject and liable to the duties payable on Fir Timber. See Fir Timber.						
..... of all sorts under 8 inches square, of the growth and production of the British colonies or plantations in America, and imported directly from thence, the 120 - - - -	0	16	3	—		
—— Wainscot Logs, *viz.*						
..... being 8 inches square or upwards,						
..... imported in a British-built ship, the load containing 50 cubic feet -	4	9	6	—		
..... imported in a ship not British-built, the load containing 50 cubic feet -	4	12	8	—		
..... of the growth and production of the British colonies or plantations in America, and imported directly from thence, being 8 inches square or upwards, the load containing 50 cubic feet - -	0	5	6	—		
—— Yards. See Masts.						
—— Wood unmanufactured, of the growth and production of the British colonies or plantations in America, not particularly enumerated or described, nor otherwise charged with duty, for every 100*l.* of the value	5	16	9	—		
—— Wood unmanufactured, not particularly enumerated or described, and on which the duties due on the importation are payable, according to the value thereof, being of the growth and production of the British limits within the province of Yucatan in the						

TABLE (A.) — INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Wood — *continued.*						
Bay of Honduras, and imported directly from the said Bay, for every 100*l.* of the value -	5	16	9	—		
—— Wood unmanufactured, not particularly enumerated or described, nor otherwise charged with duty, for every 100*l.* of the value,						
..... imported in a British-built ship - -	20	0	0	—		
..... imported in a ship not British-built -	21	0	0	—		
Wooden Clocks. See Clocks.						
Wool, *viz.*						
—— Beaver Wool, the lb. - - - -	0	1	7	—		
..... cut and combed, the lb. - -	0	4	9	—		
—— Carmenia Wool. See Goat Hair, in Hair.						
—— Coney Wool, the lb. - - -	0	0	6	—		
—— Cotton Wool, or Waste of Cotton Wool, *viz.*						
..... the produce of any British colony or plantation in America, and imported directly from thence, on or before the 5th July 1822, the 100 lbs.	0	6	3	—		
..... the produce of any British colony or plantation in America, not being imported directly from thence; and Cotton Wool or Waste of Cotton Wool, the produce of any other country or place,						
..... until the 5th January 1820 inclusive,						
..... if imported in a British-built ship, the 100 lbs. - -	0	8	7	—		
..... if imported in a ship not British-built, the 100 lbs. - -	0	17	2	—		
..... from and after the 5th January 1820,						
..... if imported in a British-built ship, for every 100*l.* of the value -	6	0	0	—		
..... if imported in a ship not British-built, for every 100*l.* of the value - -	12	0	0	—		
The above duties on cotton wool, or waste of cotton wool, payable according to the value thereof, shall be charged and payable on all such cotton wool, or waste of cotton wool, the duties on which shall not have been fully paid on or before the 5th January 1820. See the Act to which this Table is annexed.						
—— Goat's Wool. See Goat Hair, in Hair.						
—— Hare's Wool, the cwt. - - - -	1	1	10	—		
—— Lamb's Wool. See Sheep's Wool.						
—— Ostrich Wool, the lb. - - -	0	0	6	—		
—— Polonia Wool, the lb. - - -	0	0	6			
—— Red Wool, the lb. - - - -	0	0	6			
—— Sheep or Lamb's Wool, *viz.*						
..... the produce of any foreign country in Europe,						
..... until the 10th October 1819, inclusive, the lb. - - -	0	0	1	—		
..... from and after the 10th October 1819, the lb. - - -	0	0	6	—		
..... the produce of any other foreign country,						
..... until the 5th January 1820, inclusive, the lb. - - -	0	0	1	—		
..... from and after the 5th January 1820, the lb. - - -	0	0	6	—		

TABLE (A.) — INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Wool, Sheep or Lamb's Wool — *continued.*						
..... the produce of, and imported directly from, any British colony or territory,						
..... until the 5th January, 1823, inclusive, the lb. - - -	0	0	1	—		
..... from the 5th January, 1823, until the 5th January, 1826, inclusive, the lb.	0	0	3	—		
..... from and after the 5th January, 1826, the lb. - - -	0	0	6	—		
—— Spanish Wool, the lb. - - -	0	0	6	—		
—— Turkey Goat's Wool. See Goat Hair, in Hair.						
—— All articles made of or mixed with wool, not particularly enumerated or described, nor otherwise charged with duty, for every 100*l.* of the value -	50	0	0	—		
Woollen Stuffs. See Stuffs.						
—— Yarn. See Yarn.						
Worm Seed. See Seed.						
Worsted Caps. See Caps.						
—— Stockings. See Stockings.						
—— Tapes. See Tapes.						
—— Yarns. See Yarn.						
Wreck. See Derelict.						
Y.						
Yards. See Masts, in Wood.						
Yarn, *viz.*						
—— Cable Yarn, the cwt. - - -	1	1	6	—		
—— Camel or Mohair Yarn, the lb. - -	0	1	7	—		
—— Cotton Yarn, the lb. - - -	0	1	3	—		
—— Cotton Yarn of the manufacture of the Isle of Man. See Man, Isle of.						
—— Grogram Yarn, the lb. - - -	0	1	7	—		
—— Raw Linen Yarn,						
..... imported in a British-built ship, the cwt. -	0	1	0	—		
..... imported in a ship not British-built, the cwt. - - -	1	0	0	—		
—— Wick Yarn, the cwt. - - -	4	8	8	—		
—— Worsted Yarn, being of two or more threads, twisted or thrown, the lb. - - -	0	1	7	—		
—— Yarn of any other sort, not particularly enumerated or described, nor otherwise charged with duty, for every 100*l.* of the value - - -	50	0	0	—		
Yellow Berries. See Berries.						
Z.						
Zaffre, for every 100*l.* of the value - -	20	0	0	—		
Zedoaria, imported directly from the place of its growth, the lb. - - -	0	1	3	0	0	10
——— imported not directly from the place of its growth, the lb. - - -	0	1	10	0	1	3
Goods, Wares, and Merchandise, being either in part or wholly manufactured, and not being enumerated or described, nor otherwise charged with duty, and not prohibited to be imported into nor used in Great Britain, for every 100*l.* of the value -	50	0	0	—		
Goods, Wares, and Merchandise, not being either in part or wholly manufactured, and not being enumerated or described, nor otherwise charged with duty, and not prohibited to be imported into nor used in Great Britain, for every 100*l.* of the value -	20	0	0	—		

TABLE (B.)

A TABLE of the DUTIES of CUSTOMS payable on Goods, Wares, and Merchandise, being of the Growth, Produce, or Manufacture of any Place within the Limits of the Charter granted to the United Company of Merchants of England trading to the East Indies IMPORTED into Great Britain; and on Goods, Wares, and Merchandise IMPORTED into Great Britain from His Majesty's Settlement of the Cape of Good Hope, and the Territories and Dependencies thereof; and of the Drawbacks to be allowed on the Exportation of such Goods, Wares, and Merchandise.

TABLE (B.)—INWARDS.	Duty.			Drawback.		
A.	£.	s.	d.	£.	s.	d.
Acorus, the lb. - - - -	0	0	10	0	0	6
Agates, *viz.*						
——— polished or otherwise manufactured, for every 100*l.* of the value - - -	60	0	0	—		
——— rough or unmanufactured, for every 100*l.* of the value - - -	20	0	0	—		
Alkali, *viz.*						
——— any article containing Soda or Mineral Alkali, whereof Mineral Alkali is the most valuable part (such alkali not being otherwise particularly charged with duty),						
..... if not containing a greater proportion of such alkali than 20 per centum,						
..... imported in a British-built ship, the cwt. - - -	0	11	4	0	5	8
..... imported in a ship not British-built, the cwt. - -	0	12	0	0	5	8
..... if containing more than 20 per centum, and not exceeding 25 per centum of such alkali,						
..... imported in a British-built ship, the cwt. - -	0	15	0	0	7	6
..... imported in a ship not British-built, the cwt. - -	0	15	8	0	7	6
..... if containing more than 25 per centum, and not exceeding 30 per centum of such alkali,						
..... imported in a British-built ship, the cwt. - - -	0	18	4	0	9	2
..... imported in a ship not British-built, the cwt. - -	0	19	0	0	9	2
..... if containing more than 30 per centum, and not exceeding 40 per centum of such alkali,						
..... imported in a British-built ship, the cwt. - -	1	3	4	0	11	8
..... imported in a ship not British-built, the cwt. - -	1	4	0	0	11	8
..... if containing more than 40 per centum of such alkali,						
..... imported in a British-built ship, the cwt. -	1	10	0	0	15	0
..... imported in a ship not British-built, the cwt. - -	1	10	8	0	15	0
Alkermes, Confection of, the oz. - -	0	1	8	—		
Almonds, *viz.*						
——— Bitter, the cwt. - - -	0	15	10	0	14	0
——— of any other sort, the cwt. - -	2	7	6	2	2	0
Aloes, *viz.*						
—— Socotorina, the lb. - - - -	0	2	6	0	1	8
—— of any other sort, the lb. - -	0	0	9	0	0	6

TABLE (B.)—INWARDS.	Duty. £. s. d.	Drawback. £. s. d.
Alum, the cwt.	0 17 6	—
—— Roch Alum, the cwt.	0 11 8	—
Amber, *viz.*		
—— Beads or other manufactures of Amber, the lb.	0 12 0	—
—— Rough, the lb.	0 1 8	0 1 1
Ambergris, the oz.	0 5 0	—
Ammoniac Gum. See Gum Ammoniac.		
—— Sal. See Sal Ammoniac.		
Anacardium, the lb.	0 2 0	0 1 4
Anime Gum. See Gum.		
Aniseed. See Seed.		
—— Oil of. See Oil.		
Annotto or Rocou, *viz.*		
—— Flag, the lb.	0 0 5	—
—— Roll or any other sort, not otherwise enumerated or described, the lb.	0 1 0	—
Aquafortis, the cwt.	0 14 3	—
Arabic Gum. See Gum.		
Arangoes or Arango Beads, for every 100*l.* of the value	31 5 0	—
Arrack. See Spirits.		
Arrow Root or Powder, the lb.	0 0 2	—
Arsenic, *viz.*		
—— White, the cwt.	0 14 3	—
—— of any other sort, the cwt.	0 18 8	—
Asafœtida, the lb.	0 0 10	0 0 6
Attar of Roses. See Otto of Roses.		
Auripigmentum. See Orpiment.		
B.		
Balsam, *viz.* Artificial or Natural, the lb.	0 4 6	—
Bamboo Canes. See Canes.		
Barilla. See Alkali.		
Bark, *viz.*		
—— Angustura Bark, the lb.	0 2 0	0 1 4
—— Clove Bark, the lb.	0 0 10	0 0 6
—— Jesuits' Bark. See Peruvian Bark.		
—— Peruvian or Jesuits' Bark, the lb.	0 2 0	0 1 4
—— Bark not otherwise enumerated or described,		
..... if for medicinal use, the lb.	0 2 0	—
..... if not for medicinal use, for every 100*l.* of the value	20 0 0	—
Bdellium, the lb.	0 1 8	0 1 1
Beads, *viz.*		
—— Amber Beads. See Amber.		
—— Arango Beads. See Arangoes.		
—— Coral Beads, the lb.	0 15 10	—
—— Crystal Beads, the 1000	1 5 6	—
—— Beads, not otherwise enumerated or described, for every 100*l.* of the value	50 0 0	—
Bees Wax. See Wax.		
Benjamin or Benzoin, the lb.	0 2 0	0 1 4
Bezoar Stones, the oz.	0 2 6	—
Bones of Cattle, and other Animals, and of Fish, except Whale Fins, for every 100*l.* of the value	1 0 0	—
Books Printed, or Manuscripts, *viz.*		
—————— Half-bound, or in any way Bound, the cwt.	6 10 0	—
—————— Unbound, the cwt.	5 0 0	—
Borax or Tincal, *viz.*		
—— refined, the lb.	0 1 8	—
—— unrefined, the lb.	0 0 8	—
* Drawback on the exportation of Borax or Tincal refined in Great Britain from a larger quantity imported unrefined, the lb.	—	*0 0 8

TABLE (B.) INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Borax — *continued.* For the conditions under which such drawback can only be allowed, see 17 Geo. 2. c. 31.						
Bottles, *viz.*						
——— of Earth or Stone, the dozen - -	0	3	0		—	
Bottles of Stone are subject also to a Duty of Excise.						
——— of Glass covered with Wicker, the dozen quarts -	1	2	0		—	
——— of Green or Common Glass, full or empty, not of less content than one pint, and not being phials, the dozen quarts - - - - -	0	8	0		—	
Subject also to a Duty of Excise.						
——— of Glass, not otherwise enumerated or described, for every 100*l.* of the value - - -	80	0	0		—	
Note. — Flasks in which Wine or Oil is imported are not subject to duty.						
Brandy. See Spirits.						
Bullion and Foreign Coin of Gold or Silver, Duty-free.						
C.						
Cajaputa, Oil of. See Oil.						
Cake Lac. See Lac, in Gum.						
Calaminaris Lapis. See Lapis.						
Calamus Aromaticus, the ℔. - - -	0	0	10	0	0	6
Calicoes, *viz.*						
——— Plain White Calicoes, for every 100*l.* of the value -	67	10	0		—	
* Drawback to be allowed on the exportation of such of the said Calicoes which shall have been printed, painted, stained, or dyed in Great Britain, for every 100*l.* of the value -	-		-	*45	0	0
——— White, flowered, or stitched, for every 100*l.* of the value - - - -	37	10	0		—	
Calves' Skins. See Skins.						
Cambogium. See Gamboge.						
Camels' Hair. See Hair.						
Camphor, *viz.*						
——— refined, the ℔. - - -	0	2	6		—	
——— unrefined, the ℔. - - -	0	1	3		—	
* Drawback on the exportation of Camphor refined in Great Britain from a larger quantity imported unrefined, the ℔. - -	-		-	*0	1	3
For the conditions under which such drawback can only be allowed, see 17 Geo. 2. c. 31.						
Candles of Wax, the ℔. - - - -	0	2	6		—	
Canes, *viz.*						
—— Bamboo, the 1000 - - -	1	14	0		—	
—— Rattans, (not ground Rattans), the 1000 - -	1	0	0		—	
—— Reed Canes, the 1000 - - -	1	6	6		—	
—— Walking Canes or Sticks, mounted, painted, inlaid, or otherwise ornamented or manufactured, for every 100*l.* of the value - - -	50	0	0		—	
—— Wanghees, Jumboo, Ground Rattans, Dragon's Blood, and other walking Canes or Sticks, the 1000 -	4	0	0		—	
Cantharides, the ℔. - - - -	0	3	6	0	2	4
Caoutchouc or Elastic Gum, the ℔. - -	0	0	5		—	
Capita Papaverum, the 1000 - - -	0	3	6	0	2	4
Caps of Cotton, for every 100*l.* of the value - -	67	10	0		—	
Capsicum or Chillies. See Pepper.						
Cardamoms, the ℔. - - - -	0	2	0	0	1	4
Carmenia Wool. See Goat Hair, in Hair.						
Carmine, the oz. - - - -	0	4	0		—	
Carpets of Persia, the yard square - -	2	10	0		—	
Cashew Gum. See Gum.						
Cassia Buds, the ℔. - - - -	0	2	6		—	

TABLE (B.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Cassia—*continued.*						
—— Fistula, the lb. - - - -	0	0	10	0	0	6
—— Lignea, the lb, - - - -	0	2	6	—		
—— Oil of. See Oil.						
Castor, Oil of. See Oil.						
Castor Seed. See Seed.						
Casts of Busts, Statues, or Figures, the cwt. - -	0	2	6	—		
Catechu. See Terra Japonica.						
Cayenne Pepper. See Pepper.						
Charts. See Maps.						
Chemical Oil. See Oil.						
Chillies. See Capsicum, in Pepper.						
China Root, the lb. - - - -	0	1	3	0	0	10
China Ware or Porcelain, for every 100*l.* of the value -	75	0	0	—		
Cinnabaris Nativa, the lb. - - - -	0	2	0	0	1	4
Cinnamon, the lb. - - - -	0	2	6	0	2	3
—— Oil of. See Oil.						
Citrat of Lime, the lb. - - -	0	1	6	—		
Cloves, the lb. - - - -	0	2	0	0	1	9
—— Oil of. See Oil.						
Cocculus Indicus, the lb. - - -	0	2	6	—		
Cochineal, the lb. - - - -	0	0	10	—		
—— Dust, the lb. - - - -	0	0	2½	—		
Cocoa Nuts, for every 100*l.* of the value - -	20	0	0	—		
—— Oil of. See Oil.						
Cocoa Nuts, duty free.						
Cocoa Nuts are subject to a duty of Excise.						
Coffee, duty free.						
Coffee is subject to a duty of Excise.						
Coin, Foreign, of Gold or Silver. See Bullion.						
Colocynth. See Coloquintida.						
Coloquintida, or Colocynth, the lb. - - -	0	1	8	0	1	1
Colours for Painters. See Painters' Colours.						
Columbo Root, the lb. - - - -	0	2	0	0	1	4
Contrayervæ Radix. See Radix.						
Copal Gum. See Gum.						
Copper, *viz.*						
—— Ore, the cwt. - - - -	0	1	0	—		
—— Old, fit only to be re-manufactured, the cwt. -	0	9	2	—		
—— Unwrought, *viz.*						
..... Copper in Bricks or Pigs, Rose Copper, and all cast Copper, the cwt. - -	0	9	2	—		
..... Copper in Plates, and Copper Coin, the cwt. - - -	0	15	0	—		
—— Part wrought, *viz.* Bars, Rods, or Ingots, hammered or raised, the cwt. - - -	1	11	3	—		
—— Manufactures of Copper, not otherwise enumerated or described, Copper enamelled, and Copper Plates engraved, for every 100*l.* of the value -	50	0	0	—		
Coral, *viz.*						
—— Beads. See Beads.						
—— in Fragments, the lb. - - -	0	1	0	—		
—— whole polished, the lb. - - -	0	12	0	—		
..... unpolished, the lb. - - -	0	5	6	—		
Coriander Seed. See Seed.						
Cortex Caryophylloides. See Clove Bark, in Bark.						
—— Peruvianus, or Jesuits' Bark. See Peruvian Bark, in Bark.						
Costus, the lb. - - - -	0	1	0	0	0	8
Cotton, *viz.*						
—— Articles manufactured of Cotton Wool, or of any mixture thereof, not particularly enumerated or described, for every 100*l.* of the value -	67	10	0	—		
—— Thread. See Thread.						

TABLE (B.) — INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Cotton — *continued.*						
——— Wool. See Wool.						
——— Yarn. See Yarn.						
Couhage, the lb. - - - -	0	1	3	0	0	10
Cowries, for every 100*l.* of the value - -	31	5	0	—		
Crystal Beads. See Beads.						
Cubebs, the lb. - - - -	0	2	0	—		
Cummin Seed. See Seed.						
D.						
Diagrydium. See Scammony.						
Diamonds, duty free.						
Dimity, *viz.*						
——— Plain White Dimity, for every 100*l.* of the value -	67	10	0	—		
* Drawback to be allowed on the exportation of such of the said Dimity which shall have been printed, painted, stained, or dyed in Great Britain, for every 100*l.* of the value - -	-		-	*45	0	0
Dog Skins. See Skins.						
Drawings. See Prints.						
Drugs, on which specific duties are payable according to the quantity. See the several Articles in alphabetical course.						
——— not particularly enumerated or described, nor otherwise charged with duty, for every 100*l.* of the value	50	0	0	—		
E.						
Earthenware. See China Ware.						
Ebony. See Wood.						
Elastic Gum. See Caoutchouc.						
Elemi Gum. See Gum.						
Elephants' Teeth, *viz.*						
——— not exceeding the weight of 21 lbs. each Tooth, the cwt. - -	2	0	0	—		
——— exceeding the weight of 21 lbs. each Tooth, the cwt. - - -	4	0	0	—		
Elk Skins. See Skins.						
Emeralds. See Jewels.						
Extract, *viz.*						
——— Solid Vegetable Extract from Oak Bark, or other Vegetable Substances, to be used for the purpose of tanning leather, and for no other purpose whatever, the cwt. - - - -	0	3	0	—		
F.						
Feathers, *viz.*						
——— Ostrich Feathers, dressed, the lb. - -	2	15	6	—		
..... undressed, the lb. - -	1	0	0	—		
——— not otherwise enumerated or described,						
..... dressed, for every 100*l.* of the value -	50	0	0	—		
..... undressed, for every 100*l.* of the value -	20	0	0	—		
Fennel, Oil of. See Oil.						
Flax, rough or undressed, the cwt. - - -	0	0	5	—		
Flock Paper. See Paper.						
Floss Silk. See Waste Silk, in Silk.						
Forest Seed. See Seed.						
Fossils, Specimens of. See Specimens.						
Frankincense. See Olibanum.						
Furs. See Skins.						
G.						
Galangal, the lb. - - - -	0	0	6	0	0	4
Galbanum, the lb. - - - -	0	1	4	0	0	10
Galls, the cwt. - - -	0	11	2	—		

TABLE (B.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Gamboge, the lb.	0	1	8	0	1	1
Garden Seed. See Seed.						
Garnets, *viz.*						
—— Cut, the lb.	1	10	0	—		
—— Rough, the lb.	0	10	0	—		
Gem Sal. See Sal.						
Geneva. See Spirits.						
Ginger, the cwt.	1	3	0	1	0	0
—— Preserved, the lb.	0	3	2	—		
Ginseng, the lb.	0	1	6	0	1	0
Glass, *viz.*						
—— Bottles. See Bottles.						
—— Crown, German Sheet, or any kind of window glass, not being plate glass, the cwt.	4	18	0	—		
—— Flint Glass, the cwt.	6	3	0	—		
—— Plate glass, for every square foot superficial measure	0	6	7	—		
—— Glass manufactures not otherwise enumerated or described, for every 100*l.* of the value	80	0	0	—		
Glass is subject also to a duty of Excise.						
Goat Hair. See Hair.						
Gold Coin. See Bullion.						
—— Plate. See Plate.						
Granilla, the lb.	0	0	5	—		
Gum, *viz.*						
—— Ammoniac, the lb.	0	1	3	0	0	10
—— Anime, the lb.	0	1	8	0	1	1
—— Arabic, the cwt.	0	12	0	—		
—— Cashew, the cwt.	0	7	6	0	5	0
—— Copal, the lb.	0	1	8	0	1	1
—— Elemi, the lb.	0	0	8	0	0	5
—— Guaiacum, the lb.	0	1	10	0	1	2
—— Juniper. See Gum Sandarach.						
—— Kino, or Gum Rubrum Astringens, the lb.	0	1	6	0	1	0
—— Lac, *viz.*						
..... Cake Lac, the lb.	0	0	5	0	0	3
..... Lac Dye, the lb.	0	0	6	0	0	4
..... Lac Lake, the lb.	0	0	1	—		
..... Seed Lac, the lb.	0	0	6	0	0	4
..... Shell Lac, the lb.	0	0	8	0	0	5
..... Stick Lac, the cwt.	1	0	0	0	13	4
—— Opopanax, the lb.	0	3	6	0	2	4
—— Rubrum Astringens. See Gum Kino.						
—— Sagapenum, the lb.	0	0	10	0	0	6
—— Sandarach, or Juniper, the cwt.	0	19	0	0	12	8
—— Sarcocolla, the lb.	0	0	10	0	0	6
—— Senegal, the cwt.	0	12	0	—		
—— Tacamahaca, the lb.	0	2	0	0	1	4
—— Tragacanth, the lb.	0	1	0	0	0	8
—— Gum, not otherwise enumerated or described, for every 100*l.* of the value	50	0	0	—		
H.						
Hair, *viz.*						
—— Camels' Hair, the lb.	0	1	8	—		
—— Goat or Carmenia Wool, the lb.	0	0	6	—		
—— Human Hair, the lb.	0	5	0	—		
—— Articles manufactured of Hair, or any mixture thereof, not particularly enumerated or described, for every 100*l.* of the value	67	10	0	—		
Hemp, rough or undressed, or any other vegetable substance of the nature and quality of undressed hemp, and applicable to the same purposes, the ton containing 20 cwt.	0	8	0	—		

TABLE (B.) — INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Hides, *viz.*						
——— Buffalo, bull, cow, or ox hides in the hair, not tanned, tawed, or in any way dressed, the hide -	0	0	6	—		
..... tanned, and not otherwise dressed, the lb. -	0	1	0	—		
——— Horse, mare, or gelding in the hair, not tanned or in any way dressed, the hide - -	0	0	10	—		
..... tanned, and not otherwise dressed, the lb. -	0	1	0	—		
——— Hides, or pieces of hides, raw or undressed, not particularly enumerated or described, nor otherwise charged with duty, for every 100*l.* of the value - -	20	0	0	—		
——— Hides, or pieces of hides, tanned, tawed, or in any way dressed, not particularly enumerated or described, nor otherwise charged with duty, for every 100*l.* of the value - - - -	75	0	0	—		
Horns, Horn Tips, and pieces of Horns, not otherwise charged with duty, the cwt. - - -	0	5	0	—		
Horses, Mares, or Geldings, each - - -	6	13	0	—		
Human Hairs. See Hair.						
Husks of Silk. See Knubs, in Silk.						
Husse Skins. See Skins.						
I & J.						
Japanned Ware, for every 100*l.* of the value - -	62	10	0	—		
Jesuits' Bark. See Peruvian Bark, in Bark.						
Jewels, Emeralds, Rubies, and all other precious stones, (except diamonds,) not otherwise enumerated or described,						
——— not set, or in any way manufactured, for every 100*l.* of the value - - - -	20	0	0	—		
——— set, or in any way manufactured, for every 100*l.* of the value - - - -	50	0	0	—		
Indigo, the lb. - - -	0	0	5	—		
Iris Root. See Orrice.						
Juniper Gum. See Gum Sandarach.						
K.						
Kelp. See Alkali.						
Kino Gum. See Gum.						
Knubs of Silk. See Knubs, in Silk.						
L.						
Lac. See Gum.						
Lacquered Ware, for every 100*l.* of the value - -	62	10	0	—		
Lambs' Wool. See Sheep's Wool, in Wool.						
Lapis, *viz.*						
——— Calaminaris, the cwt. - - -	0	8	0	—		
——— Lazuli, the lb. - - - -	0	3	2	—		
——— Tutiæ, the lb. - - - -	0	0	8	—		
Lazuli Lapis. See Lapis.						
Lead, *viz.* White Lead, the cwt. - - -	0	10	4	—		
Leather, any article made of leather, or any manufacture whereof leather is the most valuable part, not otherwise enumerated or described, for every 100*l.* of the value - - -	75	0	0	—		
Leopard Skins. See Skins.						
Linseed, Oil of. See Oil.						
Long Pepper. See Pepper.						
M.						
Mace, the lb. - - - -	0	3	6	0	3	2
——— Oil of. See Oil.						
Madder or Munjeet, *viz.*						
——— Mull Madder, the cwt. - - -	0	2	0	—		

TABLE (B.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Madder—*continued.*						
——— Madder Root and all unmanufactured Madder or Munjeet, the cwt. - - -	0	5	0	—		
——— Madder or Munjeet, in any way manufactured, the cwt. - - -	0	15	0	—		
Mangoes, the gallon - - -	0	5	0	—		
Manna, the lb. - - - -	0	1	3	0	0	10
Maps and Charts, plain or coloured, each Map or Chart, or part thereof - - - -	0	2	0	—		
Martin Skins. See Skins.						
Mastick, the lb. - - - -	0	1	4	0	0	10
Medals, *viz.*						
——— of Gold or Silver, duty free.						
——— of any other sort, for every 100*l.* of the value -	20	0	0	—		
Melasses, the cwt. - - -	0	10	0	—		
Minerals, Specimens of. See Specimens.						
Mother of Pearl Shells, rough, for every 100*l.* of the value -	20	0	0	—		
Munjeet. See Madder.						
Musk, the oz. - - - -	0	5	0	0	3	4
Muslins, *viz.*						
——— Plain, for every 100*l.* of the value - -	37	10	0	—		
* Drawback to be allowed on the exportation of such of the said Muslins which shall have been printed, painted, stained, or dyed in Great Britain, for every 100*l.* of the value -	-	-	-	*20	0	0
——— flowered or stitched, for every 100*l.* of the value -	37	10	0	—		
Myrrh, the lb. - - - -	0	1	8	0	1	1
N.						
Nanquin Cloths, for every 100*l.* of the value - -	37	10	0	—		
* Drawback to be allowed on the exportation of such of the said Nanquin Cloths which shall have been printed, painted, stained, or dyed in Great Britain, for every 100*l.* of the value -	-	-	-	*20	0	0
Natron. See Alkali.						
Neroli Oil. See Oil of Orange Flower.						
Nutmegs, the lb. - - - -	0	2	6	0	2	3
——— Oil of. See Oil.						
Nux Vomica, the lb. - - -	0	2	6	—		
O.						
Oaker. See Ochre.						
Ochre or Oaker, the cwt. - - -	0	6	9	—		
Oil, *viz.*						
— of Aniseed, the lb. - - -	0	4	0	—		
— of Cajaputa, the oz. - - -	0	1	0	—		
— of Cassia, the oz. - - -	0	5	0	—		
— of Castor, the lb. - - -	0	1	3	—		
— Chemical Oil, not otherwise enumerated or described, the lb. - - - -	0	4	0	—		
— of Cinnamon the oz. - - -	0	5	0	—		
— of Cloves, the oz. - - -	0	2	0	—		
— of Cocoa Nuts, the cwt. - -	0	2	6	—		
— of Fennel, the lb. - - -	0	4	0	—		
— of Linseed, the tun containing 252 gallons -	33	5	0	—		
— of Mace, the oz. - - -	0	2	6	—		
— of Nutmegs, the oz. - - -	0	2	6	—		
— of Orange Flower or Neroli, the oz. - -	0	2	0	—		
— of Palm, the cwt. - - -	0	2	6	—		
— of Roses. See Otto of Roses.						
— of Rosewood, the oz. - - -	0	5	0	—		
— of Sandalwood, the oz. - - -	0	2	6	—		
— of Turpentine, the lb. - - -	0	0	8	—		

TABLE (B.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Oil—*continued.*						
— Oil, not otherwise enumerated or described, for every 100*l.* of the value	50	0	0	—		
Oker. See Ochre.						
Olibanum, the cwt.	2	7	6	1	11	8
Opium, the ℔.	0	9	0	0	6	0
Opopanax Gum. See Gum.						
Orange Flower, Oil of. See Oil.						
——— Water, the gallon	0	3	2	—		
Orchal, Orchelia, or Archelia, the cwt.	0	16	8	—		
Ore, *viz.*						
—— Copper. See Copper.						
—— Gold or Silver. See Bullion.						
—— Platina. See Platina.						
—— Ore, Specimens of. See Specimens.						
Orpiment, the cwt.	1	8	6	—		
Orrice or Iris Root, the cwt.	1	8	6	—		
Ostrich Feathers. See Feathers.						
Otto or Attar of Roses, or Oil of Roses, the oz.	0	6	0	—		
P.						
Painters' Colours, not otherwise enumerated or described, for every 100*l.* of the value	50	0	0	—		
Paintings on Glass, for every 100*l.* of the value	80	0	0	—		
Subject also to a duty of Excise.						
Paper, *viz.*						
—— Brown Paper made of old rope or cordage only, without separating or extracting the pitch or tar therefrom, and without any mixture of any other materials therewith, the ℔.	0	0	10	—		
—— printed, painted, or stained paper, or paper hangings, or flock paper, the yard square	0	1	7	—		
—— of any other sort, not particularly enumerated or described, nor otherwise charged with duty, the ℔.	0	1	7	—		
Pearls, for every 100*l.* of the value	5	0	0	—		
Pepper, duty free.						
Pepper is subject to a duty of Excise.						
——— Capsicum or Chillies, the ℔.	0	2	6	—		
——— Cayenne, the ℔.	0	2	6	—		
——— Long Pepper, the ℔.	0	2	0	—		
Pickles of all sorts, not otherwise enumerated or described, the gallon	0	5	0	—		
Pictures, *viz.*						
——— under 2 feet square, the picture	3	8	0	—		
——— of 2 feet square, and under 4 feet square, the picture	6	16	0	—		
——— of 4 feet square or upwards, the picture	10	4	0	—		
Plants, Shrubs, and Trees alive, duty free.						
Plate, *viz.*						
—— Battered, fit only to be re-manufactured. See Bullion.						
—— of Gold, the oz. troy	3	16	9	—		
—— of Silver gilt, the oz. troy	0	6	4	—		
..... part gilt, the oz. troy	0	6	0	—		
..... ungilt, the oz. troy	0	4	6	—		
Platina, the oz.	0	1	0	—		
——— Ore, for every 100*l.* of the value	5	0	0	—		
Porcelain. See China Ware.						
Precious Stones. See Jewels.						
Prints and Drawings, *viz.*						
—— Plain, not exceeding a foot square each	0	1	0	—		
..... exceeding a foot square each	0	2	0	—		
—— Coloured, not exceeding a foot square each	0	2	0	—		
..... exceeding a foot square each	0	4	0	—		
Q.						
Quicksilver, the ℔.	0	1	8	0	1	1

TABLE (B.) — INWARDS.	Duty.			Drawback.		
	£.	s.	d.	£.	s.	d.
R.						
Radix Contrayervæ, the ℔	0	1	8	0	1	1
Raisins of all sorts, the cwt.	0	10	0	0	9	0
Rattans. See Canes.						
Red Wood. See Wood.						
Reed Canes. See Canes.						
Rhubarb, the ℔	0	2	6	0	1	8
Rice, *viz.*						
—— the produce of any of the British territories in the East Indies,						
..... not being rough and in the husk, the cwt.	0	5	0	—		
..... if rough and in the husk, the cwt.	0	2	6	—		
—— the produce of any other country or place,						
..... not being rough and in the husk, the cwt.	0	15	0	—		
..... if rough and in the husk, the cwt.	0	10	0	—		
Roch Alum. See Alum.						
Rose Wood. See Wood.						
———— Oil of. See Oil.						
Rubies. See Jewels.						
Rum. See Spirits.						
S.						
Safflower, the cwt.	0	8	9	—		
Saffron, the ℔	0	7	6	0	5	0
Sagapenum Gum. See Gum.						
Sago, or Sago Powder, the ℔	0	0	8	—		
Sago Powder. See Sago.						
Sal, *viz.*						
— Ammoniac, the ℔	0	0	6	—		
— Gem, the cwt.	0	8	0	—		
Salep or Salop, the ℔	0	1	3	0	0	10
Salop. See Salep.						
Saltpetre, the cwt.	0	0	6	—		
Sandalwood, Oil of. See Oil.						
Sandarach Gum. See Gum.						
Sanguis Draconis, the ℔	0	1	8	0	1	1
Sarcocolla Gum. See Gum.						
Sassafras, the cwt.	0	6	4	—		
Saunders, *viz.*						
———— Red, the ton containing 20 cwt.	0	15	0	—		
———— White or Yellow, the ℔	0	0	10	—		
Scammony or Diagrydium, the ℔	0	6	4	0	4	2
Sea Cow, Sea Horse, or Sea Morse Teeth, the cwt.	3	4	0	—		
Seal Skins. See Skins.						
Seed, *viz.*						
—— Aniseed, the cwt.	3	0	0	—		
—— Castor Seed, the ℔	0	1	0	—		
—— Coriander Seed, the cwt.	0	15	0	—		
—— Cummin Seed, the cwt.	1	0	0	—		
—— Flax Seed, the bushel	0	0	5	—		
—— Forest Seed, for every 100*l.* of the value	25	0	0	—		
—— Garden Seed, not particularly enumerated or described, the ℔	0	1	0	—		
—— Linseed, the bushel	0	0	5	—		
—— Worm Seed, the ℔	0	1	6	0	1	0
—— Seed, not particularly enumerated or described, nor otherwise charged with duty, for every 100*l.* of the value	50	0	0	—		
Seed Lac. See Lac in Gum.						
Sena, the ℔	0	1	3	0	0	10
Senegal Gum. See Gum.						
Shawls, manufactured of hair or cotton wool, or any mixture thereof, for every 100*l.* of the value	67	10	0	—		
Sheep's Wool. See Wool.						

TABLE (B.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Shell Lac. See Lac in Gum.						
Shrubs. See Plants.						
Silk, *viz.*						
—— Knubs or Husks of Silk, the ℔. - -	0	3	9	0	1	6
—— Raw Silk, *viz.*						
..... the produce of any of the British territories in the East Indies, the ℔. - -	0	4	0	—		
..... the produce of any other part of the East Indies, the ℔. - - -	0	5	6	—		
* Drawback on the exportation of Silk thrown in Great Britain, from a larger quantity of silk imported raw, *viz.*						
..... if from Raw Silk the produce of any of the British territories in the East Indies, the ℔. - -	—			*0	4	0
..... if from Raw Silk the produce of any other part of the East Indies, the ℔.	—			*0	5	6
For the conditions under which such drawback can only be allowed, see the Act to which this Table is annexed.						
—— Thrown Silk, the ℔. - - -	0	14	8	0	6	2
—— Waste or Floss Silk, not otherwise enumerated or described, the ℔. - - -	0	3	9	0	1	6
Silver Coin, Foreign. See Bullion.						
—— Plate. See Plate.						
Skins, *viz.*						
—— Calves' Skins in the hair, not tanned, tawed, or in any way dressed, the dozen skins - -	0	2	0	—		
—— Dog Skins in the hair, not tanned, tawed, or in any way dressed, the dozen skins - -	0	0	10	—		
—— Elk Skins in the hair, not tanned, tawed, or in any way dressed, the skin - - -	0	1	0	—		
—— Goats' Skins, undressed, the dozen skins - -	0	2	10	—		
—— Husse Skins, undressed, the skin -	0	0	6	—		
—— Leopard Skins, undressed, the skin - -	0	9	6	—		
—— Martins' Skins, undressed, the skin - -	0	1	3	—		
—— Seal Skins in the hair, not tanned, tawed, or in any way dressed, the skin - -	0	0	3	—		
—— Squirrel Skins, undressed, the 100 skins - -	0	11	6	—		
—— Tyger Skins, undressed, the skin -	0	9	6	—		
—— Skins and Furs, or pieces of Skins and Furs, raw or undressed, not particularly enumerated or described, nor otherwise charged with duty, for every 100*l.* of the value - - - -	20	0	0	—		
—— Skins and Furs, or pieces of Skins and Furs, tanned, tawed, or in any way dressed, not particularly enumerated or described, nor otherwise charged with duty, for every 100*l.* of the value - -	75	0	0	—		
Snuff, duty free.						
Snuff is subject to a duty of Excise.						
Socotorina Aloes. See Aloes.						
Specimens of such Minerals, Fossils, or Ores, which are not particularly enumerated or described, nor otherwise charged with duty, each specimen not exceeding in weight 14lbs. the ℔. - -	0	0	2	—		
——— exceeding in weight 14lbs. each, for every 100*l.* of the value - - -	20	0	0	—		
Spikenard, the ℔. - - -	0	2	9	0	1	10
Spirits, *viz.*						
——— Arrack, or Spirits not otherwise enumerated or described, the gallon - -	0	2	1	—		
——— Brandy, the gallon - -	0	1	11	—		

TABLE (B.)—INWARDS.	Duty.			Drawback.		
	£.	s.	d.	£.	s.	d.
Spirits—*continued.*						
——— Geneva, the gallon	0	1	11		—	
——— Rum, the gallon	0	1	3		—	
——— the produce of the settlement of the Cape of Good Hope, its territories or dependencies, imported directly from thence, the gallon	0	1	3		—	
Spirits are subject also to a duty of excise.						
Squills dried, the cwt.	1	0	0		—	
——— not dried, the cwt.	0	5	0		—	
Squirrel Skins. See Skins.						
Stick Lac. See Lac, in Gum.						
Stockings of Cotton, for every 100*l.* of the value	67	10	0		—	
Storax or Styrax, *viz.*						
——— Calamita, the lb.	0	2	0	0	1	4
——— Liquida, the lb.	0	3	4	0	2	2
——— in the Tear or Gum, the lb.	0	8	4	0	5	6
Succades, the lb.	0	3	2		—	
Sugar, the cwt.	2	0	0		—	
For the conditions under which certain portions of the duty on Sugar may be suspended, according to the average price of Muscovado Sugar, as published in the London Gazette, when such price shall exceed the sum 60*s.* per cwt.; and also for the conditions under which 1*s.*, 2*s.*, or 3*s.* of the duty may be suspended, according to such average price of Muscovado Sugar, when such price shall be under 49*s.* per cwt, see the Abstract of the Act to which this Table is annexed.						
Sugar refined, the cwt.	8	8	0		—	
Note.—The duties on Sugar imported are to continue in force until the 25th March 1820. See the Abstract of the Act to which this Table is annexed.						
Sugar Candy, *viz.*						
——— Brown, the cwt.	5	12	0		—	
——— White, the cwt.	8	8	0		—	
T.						
Talc, the lb.	0	0	8		—	
Tamarinds, the lb.	0	0	8		—	
Tea, duty free.						
Tea is subject to a duty of excise.						
Teake Wood. See Wood.						
Terra Japonica or Catechu, the lb.	0	0	10		—	
Thread, *viz.* Cotton Thread, for every 100*l.* of the value	67	10	0		—	
Tin, the cwt.	5	9	3		—	
Tincal. See Borax.						
Tobacco, duty free.						
Tobacco is subject to a duty of excise.						
Tonnage Duty on Ships or Vessels entering inwards from foreign parts. See Table E.						
Tortoise Shell, *viz.*						
——— Manufactures of, for every 100*l.* of the value	50	0	0		—	
——— Rough, and unmanufactured, the lb.	0	4	0		—	
Tragacanth Gum. See Gum.						
Trees. See Plants.						
Turbith, the lb.	0	2	6	0	1	8
Turmerick, the lb.	0	0	8	0	0	5
Turpentine, Oil of. See Oil.						
Tutiæ Lapis. See Lapis.						
Tyger Skins. See Skins.						
V.						
Vermicelli, the lb.	0	0	8		—	
Vermilion, the lb.	0	2	0	0	1	4

TABLE (B.)—INWARDS.	Duty. £.	s.	d.	Drawback. £.	s.	d.
W.						
Walking Canes, ——— Sticks, Wanghee Canes, } See Canes.						
Waste, *viz.*						
—— Cotton Waste. See Cotton Wool, in Wool.						
—— Silk Waste. See in Silk.						
Wax, *viz.*						
—— Bees' Wax, unmanufactured, the cwt. - -	3	6	6		—	
..... White or manufactured, the cwt. -	6	3	6		—	
—— Candles. See Candles.						
Wine. For the duties and drawbacks thereon, see Wine in Table A. Inwards.						
Wood, *viz.*						
—— Bar Wood, the ton containing 20 cwt. - -	0	15	0		—	
—— Cam Wood, the ton containing 20 cwt. - -	0	15	0		—	
—— Ebony, the ton containing 20 cwt. - -	0	15	0		—	
—— Red Wood, the ton containing 20 cwt. - -	0	15	0		—	
—— Rose Wood, the cwt. - - -	1	0	0		—	
—— Teake Wood, or other Wood fit for ship-building, 8 inches square or upwards, the load containing 50 cubic feet - - - -	1	10	0		—	
For the conditions and regulations under which Teake or other Wood fit for ship-building, the growth or produce of any place or country within the limits of the charter granted to the United Company of Merchants of England trading to the East Indies, may be admitted to entry duty free, see the 54 Geo. 3. c. 66.						
—— Wood fit for ship-building. See Teake Wood.						
Wool, *viz.*						
—— Carmenia Wool. See Goat Hair, in Hair.						
—— Cotton Wool or Waste of Cotton Wool,						
..... until the 5th January 1820 inclusive, the 100 lbs.	0	8			—	
..... from and after the 5th January 1820, for every 100*l.* of the value - - -	6	0	0		—	
The above duty on Cotton Wool, or Waste of Cotton Wool, imposed according to the value thereof, shall be charged and payable on all such Cotton Wool or Waste of Cotton Wool on which the duty shall not have been fully paid on or before the 5th January 1820. See the Abstract of the Act to which this Table is annexed.						
—— Lamb's Wool. See Sheep's Wool.						
—— Sheep or Lamb's Wool, the lb. - -	0	0	6		—	
..... the produce of, and imported from, any British colony or territory,						
..... until the 5th January 1823, inclusive, the lb. - - -	0	0	1		—	
..... from the 5th January 1823, until the 5th January 1826, inclusive, the lb. -	0	0	3		—	
..... from and after the 5th January 1826, the lb. - - -	0	0	6		—	
Worm Seed. See Seed.						
Y.						
Yarn, *viz.* Cotton Yarn, the lb. - - -	0	1	3		—	
Z.						
Zedoaria, the lb. - - - -	0	1	3	0	0	10
Goods, Wares, and Merchandise, being either in part or wholly manufactured, not being enumerated or described, nor otherwise charged with duty, and not						

TABLE (B.)—INWARDS.	Duty.			Drawback.		
Goods — *continued.*	£.	s.	d.	£.	s.	d.
prohibited to be imported into nor used in Great Britain, for every 100*l.* of the value -	50	0	0	—		
Goods, Wares, and Merchandise, not being either in part or wholly manufactured, not being enumerated or described, nor otherwise charged with duty, and not prohibited to be imported into nor used in Great Britain, for every 100*l.* of the value -	20	0	0	—		
For the manner in which the value is to be ascertained of such Goods on which the duties are charged in this Table according to the value, see 27 Geo. 3. c. 13., 53 Geo. 3. c. 155., and 54 Geo. 3. c. 36.						
For the conditions, rules, and regulations under which the duty on such of the articles enumerated or described in this Table, as shall be imported by the East India Company, may be secured by bond, see 39 Geo. 3. c. 59., and 54 Geo. 3. c. 36. And for the conditions, rules, and regulations respecting the payment of the duty on such of the said articles as shall be imported by persons authorised to trade within the limits of the charter of the said company, see 54 Geo. 3. c. 36.						

TABLE (C.)

A TABLE of the DUTIES of CUSTOMS payable on Goods, Wares, and Merchandise exported from Great Britain.

TABLE (C.)—OUTWARDS.	Duty.		
	£.	s.	d.
FOREIGN GOODS.			
Linen plain of all sorts (except Sail Cloths) having been imported into Great Britain, and secured in warehouses according to law, without the full duties of customs having been paid thereon, and exported from any such warehouse for foreign parts, for every 100*l.* of the true and real value thereof - - - - - -	15	0	0
Tonnage duty on ships or vessels entering outwards for foreign parts. See Table E.			
GOODS OF THE PRODUCE OR MANUFACTURE OF GREAT BRITAIN.			
Cinders. See Coals.			
Coals and Cinders usually sold by measure, *viz.*			
——— exported to the Isle of Man, the chaldron Winchester measure -	0	1	6
——— exported to any British colony or plantation in America, the chaldron Winchester measure - - - -	0	2	6
——— exported to any of the territories of the United States of America, ... in a British-built ship, the chaldron Newcastle measure - - - -	0	17	0
..... in a ship not British-built, the chaldron Newcastle measure - - - -	1	10	3
Note. — Upon the exportation from any part of Great Britain of any Goods, Wares, or Merchandise, being the growth, production, or manufacture of the United Kingdom, or of any of his majesty's territories in Europe, direct to any of the territories of the United States of America, in any ship or vessel built in the countries belonging to the said States, or any of them, or taken by any of the			

TABLE (C.) — OUTWARDS.	Duty. £.	s.	d.
Coals and Cinders — *continued.*			
ships or vessels of war belonging to the government, or any of the inhabitants of the said States, having commissions or letters of marque and reprisal from the government of the said States, and condemned as lawful prize in any court of admiralty there, such ship or vessel being owned by the subjects of the said States, or any of them, and whereof the master and three-fourths of the mariners are also subjects of the said States, no higher or other duties shall be charged or paid, than such as are charged and payable upon Goods, Wares, and Merchandise of the like denomination or description, when exported in British-built ships or vessels navigated and registered according to law. — See 56 Geo. 3. c. 15., which Act is to continue in force so long as the convention between his majesty and the United States of America shall continue in force.			
—— exported to any other place,			
..... in a British-built ship, the chaldron Newcastle measure - - - -	1	2	0
..... in a ship not British-built, the chaldron Newcastle measure - - -	1	15	4
Coals exported in certain quantities from the ports of Newcastle and Swansey to the islands of Jersey, Guernsey, and Alderney, the chaldron Newcastle measure - - - -	0	12	0
For the conditions, regulations, and restrictions, under which Coals may be so exported, see 6 Geo. 3. c. 40.			
—— and Cinders usually sold by weight, *viz.*			
—— exported to the Isle of Man, the ton containing 20 cwt. -	0	1	0
—— exported to any British colony or plantation in America, the ton containing 20 cwt. - - - -	0	1	8
—— exported to any of the territories of the United States of America,			
..... in a British-built ship, the ton containing 20 cwt.	0	5	9
..... in a ship not British-built, the ton containing 20 cwt.	0	10	0
See Note on Coals usually sold by measure, exported to the United States of America.			
—— exported to any other place,			
..... in a British-built ship, the ton containing 20 cwt.	0	7	9
..... in a ship not British-built, the ton containing 20 cwt. - - - -	0	12	0
Coals, *viz.* Any Coals which shall have been screened through a riddle or screen, the bars of which not being in any part thereof more than three-eighth parts of an inch asunder, shall on exportation from any part of Great Britain, be subject and liable to such and the like duties, and no other, as are or may be charged and payable on Culm exported from Great Britain to foreign parts.			
For the rules, regulations, and conditions, under which such Coals can only be exported on payment of the duty on Culm, see 56 Geo. 3. c. 127.			
Culm, *viz.*			
—— exported to the Isle of Man, the chaldron Winchester measure -	0	0	6
—— exported to any British colony or plantation in America, the chaldron Winchester measure - - - -	0	1	0
—— exported to any of the territories of the United States of America,			
..... in a British-built ship, the chaldron Newcastle measure -	0	4	6
..... in a ship not British-built, the chaldron Newcastle measure	0	8	0
See Note on Coals usually sold by measure, exported to the United States of America.			
—— exported to any other place,			
..... in a British-built ship, the chaldron Newcastle measure -	0	6	0
..... in a ship not British-built, the chaldron Newcastle measure	0	10	0
Tonnage duty on ships or vessels entering outwards for foreign parts. See Table E.			
The following Duty is also payable on Goods of the growth, produce, or manufacture of Great Britain exported from thence, *viz.*			
Goods, Wares, and Merchandise, of the growth, produce, or manufacture			

TABLE (C.)—OUTWARDS.	Duty.
	£. s. d.
of Great Britain (except as hereinafter mentioned) exported to any port or place whatever, for every 100*l.* of the true and real value thereof -	0 10 0
For the conditions and regulations according to which the value of British Salt exported is to be ascertained, see 54 Geo. 3. c. 50.	
EXCEPT,	
Bullion.	
Corn, Grain, Meal, Malt, Flour, Biscuit, Bran, Grits, Pearl Barley and Scotch Barley, being the produce or manufacture of Great Britain.	
Cotton Yarn, or other Cotton Manufactures, being of the manufacture of Great Britain.	
Linen of the manufacture of any part of the United Kingdom.	
Melasses.	
Military Clothing, Accoutrements, or Appointments.	
For the conditions and regulations under which the Commissioners of his majesty's treasury may permit such articles to be exported and sent to any of his majesty's forces serving abroad, duty free, see 50 Geo. 3. c. 107.	
Sugar refined, of all sorts, and Sugar Candy.	
Goods, Wares, and Merchandise exported from Great Britain to the Isle of Man, by virtue and under the authority of any licence which the commissioners of his majesty's customs in England or Scotland, or any three or more of them, are or may be authorised and empowered to grant.	
Any sort of Craft, Food, Victuals, Clothing, or implements or materials necessary for the British Fisheries established in the island of Newfoundland, or in any of his majesty's colonies, islands, or plantations in North America, on due entry thereof, and exported from Great Britain to the said colonies, islands, or plantations.	
Woollen Goods of the manufacture of Great Britain exported to any port or place within the limits of the charter of the United Company of Merchants of England trading to the East Indies.	
Military Stores exported by the United Company of Merchants of England trading to the East Indies.	
Goods, Wares, and Merchandise, exported from Great Britain to the island of Newfoundland, until the 5th July 1824. See the Abstract of the Act to which this Table is annexed.	

TABLE (D.)

A TABLE of the DUTIES of CUSTOMS payable on Goods, Wares, and Merchandise, brought or carried coastwise from one port or place to any other port or place within Great Britain; and of the Drawbacks to be allowed on the Exportation thereof from Great Britain.

TABLE (D.)—COASTWISE.	Duty.	Drawback.
	£. s. d.	£. s. d.
Coals, Culm, and Cinders, *viz.*		
—— Coals (except charcoal made of wood) brought coastwise from any port or place in Great Britain, into the port of London, *viz.*		
..... in case they are such as are most usually sold by weight, the ton containing 20 cwt. -	0 7 6	0 4 0
..... in case they are such as are most usually sold by measure, the chaldron Winchester measure -	0 9 4	0 5 10
For the conditions, regulations, and restrictions under which a quantity of coals, culm, and cinders, not ex-		

TABLE (D.)—COASTWISE.	Duty. £. s. d.	Drawback. £. s. d.
Coals—*continued.*		
ceeding 50,000 tons in the whole, may be brought within one year, by the Grand Junction and Paddington Canals to London on payment of the following duty, see 45 Geo. 3. c. 128., *viz.*		
For every ton of Coals so brought - -	0 7 6	—
A further duty of 1*s.* 3*d.* per ton on Coals so brought is also payable to the proper officer of the customs, and at the end of every quarter is to be paid to the corporation of London, in lieu of the duty called Orphan's Duty, and of all other rates, dues, and duties, payable to that corporation upon Coals imported into the port of London.		
—— Coals brought down the river Thames nearer to London than the city's stone placed on the west side of Staines bridge, in the county of Middlesex, and on which the coast duties shall not have been paid, the ton -	0 10 0	—
A further duty of 1*s.* 3*d.* per ton on Coals so brought is also payable to the proper officer of the customs, and at the end of every quarter is to be paid to the corporation of London, in lieu of the duty called Orphan's Duty, and of all other rates, dues, and duties payable to that corporation upon Coals imported into the port of London.		
For the conditions, rules, and regulations under which Coals may be so brought, and such duties received, see 50 Geo. 3. c. 110.		
—— Coals laden on board any ship or vessel cleared coastwise at any port in England or Wales, and delivered in any part beyond the sea, before the duties due on the exportation thereof shall have been paid, the master of such ship or vessel shall not be permitted again to enter or clear the said ship or vessel coastwise, or for parts beyond the seas, before he shall have paid not only the export duties on the greatest quantity of coals which it shall appear the vessel is capable of containing, but also the further sum of 3*s.* for every such chaldron of coals, Winchester measure, to be applied and appropriated to the same uses with the respective duties payable on Coals exported.		
For the conditions, regulations, and restrictions, under which such duty of 3*s.* the chaldron may be returned, see 52 Geo. 3. c. 9.		
—— Coals shipped coastwise at any port in Scotland, and delivered in any part beyond the seas, before the duties due on the exportation thereof shall have been paid, the master of the vessel shall not be permitted again to enter or clear out at any port in Great Britain until he shall have paid not only the duties due on the exportation of such Coals, but in addition thereto for every chaldron thereof so entered coastwise, Winchester measure - - -	0 3 0	—
For the conditions, regulations, and restrictions under which the said duty of three shillings the chaldron shall be repaid, see 25 Geo. 3. c. 54.		
—— Coals (except charcoal made of wood) brought coastwise from any port in Great Britain into any other port in England or Wales (except the port of London, and also except coals brought or carried coastwise within the principality of Wales, until 1st August 1820) *viz.*		
..... in case they are such as are most usually sold by weight, the ton containing 20 cwt. - -	0 4 0	0 3 8

TABLE (D.) — COASTWISE.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Coals, &c. — *continued.*						
..... in case they are such as are most usually sold by measure, the chaldron Winchester measure.	0	6	0	0	5	6
—— Coals sent coastwise from the port of Newcastle-upon-Tyne to any other port in Great Britain, the chaldron Newcastle measure - - -	0	1	0	—		
For the conditions, regulations, and restrictions under which the duties on coals brought coastwise, or from any port or place to any other port or place within England may be secured by bond, see 27 Geo. 3. c. 32.						
For the conditions, regulations, and restrictions under which coals may be carried from Ellenfoot to Bank End in the county of Cumberland, or from any creek or place to any other creek or place between Ellenfoot and Bank End aforesaid, without payment of any duty of customs, see 8 Geo. 1. c. 14.						
—— Coals carried from any part of the Lancaster Canal, or any of the branches thereof, or from any part or place within the hundred of Lonsdale in the county of Lancaster into the Ulverstone Canal, across or along the bay or estuary separating the two canals, are not liable to any duty of customs.						
For the conditions, regulations, and restrictions under which coals may be carried on the Monmouthshire Canal, and afterwards carried or conveyed from any port or place to the eastward of the islands called the Holmes, to any other port or place in or upon the river Severn, also to the eastward of the said islands, without passing to the westward thereof, without payment of duty, see 37 Geo. 3. c. 100.						
And for the conditions, regulations, and restrictions under which coals may be carried or conveyed on the Monmouthshire Canal, or on any of the railways or tram-roads connected therewith, and afterwards carried to the port of Bridgwater only by a passage to the westward of the islands called the Holmes, notwithstanding the restrictions before mentioned, without payment of duty, see 42 Geo. 3. c. 115. of the Public Local and Personal Acts.						
For the conditions, regulations, and restrictions under which a drawback shall be allowed of all the duties on coals used for melting copper and tin ores within the counties of Cornwall and Devon, see 9 Ann. c. 6.						
For the conditions, regulations, and restrictions under which a drawback shall be allowed of all the duties on coals which shall be used in fire-engines for draining water out of the mines of tin and copper within the county of Cornwall, see 14 Geo. 2. c. 41.						
For the conditions, regulations, and restrictions under which a drawback shall be allowed of all the duties paid on all coals that shall be used for fire-engines in mines of tin, copper, or lead, or for calcining or smelting lead ores, within the county of Devon, see 51 Geo. 3. c. 83.						
For the conditions, regulations, and restrictions under which a drawback shall be allowed of all the duties paid on all coals consumed in fire or steam engines used for the purpose of drawing or raising ores, or dead stuff or rubbish, out of the mines of tin, copper, or lead in the counties of Cornwall and Devon, see 53 Geo. 3. c. 18.						
For the conditions, regulations, and restrictions under which a drawback shall be allowed and made of all the duties that have been paid on any coals used for fire-engines in mines of lead, or for calcining or smelting						

TABLE (D.)—COASTWISE.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Coals, &c. — *continued.*						
lead ores, within the county of Cornwall, see 56 Geo. 3. c. 134.						
For the conditions, regulations, and restrictions under which a drawback shall be allowed of all the duties on coals used in calcining or smelting copper and lead ores, within the Isle of Anglesey, or which shall be used in fire-engines for draining water out of the mines of copper and lead within the said Isle, see 26 Geo. 3. c. 104. and the Abstract of the Act to which this Table is annexed.						
For the conditions, regulations, and restrictions under which all the duties on coals used for any purpose relating to the carrying on the works for the manufacturing of tin plates, and for other purposes at Pennygored in the county of Pembroke, called the Pennygored Works, shall be repaid, provided the amount thereof shall not exceed £1000. in any one year, see 35 Geo. 3. c. 39.						
—— Coals (except charcoal made of wood) brought or carried coastwise to any port within the principality of Wales, until the 1st August 1820, *viz.*						
..... in case they are such as are most usually sold by weight, the ton containing 20 cwt. - -	0	0	9		—	
..... in case they are such as are most usually sold by measure, the chaldron Winchester measure	0	1	0		—	
For the conditions, regulations, and restrictions under which a drawback shall be allowed of all the above duties on coals used for any purpose relating to the carrying on the works for the manufacturing of tin plates at Pennygored in the county of Pembroke, called the Pennygored Works, such drawback not exceeding the sum of £1000. in any one year, see the Abstract of the Act to which this Table is annexed.						
For the conditions, regulations, and restrictions under which the above duties on all coals which shall be used in calcining or smelting copper or lead ore, within the Isle of Anglesey, or which shall be used in fire-engines for draining water out of the mines of copper or lead within the said Isle, shall be repaid, see the Abstract of the Act to which this Table is annexed.						
Note.—Coals brought coastwise to any port or place within the principality of Wales, on and after the 1st August 1820, will be subject and liable to such and the like duties as now are, or then may be payable on coals brought coastwise into any port of England, except the port of London. See the Abstract of the Act to which this Table is annexed.						
—— Culm brought coastwise from any port or place in Great Britain into the port of London, the chaldron Winchester measure - - -	0	5	0	0	1	5
For the conditions, regulations, and restrictions under which a quantity of coals, culm, and cinders, not exceeding 50,000 tons in the whole, may be brought within one year by the Grand Junction and Paddington Canals to London on payment of the following duty, see 45 Geo. 3. c. 128. *viz.*						
For every Ton of Culm so brought - -	0	7	6		—	
A further duty of 1*s.* 3*d.* per ton on Culm so brought is also payable to the proper officer of the customs, and at the end of every quarter is to be paid to the corporation of London in lieu of the duty called Orphan's Duty, and of all other rates, dues, and duties payable to that corporation upon Culm imported into the port of London.						

TABLE (D.)—COASTWISE.	Duty.	Drawback.
Coals, &c. — *continued.*	£. s. d.	£. s. d.
—— Culm brought down the river Thames nearer to London than the city's stone placed on the west side of Staines Bridge, in the county of Middlesex, and on which the coast-duties shall not have been paid, the ton -	0 10 0	—
A further duty of 1*s.* 3*d.* per ton on culm so brought, is also payable to the proper officer of the customs, and at the end of every quarter is to be paid to the corporation of London in lieu of the duty called Orphan's Duty, and of all other rates, dues, and duties payable to that corporation upon culm imported into the port of London.		
For the conditions, rules, and regulations under which culm may be so brought, and such duties received, see 50 Geo. 3. c. 110.		
—— Culm laden on board any ship or vessel cleared coastwise at any port in England or Wales, and delivered in any part beyond the sea, before the duties due on the exportation thereof shall have been paid, the master of such ship or vessel shall not be permitted again to enter or clear the said ship or vessel coastwise, or for parts beyond the seas, before he shall have paid not only the export duties on the greatest quantity of Culm which it shall appear the vessel is capable of containing, but also the further sum of 3*s.* for every such chaldron of culm, Winchester measure, to be applied and appropriated to the same uses with the respective duties payable on Culm exported.		
For the conditions, regulations, and restrictions under which such duty of 3*s.* the chaldron may be returned, see 52 Geo. 3. c. 9.		
—— Culm shipped coastwise at any port in Scotland and delivered in any part beyond the seas, before the duties due on the exportation thereof shall have been paid, the master of the vessel shall not be permitted again to enter or clear out at any port in Great Britain, until he shall have paid not only the duties due on the exportation of such Culm, but in addition thereto, for every chaldron thereof so entered coastwise, Winchester measure - - -	0 3 0	—
For the conditions, regulations, and restrictions under which the said duty of 3*s.* the chaldron shall be repaid, see 25 Geo. 3. c. 54.		
—— Culm to be used for the burning of Lime, carried from any place within the limits of the port of Milford in the county of Pembroke, to any other place within the counties of Pembroke, Carmarthen, Cardigan, or Merioneth, the chaldron, Winchester measure -	0 1 3	—
For the conditions, regulations, and restrictions under which culm may be so carried, on payment of the above duty, see 33 Geo. 2. c. 15.		
—— Culm, brought coastwise from any port in Great Britain into any other port in England or Wales, except the port of London, and except Culm carried from Milford as before-mentioned, and also except Culm brought or carried coastwise within the principality of Wales, until the 1st August 1820, the chaldron, Winchester measure - - - -	0 1 3	0 1 2
—— Culm carried from any part of the Lancaster canal, or any of the Branches thereof, or from any part or place within the hundred of Lonsdale in the county of Lancaster into the Ulverstone canal, across or along the bay or estuary separating the two canals, are not liable to any duty of customs.		

TABLE (D.)—COASTWISE.	Duty. £. s. d.	Drawback. £. s. d.
Coals, &c. — *continued.*		
—— Culm, brought or carried coastwise to any port within the principality of Wales, until the 1st August 1820, *viz.*		
..... in case most usually sold by weight, the ton containing 20 cwt. - - -	0 0 1½	—
..... in case most usually sold by measure, the chaldron, Winchester measure - -	0 0 2	—
Note. — Culm brought coastwise to any port or place within the principality of Wales, on and after the 1st August 1820, will be subject and liable to such and the like duties, as now are, or then may be payable on Culm brought coastwise into any port of England, except the port of London. See the Abstract of the Act, to which this table is annexed.		
For the conditions, regulations, and restrictions under which Culm may be carried on the Monmouthshire canal, and afterwards carried or conveyed from any port or place to the eastward of the islands called the Holmes, to any other port or place in or upon the river Severn, also to the eastward of the said islands, without passing to the westward thereof, without payment of duty, see 37 Geo. 3. c. 100. And for the conditions, regulations, and restrictions under which Culm may be carried or conveyed on the Monmouthshire canal, or on any of the railways or tramroads connected therewith, and afterwards carried to the port of Bridgewater only by a passage to the westward of the islands called the Holmes, notwithstanding the restrictions before mentioned, without payment of duty, see 42 Geo. 3. c. 115. of the Public Local and Personal Acts.		
—— Cinders made of Pit Coal brought coastwise from any port in Great Britain, into any other port in England or Wales, the chaldron, Winchester measure -	0 6 0	—
For the conditions, regulations, and restrictions under which a quantity of Coals, Culm, and Cinders, not exceeding 50,000 tons in the whole, may be brought within one year by the Grand Junction and Paddington Canals to London, on payment of the following duty, see 45 Geo. 3. c. 128.		
For every ton of Cinders so brought - -	0 7	—
A further duty of 1*s.* 3*d.* per ton on Cinders so brought, is also payable to the proper officer of the customs, and at the end of every quarter is to be paid to the corporation of London, in lieu of the duty called Orphan's Duty, and of all other rates, dues, and duties payable to that corporation upon Cinders imported into the port of London.		
—— Cinders brought down the river Thames nearer to London than the city's stone placed on the west side of Staines Bridge, in the county of Middlesex, and on which the coast duties shall not have been paid, the ton - - - -	0 10 0	—
A further duty of 1*s.* 3*d.* per ton on Cinders so brought, is also payable to the proper officer of the customs, and at the end of every quarter is to be paid to the corporation of London, in lieu of the duty called Orphan's Duty, and of all other rates, dues, and duties payable to that corporation upon Cinders imported into the port of London.		
For the conditions, rules, and regulations under which Cinders may be so brought, and such duties received, see 50 Geo. 3. c. 110.		

TABLE (D.)—COASTWISE.	Duty. £.	s.	d.	Drawback. £.	s.	d.
Coals, &c.—*continued.*						
—— Cinders laden on board any ship or vessel cleared coastwise at any port in England or Wales, and delivered in any part beyond the sea, before the duties due on the exportation thereof shall have been paid, the master of such ship or vessel shall not be permitted again to enter or clear the said ship or vessel coastwise, or for parts beyond the seas, before he shall have paid not only the export duties on the greatest quantity of Cinders which it shall appear the vessel is capable of containing, but also the further sum of 3*s.* for every such chaldron of Cinders, Winchester measure, to be applied and appropriated to the same uses with the respective duties payable on Cinders exported.						
For the conditions, regulations, and restrictions under which such duty of 3*s.* the chaldron may be returned, see 52 Geo. 3. c. 9.						
—— Cinders shipped coastwise at any port in Scotland, and delivered in any part beyond the seas, before the duties due on the exportation thereof shall have been paid, the master of the vessel shall not be permitted again to enter or clear out at any port in Great Britain, until he shall have paid not only the duties due on the exportation of such Cinders, but, in addition thereto, for every chaldron thereof so entered coastwise, Winchester measure - - -	0	3	0		—	
For the conditions, regulations, and restrictions under which the said duty of 3*s.* the chaldron shall be repaid, see 25 Geo. 3. c. 54.						
—— Cinders carried from any part of the Lancaster canal or any of the branches thereof, or from any part or place within the hundred of Lonsdale, in the county of Lancaster, into the Ulverstone canal, across or along the bay or estuary separating the two canals, are not liable to any duty of customs.						
For the conditions, regulations, and restrictions under which Coals, Culm, Cinders, or Coked Coals burnt from pit-coal, on which the proper duties shall have been paid or secured, may be brought or carried coastwise from any port or place in Great Britain to any other port or place in England or Wales, without payment of any further duty of customs, see 9 and 10 Wm. 3. c. 13. and 55 Geo. 3. c. 174.						
late, of the production of Great Britain, brought coastwise from any port or place within Great Britain to any other port or place therein, for every 100*l.* of the value -	26	8	0	26	8	0
Stone, of the production of Great Britain, brought coastwise from any port or place within Great Britain to any other port or place therein (except as hereinafter mentioned), for every 100*l.* of the value - - -	26	8	0		—	
For the conditions, regulations, and restrictions under which any Marble, Limestone, or Ironstone whatever; any Stone cut or manufactured into Mill-stones, Grindstones, or Whet-stones, or either of them; any Stone manufactured or converted into posts, and caps for corn-stacks or mowsteads, troughs, gate-posts, or other articles used for the purposes of husbandry; or Stone used for the purpose of repairing and upholding sea banks and sea-walls in Great Britain; any Growan Stone, or Stone commonly called or known by the name of Growan Stone, or Stone commonly called or known by the name of China Stone, or any other Stone to be used in the manufacture of porcelain or of pottery, or any Stones whatever cut or manufactured into Burr						

TABLE (D.)—COASTWISE.	Duty.	Drawback.
Stone — *continued.*	£. s. d.	£. s. d.
Stones, may be entered without payment of duty, see 34 Geo. 3. c. 51. and 39 and 40 Geo. 3. c. 51.		
For the conditions, regulations, and restrictions under which the duty on Stones that have been used in making barn floors, may be repaid, see the Abstract of the Act, to which this Table is annexed.		

TABLE (E.)

A TABLE of the TONNAGE DUTIES of CUSTOMS payable on Ships or Vessels entering INWARDS or OUTWARDS (except in Ballast) in any Port of Great Britain from or to Foreign Parts.

TABLE (E.)—TONNAGE.	Duty.
	£. s. d.
Tonnage Duty on Ships and Vessels entering inwards or outwards (except in ballast) in any port of Great Britain from or to foreign parts, *viz.*	
For every ton burthen of every Ship or Vessel entering inwards or outwards (except in ballast) from or to the islands of Guernsey, Jersey, Sark, or Alderney, the Greenland Seas, the Southern whale-fishery, the islands of Newfoundland, Cape Breton, St. John, or Prince Edward's Island, or the coast of Labrador - -	0 0 6
For the suspension of this duty, as far as it relates to Ships and Vessels entering inwards or outwards in any port of Great Britain from or to the island of Newfoundland, until the 5th July 1824, see the Abstract of the Act, to which this Table is annexed.	
For every ton burthen of every Ship or Vessel entering inwards or outwards (except in ballast) from or to the Cape of Good Hope -	0 2 6
For every ton burthen of every Ship or Vessel entering inwards or outwards (except in ballast) from or to any port or place within the limits of the charter granted to the United Company of Merchants of England trading to the East Indies, except the Cape of Good Hope	0 3 0
For every ton burthen of every Ship or Vessel entering inwards or outwards (except in ballast) from or to any port or place not otherwise enumerated or described, except the Isle of Man -	0 1 0
For every ton burthen of every Packet or Passage-vessel belonging to the subjects of his most christian majesty, which shall lade or unlade any goods, wares, or merchandize, or take in or set on shore any passengers, in any port, creek, harbour, or road of Great Britain, except any Ship or Vessel used only for the purposes of pleasure, and which shall not carry any goods, wares, or merchandise, or any passengers, for hire or reward - - - -	0 3 6
Note.— His majesty is empowered by his royal proclamation or proclamations, issued by and with the advice of his privy council, or by his majesty's order or orders in council to be published from time to time in the London Gazette, to direct such duty or duties as shall be therein specified, to be levied, collected, and paid in the ports of Great Britain, on the entering or clearing out of the Packets or Passage-vessels of such foreign countries as shall be named in the said proclamations or orders in council, and from time to time, by any such proclamations or orders in council issued or published as aforesaid, to revoke, diminish, or increase such duties to the same amount as similar duties may be respectively revoked, diminished, or increased on British Packets or Passage-vessels entering or clearing out from the ports or harbours of such foreign countries. But no such proclamations	

TABLE (E.) — TONNAGE.	Duty £. s. d.
or orders in council shall extend to any Ship or Vessel used only for the purposes of pleasure, and which shall not carry any goods, wares, or merchandise, or any passengers, for hire or reward. See 56 Geo. 3. c. 9.	
Note. — The tonnage duty is not payable on Ships or Vessels employed in the fisheries on the coast of Great Britain, and not entering outwards for foreign parts; or on any Ships or Vessels bringing oysters from Jersey or Guernsey; or on any British or Irish-built Ship or Vessel owned by British subjects, which is not required to be registered. See the Abstract of the Act, to which this Table is annexed.	

TABLE (F.)

LIST of ARTICLES which may be LODGED IN WAREHOUSES, or otherwise secured, at approved Ports in Great Britain, under the Rules, Regulations, and Securities required by Law, without Payment, at the Time of the First Entry, of the Duties due on the Importation thereof.

TABLE (F.) — WAREHOUSED GOODS.

LIST (A.)

A List of Articles which when imported into the Port of London may be lodged and secured in Warehouses within the Premises situated at the Isle of Dogs, belonging to the West-India Dock Company.

Cocoa Nuts Coffee Sugar Cassia Fistula Annotto or Rocou	Not being the produce of, nor imported from any place within the limits of the charter granted to the United Company of Merchants of England trading to the East Indies.
Angustura Bark Cotton Wool Ginger Indigo Mahogany Melasses Pimento Rum	Imported from the West Indies, and also all other articles so imported which are enumerated in List (E.)
Cocoa Nuts Coffee Sugar Cotton Wool Ginger Indigo Mahogany Melasses Pimento Rum	Being the growth or produce of, and imported directly from any of the territories or dominions of the crown of Portugal.

TABLE (F.) — WAREHOUSED GOODS.

LIST (B.)

A List of Articles which when imported into the Port of London may be lodged and secured in Warehouses within the Premises belonging to the London Dock Company.

Brandy Geneva and other Spirits Rice Tobacco Wine	Not being the produce of, nor imported from any place within the limits of the charter granted to the United Company of Merchants of England trading to the East Indies (spirits and wine excepted), or not being imported from the West Indies.
Cocoa Nuts Coffee Sugar Cotton Wool Ginger Indigo Mahogany Melasses Pimento Rum	Being the growth or produce of, and imported directly from any of the territories or dominions of the crown of Portugal.
Spirits Wine	Being the produce of any place within the limits of the charter granted to the United Company of Merchants of England trading to the East Indies, and imported otherwise than by the said United Company.

LIST (C.)

A List of Articles which (not being the Produce of, nor imported from any Place within the Limits of the Charter granted to the United Company of Merchants of England trading to the East Indies, or not being imported from the West Indies) may be lodged and secured in Places approved by the Commissioners of the Customs.

Brimstone.
Cork.
Hemp undressed.
Iron in Bars.
Iron slit or hammered into Rods, and Iron drawn or hammered less than $\frac{3}{4}$ of an Inch square.
Kelp.
Mahogany.
Marble Blocks.
Oil of Turpentine.
Pitch.
Rape Seed.
Rosin.
Staves.
Tallow.
Tar.
Timber.
Tow.
Turpentine.
Wood.
Zaffre or Cobalt.
Linseed.

LIST (D.)

A List of Articles which (not being the Produce of, nor imported from, any Place within the Limits of the Charter granted to the United Company of Merchants of England trading to the East Indies, or not being imported into the Port of London from the West Indies) may be lodged and secured in Warehouses or Places approved by the Commissioners of the Customs.

Hides.
Oil of British Fishing, *viz.*
—— Spermaceti or Head Matter.
—— Train Oil, and all other Fish Oil.
Blubber of British Fishing.
Whale Fins of British Fishing.
Skins and Furs, *viz.*
—— Indian Deer Skins, half dressed or shaved.
—— Skins and furs of all sorts, not tanned, tawed, or in any way dressed.

TABLE (F.) — WAREHOUSED GOODS.

LIST (E.)

A List of Articles which (not being the Produce of, nor imported from any Place within the Limits of the Charter granted to the United Company of Merchants of England trading to the East Indies, or not being imported into the Port of London from the West Indies) may be lodged and secured at such Ports, and in such Warehouses, or other Places, as now are or may be approved and directed by the Lords Commissioners of His Majesty's Treasury.

Alkermes.
Almonds.
Anchovies.
Angustura Bark.
Aniseed.
Annotto or Rocou.
Arrow Root.
Ashes.
Balsam of all sorts.
Barilla.
Beads, *viz.*
——— Amber Beads.
——— Coral Beads.
Bees Wax.
Bristles undressed.
Buck Wheat.
Cantharides.
Carpets, Turkey.
Cassia Fistula.
Catlings or Lutestrings.
Chip Hats.
Citrat of Lime.
Clover Seed.
Cochineal.
Cochineal Dust.
Cocoa Nuts.
Coffee.
Cotton Wool.
Cotton Yarn.
Currants.
Elephants' Teeth.
Essence of Bergamot.
——— of Lemon.
——— of Spruce, the Produce of the British Colonies in America, and imported from thence.
Euphorbium.
Feathers for Beds.
Figs.
Flax.
Ginger.
Ginseng.
Granilla.
Gum Arabic.
—— Copal.
—— Senegal.
—— Guaiacum.
Hams.
Harpstrings.
Hones.
Jalap.
Jesuits' Bark.
Jet.
India Rubbers.
Indigo.
Isinglass.
Juice of Lemons.
—— of Limes.
Juice of Oranges.
Juniper Berries.
Lamp Black.
Linen, plain, of all sorts, (except Sail Cloth.)
Linseed Cakes.
Liquorice Powder.
Mahogany.
Manna.
Mercury.
Mohair Yarn.
Molasses.
Oil of Almonds.
— of Amber
— of Aniseed.
— of Bay.
— of Cajaputa.
— of Caraway.
— of Cassia.
— of Castor.
— Chemical, not otherwise enumerated.
— of Cinnamon.
— of Cloves.
— of Jessamine.
— of Juniper.
— of Lavender.
— of Linseed.
— of Mace.
— of Marjoram.
— of Nutmegs.
— of Olives.
— of Oranges.
— of Palm.
— Perfumed, not otherwise enumerated.
— of Pine.
— Rock.
— of Rosemary.
— of Rosewood.
— Salad.
— of Sassafras.
— of Spike.
— of Thyme.
— of Turpentine.
— of Walnut.
Opium.
Orange Flower Water.
——— Ointment.
Pearl Barley.
Pictures.
Pimento.
Pitch, Burgundy.

TABLE (F.) — WAREHOUSED GOODS.

LIST (E.) — *continued.*

Pots, Melting.
Prunes.
Quicksilver.
Radix Serpentariæ.
Rags.
Raisins of all sorts.
Rape Cakes.
Rhinehurst.
Rhubarb.
Rum.
Saccharum Saturni.
Saffron.
Sal Ammoniacus.
— Gem.
— Limonum or Acetosella.
— Prunella.
— Succini.
Saphora.
Sarsaparilla.
Seña.
Silk, Raw, Thrown, or Waste.
Smalts.
Straw Hats.
Succus Liquoritiæ, or Liquorice Juice.
Sugar.
Tapioca.
Tar, Barbadoes.
Tornsal.
Toys.
Verdigris.
Vermilion.
Vinelloes.
And all other Goods Unmanufactured, except Salt.

For the conditions, regulations, restrictions, and securities under which Goods enumerated in the preceding lists may be lodged and secured in approved places, see 43 Geo. 3. c. 132., 45 Geo. 3. c. 87., 46 Geo. 3. c. 137., 47 Geo. 3. c. 48., 48 Geo. 3. c. 126., 49 Geo. 3. c. 106., 50 Geo. 3. c. 64., and 52 Geo. 3. c. 142.

LIST (F.)

A List of Articles which may be lodged and secured in approved Places, under the Conditions, Regulations, and Restrictions directed by particular Statutes.

Tobacco and Snuff. See 29 Geo. 3. c. 68.

Goods, Wares, and Merchandise, being of the growth, produce, or manufacture of any place within the limits of the charter granted to the United Company of Merchants of England trading to the East Indies. See 39 Geo. 3. c. 59., 43 Geo. 3, c. 132., and 54 Geo. 3. c. 36.

Corn, Meal, and Flour. See 55 Geo. c. 26.

		s.	d.
*Timbers, for every 20s. of their rates or values on oath		0	1
Tow - -	℔ 112lb.	0	0½
Tripe. See Fustians.			
*Turkey goods, for every 20s. of rates or values on oath		0	1
Vellure. See Fustians.			
Vinegar. See Wine Eager.			
Wax - -	℔ 112lb.	0	4
*Wainscots -	℔ 100	0	6
Whale-fins -	℔ dozen fins	0	1
*Wheat -	℔ quarter	0	1
*Wine, *viz.*			
— Eager - -	℔ tun	0	6
— Gascoigne, French wines, all other wines of the growth of the French dominions	℔ tun	2	0
— Rhenish wine -	℔ tun	60	0
— Muscadel, and all other wines	℔ tun	40	0
Wire; latten and other wire	℔ 112lb.	0	4
Woad; island woad	℔ ton	1	0
— Tholose woad	℔ 112lb.	0	1
Wood, *viz.*			
—*Box-wood, for every 20s. of the rates or value on oath		0	1
— Brazil, or Fernambuco wood	℔ 112 lb.	0	3
— Brazilletto, or Jamaica wood	℔ 112lb.	0	1
— Fustic - -	℔ 112lb.	0	0½
— Red or Guinea Wood	℔ 112lb.	0	2
— Sweet Wood, West India	℔ 112lb.	0	1
— All other sorts, for every 20s. of the rates or value, on oath		0	1
Wool; Beaver Wool	℔ lb.	0	1½
— Cotton Wool -	℔ 100lb.	0	3
— Irish, combed -	℔ 100lb.	0	4
———, uncombed	℔ 112lb.	0	2
— Estridge wool	℔ 112lb.	0	2
— Polonia wool -	℔ 112lb.	0	3
— French wool -	℔ 112lb.	0	2
— Lamb's wool -	℔ 112lb.	0	3
— Spanish wool -	℔ 112lb.	0	4
— Red wool -	℔ lb.	0	0¼
Yarn; Cable-yarn	℔ 112lb.	0	1
— Camel, grogram, or mohair yarn	℔ 100lb.	1	6
— Cotton-yarn -	℔ 100lb.	0	4
— Irish yarn	℔ pack of 480lb.	0	6
Raw linen yarn, Dutch or French	℔ 100lb.	0	4
— Spruce or Muscovia yarn	℔ 112lb.	0	2

All other goods, not mentioned in this table, pay, for scavage duties inwards, after the rate of one penny in the pound, according as they are expressed or valued in his majesty's late book of rates; and all others, not expressed therein, pay the same rates, according to their true value.

*** All merchants, aliens, and denizens, are to make and deliver to the proper collector of this duty, true and perfect bills of entry of all the goods and merchandise by them imported.

PACKAGE-RATES OUTWARDS.

For all Goods and Merchandise to be packed, casked, piped, barrelled, or any ways vesselled, in order to be transported to Parts beyond the Seas; although the mayor and commonalty, or their officers do not pack the said Goods when they are ready, and upon reasonable request and notice given.

		s.	d.
Annatto - -	℔ 100lb.	0	3
Aqua vitæ - -	℔ hogshead	0	4
Argol, white or red	℔ 112lb.	0	1½
Ashes; pot-ashes	℔ 2 cwt.	0	2
—— Soap-ashes -	℔ last	0	1
Awl-blades for shoe makers	℔ 1000	0	0½
Barilla, or Saphora	℔ barrel of 2 cwt.	0	4
Beer - -	℔ tun	0	6
Birding shot-lead -	℔ 112lb.	0	2
Books - -	℔ maund	1	0
Bottles, glass, covered with leather -	℔ dozen	0	1
Brimstone - -	℔ 112lb.	0	1
Brushes - -	℔ dozen	0	0½
Broken glass -	℔ barrel	0	0¼
Buttons; brass, steel, copper, or latten buttons	℔ 144 dozen	0	1
— Hair buttons	℔ 144 dozen	0	1
— Silk buttons	℔ 144 dozen	0	0½
— Thread buttons	℔ 144 dozen	0	0½
Buckweed -	℔ quarter	0	1
Buckrams of all sorts	℔ doz. pieces	0	2
Caps for sailors, Monmouth and others - -	℔ dozen	0	1
Canary-seed - -	℔ bushel	0	0½
Cloaks, old - -	℔ piece	0	0¾
Cloths. See Woollen-Drapery.			
Coals. See Sea-Coal.			
Cobweb lawns	each 12 yards	0	1
Cochineal, *viz.*			
— Silvester, or Campechia	℔ lb.	0	0½
— of all other sorts	℔ lb.	0	1
Combs, ivory. See Ivory.			
Copperas -	℔ 112 lb.	0	1
Drugs; Assafœtida, gum ammoniac, gum lac, olibanum, and sassafras-wood -	℔ 100lb.	0	6
—— Cassia Fistula	℔ 100lb.	0	8
——— Lignea	℔ 100lb.	0	8
—— Cubebs -	℔ 100lb.	0	6
—— Frankincense. See in F.			
—— Quicksilver, See in S.			
—— Red Lead. See in R.			
—— Rhubarb -	℔ lb.	0	1
—— Scammony -	℔ lb.	0	1
—— Wormseed. See in W.			
Elephants' teeth -	℔ 100lb.	0	4
Estridge-feathers, undressed	℔ lb.	0	0½
Filings of Iron; Swarf	℔ barrel	0	2
Fish; *viz.*			
— Herrings, fish of shotten,	℔ last	0	6
— Stockfish of all sorts	℔ last	0	6
Flasks of horn -	℔ dozen	0	1
Flax, dressed -	℔ 112lb.	0	4

		s.	d.
Flax — *continued.*			
—— undressed -	℔ 112lb.	0	2
Frankincense -	℔ 112lb.	0	1½
Furs. See Skins.			
Fustians; English Millain	℔ piece con. 2 half-pieces of 15 yards each	0	1
——— Venetian, English make	℔ 15 yards	0	1
Galls - -	℔ 112lb	0	2
Garble; of almonds	℔ 112lb	0	1
——— of cloves	℔ 100lb	0	4
——— of ginger	℔ 100lb	0	1
——— of mace	℔ 100lb	0	9
——— of pepper	℔ 100lb	0	3
Glass, broken. See B.			
Glue - -	℔ 112lb.	0	1
Glovers' clippings,	℔ maund or bask	0	0½
Gloves, Buck's leather	℔ dozen pair	0	1
—— Gloves with silk fringe, faced with taffety	℔ dozen pair	0	1
—— Gloves lined with coney or lamb skins, or plain	℔ dozen pair	0	0½
Grains; scarlet powder, and of Seville in berries, and grain of Portugal or Rota	℔ 100lb.	2	6
—— Grain, French or Guinea	℔ 100lb.	0	4
Grocery, *viz.*			
— Almonds -	℔ 112lb.	0	2
— Almonds, Garble. See Garble.			
— Aniseeds -	℔ 112lb.	0	2
— Cinnamon -	℔ 100lb.	1	0
— Cloves -	℔ 100lb.	1	0
— Cloves, Garble. See Garble.			
— Currants -	℔ 112lb.	0	3
— Dates -	℔ 112lb.	0	4
— Figs -	℔ 112lb.	0	0½
— Ginger -	℔ 100lb.	0	9
— Ginger, Garble. See Garble.			
— Licorice -	℔ 112lb.	0	1½
— Mace -	℔ 100lb.	1	6
— Mace, Garble. See Garble.			
— Nutmegs -	℔ 100lb.	1	0
— Pepper -	℔ 100lb.	0	6
— Pepper, Garble. See Garble.			
— Prunes -	℔ 112lb.	0	0½
— * Raisins, great and Malaga	℔ 112lb.	0	1
——— of the sun	℔ 112lb.	0	2
— Sugar-candy	℔ 112lb.	0	3
——— of St. Thome and Panelles	℔ 112lb.	0	3
——— of all sorts	℔ 112lb.	0	6
Hats; Beaver hats	℔ piece	0	2
—— Demi-castors	℔ piece	0	1
—— Felt hats, plain	per dozen	0	1½
——— lined or faced	℔ doz.	0	2
Hair; coney-hair	℔ 100lb.	0	4
—— of goats or kids	℔ 100lb.	0	4
—— Ox or cow-tail hair	℔ 112lb.	0	0½
Hemp -	℔ 112lb.	0	1½
Hides, India. See India.			
Horns; Ink-horns	℔ 12 dozen	0	0½
— Horns of lanthorns	℔ 1000 leaves	0	2
— Tips of horns	℔ 1000	0	1
Hops -	℔ 112lb.	0	2
Indigo of all sorts	℔ 100lb.	1	0

		s.	d.
Indigo — *continued.*			
—— Dust -	℔ 100lb.	0	6
India hides -	℔ 100lb.	1	6
Irish rugs -	℔ piece	0	1
Iron, unwrought	℔ ton	0	6
—— wrought	℔ 112 lb	0	1
—— Spurs	℔ dozen pair	0	1
Ivory combs	℔ dozen lb.	0	2
Knives, *viz.*			
— London knives, ordinary	℔ small gross	0	3
— Sheffield knives	℔ small gross	0	1½
— Shoemaker's paring knives	per small gross	0	0½
Lace, *viz.*			
— Bone-lace of thread	℔ doz. yds.	0	0½
— Silk lace	℔ 16 ounces	0	1½
Lamperns -	℔ 1000	0	1½
Lead -	℔ fother	0	8
Lead. See Birding Shot.			
Lemons, pickled	℔ pipe	0	3
Lemon-juice -	℔ pipe	0	6
Linseed -	℔ quarter	0	1
Linen, calico -	℔ piece	0	0½
—— Cambrics	℔ 2 half-pieces of 13 ells	0	1½
—— Damask tabling, all sorts	per dozen yards	0	2
——— Towelling and napkining of all sorts	℔ dozen yards	0	1
— Diaper tabling, all sorts,	℔ doz. yds.	0	1
——— Towelling and napkining all sorts	℔ dozen yards	0	0½
—— Lawns	℔ piece of 13 ells	0	1½
—— Linen cloth, called Brabant,			
—— Embden, Flemish, Frieze, Ghentish, Holland, Isinghams, Overissels, and Rouse Cloth	℔ 30 ells	0	2
—— French and Normandy canvas	℔ 120 ells	0	3
—— Dutch Barras, Hessens, Vitry, canvas -	℔ 120 ells	0	3
—— Canvas, tufted or quilted with copper, silk, or thread, or such like	℔ 15 yards	0	1
—— Linen shreds	℔ maund	0	2
Madder, all but mull madder	per 112lb.	0	2
Melasses -	℔ hogshead	0	4
Mustard-seed -	℔ 112lb.	0	0½
Nails, *viz.*			
— Chair nails, brass or copper,	℔ 1000	0	0½
— Copper nails, rose-nails, and saddlers' nails -	℔ 10,000	0	0½
Ochre, red or yellow	℔ 112lb.	0	1
Onion-seed -	℔ 112lb.	0	4
Orchal -	℔ 112lb.	0	1
Ox-bones -	℔ 1000	0	1
— Guts -	℔ barrel	0	2
Oil. — Seville, Majorca, Minorca, Provence, Portugal, Linseed, or Rape oil	℔ tun	1	4
— Train or whale oil	℔ tun	0	8
Paper; printing and copy paper	℔ 100 reams	1	6
Pewter -	℔ 112lb.	0	4

		s.	d.
Points of thread. See in T.			
Rape seed -	℔ quarter	0	1
Rape-cakes -	℔ 1000	0	0¼
Red-lead -	℔ 112lb.	0	1
Red earth -	℔ 112lb.	0	0¼
Rice -	℔ 112lb.	0	1
Rosin -	℔ ton	0	6
Rugs, Irish. See Irish.			
Saffron -	℔ lb.	0	1
Salt -	℔ wey	0	2
Saltpetre -	℔ 112lb.	0	2
Sea-horse teeth -	℔ 100lb.	0	10
Sea-coals -	℔ chaldron	0	4
Shot. See Birding-shot Lead.			
Shumac -	℔ 112lb.	0	2
Silk, raw of all sorts,	℔ 16 ounces	0	1
— Nubs of husks, the 100, containing 21 ounces to the lb.		0	4
— British thrown	℔ 16 ounces	0	1
Silver, called quicksilver,	℔ 100lb.	0	8
Skins and furs, *viz.*			
— Badger-skins -	℔ 100	0	6
— Beaver-skins -	℔ 100	2	6
— Cat-skins -	℔ 100	0	4
— Calf-skins -	℔ 100	0	8
— Coney-skins, grey, tawed, seasoned, or stag	℔ 120	0	2
— Coney skins, black	℔ 120	0	2½
— Elk-skins -	℔ piece	0	0½
— Fitches -	℔ timber	0	1
— Fox-skins -	℔ 100	0	8
— Jennet-skins, black, seasoned, or raw -	℔ skin	0	0½
— Kid-skins -	℔ 100	0	2
— Lamb skins, tawed, or in oil	℔ 120	0	6
— Mawkins, tawed or raw,	℔ 120	0	4
— Otter-skins -	℔ 100	0	8
— Rabbit-skins -	℔ 100	0	1
— Sheep-skins -	℔ 120	0	6
— Sheep-pelts -	℔ 100	0	3
— Squirrel-skins -	℔ 1000	0	3
Slip -	℔ barrel	0	1
Soap, *viz.* hard Castile	℔ 112lb.	0	2
——— -	℔ barrel	0	3
Spectacles without cases	℔ 12 doz.	0	0½
Stockings, *viz.*			
— Children's stockings	℔ doz. pair	0	0½
— Kersey or leather	℔ dozen pair	0	1
— Silk stockings -	℔ pair	0	0¼
— Worsted stockings	℔ doz. pair	0	2
— Woollen knit-stockings	℔ do.	0	1½
Stuffs, *viz.*			
— Buffins, per piece, broad of 14 yds.		0	2
——— per piece, narrow of 14 yds.		0	1
— Bridgewaters	℔ piece	0	2
— Carrels -	℔ piece	0	1
— Carmelians, per piece of 25 yds.		0	2
— Camlets or grograms	℔ piece of 14 or 15 yards	0	2
— Dammosellos or damasins	per piece	0	2
— Durants -	℔ piece	0	1
— Dimity	℔ piece of 30 yards	0	1
— Floramedos -	℔ piece	0	1
— Figurettos -	℔ piece	0	2

Stuffs — *continued.*		s	d.
— Hangings of Bristol or striped stuff -	℔ piece	0	4
— Linsey Woolsey	℔ piece	0	1½
— Lisles, broad or narrow	℔ piece not above 15 yards	0	2
— Mocados, single or tufted	℔ piece of 14 yards	0	1
——— double	℔ piece of 28 yds.	0	2
— Mohairs	℔ piece not above 15 yds.	0	1½
— Miscellany	℔ piece of 30 yds.	0	1
— Perpetuans yard-broad	℔ piece	0	2
——— ell-broad	℔ piece	0	2½
— Paragon, or parapus	℔ piece	0	2
— Pyramides, or marmuff the narrow piece		0	1
——— the broad piece		0	4
— Rashes of all sorts	℔ piece, about 24 yards	0	4
— Says; Hounscot-says, or milled	℔ piece	0	3
——— of all other sorts	℔ piece	0	2½
— Serges, single	℔ yard broad of 12 yards	0	2
——— double	℔ yard broad of 24 yards	0	3
See also Woollen Drapery.			
Succades, wet or dry	℔ 100lb.	0	8
Swarf. See Filings of Iron.			
Tallow -	℔ 112lb.	0	1
Tapestry, *viz.*			
— with hair	℔ 100 Flemish ells	0	4
— with wool	℔ 100 Flemish ells	0	9
— with gaddis	℔ 100 Flemish ells	1	0
— with silk	℔ 12 Flemish ells	0	2
Taffety, ell broad	℔ dozen yards	0	2
——— Silk tuff taffety, broad,	℔ dozen yards,	0	4
——— narrow, per dozen yards		0	2
Thread, whited brown or coloured,	℔ dozen lb.	0	1
Tiffany	℔ dozen yards	0	1
Tobacco, Spanish	℔ 100lb.	2	0
— of all other sorts	℔ 100lb.	0	6
Tin; wrought -	℔ 112lb.	0	4
——— unwrought	℔ 112lb.	0	3½
Thread-points	℔ great gross	0	0½
Vellures, British	℔ single piece	0	1
——— ———	℔ double piece	0	2
Vinegar of wine -	℔ tun	0	2½
Waistcoats, *viz.*			
— of kersey or flannel	℔ dozen	0	2
— of woollen, knit	℔ dozen	0	4
— of worsted, knit	℔ piece	0	0½
— wrought with crewel	℔ piece	0	0¼
— wrought with silk	℔ piece	0	1
Wax; British wax	℔ 112lb.	0	4
— British hard wax	℔ 100lb.	0	8
Wine; French wines	℔ tun	0	8
— Muscadel & Levant wines	℔ butt	0	6
— Sacks, Canaries, Madeiras, Romney and Hullocks,	℔ butt, or pipe	0	6
Wood; Box-wood	℔ 112lb.	0	0½
— Brazil wood	℔ 112lb.	0	3
— Ebony wood	℔ 112lb.	0	1½

		s.	d.
Wood — *continued.*			
— Fustic wood	℔ 112lb.	0	0½
— Red wood -	℔ 112lb.	0	1½
Wools; cotton wool	℔ 100lb.	0	3
— Estridge wool	℔ 112lb.	0	2
— French wool	℔ 112lb.	0	2
— Spanish wool	℔ 112lb.	0	4
Woollen drapery, *viz.*			
— Baize -	℔ single piece	0	2
———	℔ double piece	0	4
— Minikins baize	℔ piece	0	6
— Broad cloth	℔ short piece of 24 yards	0	6
———	℔ long piece of 32 yards	0	8
— Cottons of all sorts,	℔ 100 goads	0	6
— Devonshire dozens	℔ piece	0	1
— Frizadoes -	℔ piece	0	3
— Kerseys of all sorts	℔ piece	0	2
— List of cloth	℔ 1000 yards	0	6
— Northern dozens, single,	℔ piece	0	3
———	double, ℔ piece	0	6
— Spanish cloth, British-making	℔ 20 yards	0	6
— Penistones -	℔ piece	0	2
Worm-seed -	℔ 100lb.	0	6
Yarn; cotton yarn	℔ 100lb.	0	4
— Grogram or mohair yarn, per 100lb.		1	6
— Raw linen yarn, of all sorts	℔ 100lb.	0	4

All other goods, not mentioned in the preceding table, pay, for package-duties, after the rate of one penny in the pound, according as they are expressed or valued in his majesty's late book of rates: and all other, not expressed therein, shall pay the same rate, according to their true value. For every entry in the packer's book, for writing bills to each entry outward, 1s. The strangers pay the labouring porters for making up their goods at their own charge, as they have always done. And they pay the water-side porters, belonging to the package office, such fees and duties for landing and shipping their goods as they have usually paid within these twelve years past.

BAILLAGE-DUTIES OUTWARDS.

For the Surveying or Delivering of all Goods and Merchandise, in order to be exported into Parts beyond the Seas, or otherwise.

		s.	d.
Beer -	℔ tun	0	4
Canvas -	℔ 120 ells	0	2
Cloths. See Drapery.			
Coals -	℔ chalder	0	1
Cochineal. See Dyeing Commodities.			
Drapery of woollen or worsted, *viz.*			
— Broad cloth -	℔ piece	0	1½
— Kerseys of all sorts	℔ piece	0	0½
— Perpetuanas	℔ piece	0	0½
— Stuffs -	℔ single piece	0	0½
———	℔ double piece	0	1
Dyeing Commodities, *viz.*			
— Cochineal -	℔ 100lb.	0	1
— Indigo -	℔ 100lb.	0	4
Dyeing Commodities — *continued.*		s.	d.
— Wood, of all sorts, for dyers	℔ 112lb.	0	1
Fur. See Skins.			
Fustians, British-making	℔ 15 yards	0	0½
Flax or hemp -	℔ 112lb.	0	1
Grocery; *viz.* cloves, mace, nutmegs, or cinnamon	℔ 100lb.	0	6
— Pepper or ginger	℔ 100lb.	0	2
— Raisins	℔ piece or frail	0	0½
— Raisins of the sun	℔ 112lb.	0	1
Hemp. See Flax.			
Indigo. See Dyeing Commodities.			
Iron, unwrought -	℔ ton	0	6
— wrought -	℔ 112lb.	0	1
Lamperns -	℔ 1000	0	0½
Lead -	℔ fother	0	6
Linen. See Canvas.			
Pewter. See Tin.			
Saffron -	℔ lb.	0	0½
Salt -	℔ wey	0	2
Saltpetre -	℔ 112lb.	0	1
Silk; raw or thrown silk	℔ 16 oz.	0	0¼
Skins and furs, *viz.*			
— beaver-skins	℔ 100	1	6
— badger-skins -	℔ 100	0	6
— coney-skins, black	℔ 120	0	2½
— cat-skins -	℔ 100	0	4
— calf-skins -	℔ 100	0	8
— fox-skins -	℔ 100	0	8
— fitches -	℔ timber	0	1
— morkins -	℔ 120	0	2
— otter-skins -	℔ 100	0	6
— sheep or lamb-skins	℔ 120	0	2
— squirrel-skins -	℔ 1000	0	1
Stuffs. See Drapery.			
Tin or pewter -	℔ 112lb.	0	2
Wax - -	℔ 112lb.	0	2
Wood for dyers. See Dyeing Commodities.			
Wood of all sorts	℔ 112lb.	0	2

Other merchandise, liquid or dry, not particularly rated in this table, pay baillage-duties outwards, by their bulk, as follows, *viz.*

	s.	d.
A great packet or fardle, containing between 15 and 20 cloths, or other goods to that proportion -	1	6
An ordinary pack, truss, or fardle, containing, in bigness, about 10 to 12 cloths, 12 or 14 baize, or to the like proportion in friezes, cottons, or other goods -	1	0
A bale, containing 3 or 4 cloths, 4 or 5 baize, or the like proportion in other goods -	0	6
For a great maund, or great basket,	0	8
— small maund, or basket, weighing 300 weight or under -	0	4
— hamper or coffer, weighing 200 weight or under -	0	3
— butt or pipe - -	0	8
— hogshead or puncheon -	0	4
— barrel - - -	0	2
— firkin - -	0	1
— dry fat - -	0	8
— drum fat - -	0	4
— bale - - -	0	6

APPENDIX, No. IV.

TABLES

OF

PACKAGE, SCAVAGE, BAILAGE, AND PORTAGE DUTIES, PAYABLE BY ALIENS AT THE PORT OF LONDON

THE PACKAGE RATES INWARDS FOR ALL GOODS AND MERCHANDISE IMPORTED FROM PORTS BEYOND THE SEAS, BELONGING TO ALIENS, OR DENIZENS, BEING THE SONS OF ALIENS.

☞ The commodities which are marked thus *, are liable to this duty, though British property, if imported in any other than British ships legally navigated.

		s.	d.
Alum	℔ 112lb.	0	2
Andirons. See Brass.			
Annatto	℔ 100lb.	0	4
Apples and Pears	℔ little barrel	0	1¼
*Aquæ Vitæ	℔ hogshead	0	6
Argol, white or red	℔ 112lb.	0	1½
*Ashes, pot	℔ 112lb.	0	0¾
Babies' Heads	℔ dozen	0	0½
Bacon	℔ 112lb.	0	3
Band-strings	℔ dozen knots	0	0¼
*Balks, great	℔ 120	1	6
———, under eight inches	℔ 120	0	9
———, under five inches	℔ 120	0	4
Barilla, or Saphora,	℔ bar. of 2 cwt.	0	4
*Barlings	℔ 120	0	4
*Barley	℔ quarter	0	0½
Basket-rods	℔ dozen bundles	0	4
Bast Ropes	℔ 112lb.	0	0½
Battery, bashrones or kettles	℔ 112lb.	0	6
*Beans	℔ quarter	0	0½
Beef	℔ barrel	0	1
Bell-metal	℔ 112lb.	0	2
Bermillians. See Fustians.			
Blacking, or lamp-black	℔ 112lb.	0	3
Bottles of all sorts	℔ dozen	0	0½
*Boards, barrel-boards	℔ 1000	0	4
——— Clap-boards	℔ 120	0	1
——— Pipe-boards	℔ 120	0	1
Boratoes, or Bombazines, *viz.*			
——— Narrow, ℔ single piece, not above fifteen yards,		0	2
——— Broad, ℔ single piece, not above fifteen yards		0	3
Books, unbound ℔ bask, or maund		0	8
*Bow-staves	℔ 120	0	2

		s.	d.
Brass Andirons, laver-cocks, chafing-dishes, and all other brass or latten wrought	℔ 100lb.	0	3
Brimstone	℔ 112lb.	0	0½
Bristles	℔ dozen lb.	0	0½
Buckrams, *viz.*			
——— of Germany	℔ dozen pieces	0	3
——— of France	℔ dozen pieces	0	2
Buftins, Liles, or Mocadoes, *viz.*			
———, Narrow, ℔ single piece not above fifteen yards		0	1
———, Broad, ℔ single piece not above fifteen yards		0	2
Bull-rushes	℔ load	0	1
Burrs for mill-stones	℔ 100	0	3
Butter	℔ 112lb.	0	1
Cable ropes for cordage	℔ 112lb.	0	1
Cabinets, *viz.* great	℔ piece	0	2
——— small	℔ piece	0	1
Caddas, or cruel-ribbon	℔ dozen pieces, each of thirty-six yards	0	1
Candlewick	℔ 112lb.	0	1
Candles of tallow	℔ dozen lb.	0	0¼
Capers	℔ 100 lb.	0	2
*Capravens	℔ 120	0	3
Cards, *viz.*			
——— Playing	℔ 12 dozen packs	0	2
——— Wool-cards	℔ dozen pair	0	0¼
Carpets, *viz.*			
——— Turkey, Persia, East India, and Venice, long	℔ piece	0	6
——— of same or like sort, short	℔ piece	0	4
Carpets of all other sorts	℔ piece	0	0½
Cases, *viz.* for looking-glasses, gilt, from No. 3 to No. 10	℔ dozen	0	1½
———, the same ungilt	℔ dozen	0	0½
Catlings. See Lutestrings.			
Camlets, mohairs, and Turkey grograms	℔ fifteen yards	0	1½
Cheese	℔ 112lb.	0	1
Cherries	℔ 112lb.	0	1½
Cloth, *viz.*			
——— French walloon	℔ 20 yards	0	[illegible]

		s.	d.
Cloth — *continued.*			
—— Scarlet -	℔ yard	0	1
Cochineal, *viz.*			
——— Silvester, or Campechea,	℔ lb.	0	0½
——— of all other sorts	℔ lb.	0	1
Combs of box or light wood	℔ 12 dozen	0	0½
Copper bricks or plates, round or square -	℔ 112lb.	0	4
Copperas -	℔ 112lb.	0	1
Coral, rough or polished	℔ 2½lb.	0	2
Cordage. See Cable Ropes.			
Cork - -	℔ 112lb.	0	1
—— for shoemakers	℔ doz. pieces	0	0¼
Corn. See Barley, Beans, Malt, Oats, Pease, Rye, and Wheat, respectively.			
*Deal Boards, of all sorts	℔ 120	1	0
Dogs of earth	℔ 12 dozen	0	1½
Durance, or Duretties, *viz.*			
——— with thread	℔ 15 yards	0	1½
——— with silk	℔ 15 yards	0	2
Drugs, *viz.*			
——— Ambergris -	℔ oz.	0	1½
——— Aloes Socotorina	℔ lb.	0	0½
——— Barley hulled	℔ 112lb.	0	1
——— Carraway and cummin-seeds -	℔ 112lb.	0	1½
——— China Roots	℔ 100lb.	0	6
——— Civet -	℔ ounce	0	1
——— Coral. See in C.			
——— Frankincense. See in F.			
——— Gum Arabic. See in G.			
——— Gum Ammoniac	℔ 100lb.	0	6
——— Musk	℔ ounce	0	1
——— Cods	℔ dozen	0	1
——— Quicksilver. See in Q.			
——— Saunders, white or red	℔ 100lb.	0	6
——— Treacle, common	℔ 100lb.		
——— Turpentine, common	℔ 112lb.	0	1
Earthenware, called tiles. See in T.			
Feathers, for beds	℔ 112lb.	0	2
Fish, *viz.* Cod-fish	℔ 120	0	2
——— Cole-fish	℔ 120	0	1
——— Eels -	℔ barrel	0	1
——— Quick	℔ ship load	10	0
——— Herrings, white or red	℔ last	0	6
——— Ling -	℔ 120	0	6
——— Lub-fish	℔ 120	0	2
——— Croplings	℔ 120	0	1
——— Titling	℔ 120	0	0½
——— Sturgeon	℔ firkin	0	1
———	℔ keg	0	0½
——— Salmon	℔ barrel	0	1½
*Flax, *viz.* undressed	℔ 112lb.	0	1½
——— dressed or wrought	℔ 112lb.	0	4
Flocks -	℔ 112lb.	0	2
Frankincense	℔ 112lb.	0	1½
Furs, *viz.*			
—— Beavers' Skins	℔ piece	0	0½
—— Beavers' bellies or wombs	℔ dozen	0	4

		s.	d.
Furs — *continued.*			
—— Budge, tawed or untawed	℔ 100	0	2
—— Fox Skins -	℔ 100	0	4
—— Foyns, without tails	℔ doz.	0	1½
Fustians, *viz.*			
——— Bermillians, per piece, or two half-pieces of fifteen yards	each half piece	0	2
—— Naples, fustian, tripe, or velure	℔ piece of fifteen yards	0	2
Galley Dishes	℔ 12 dozen	0	1
Galls -	℔ 112 lb.	0	2
Glass, *viz.*			
— for windows	℔ chest or case	0	3
— Venice drinking glasses	℔ doz.	0	0½
— Looking-glasses, *viz.*			
—— Halfpenny ware	℔ 12 dozen	0	0½
—— Penny ware	℔ 12 dozen	0	0½
—— of steel, small	℔ dozen	0	0½
——— large	℔ dozen	0	1
—— of crystal, small, under No. 6	℔ dozen	0	1
——— No. 7, 8, 9, 10	℔ doz.	0	4
——— middle sort, No. 6	℔ dozen	0	2
——— No. 11 and 12	℔ doz.	1	6
— Stone plates for spectacles	℔ dozen	0	0½
— Plates, or sights, for looking-glasses unfoiled, *viz.*			
—— of crystal, small, under No. 6	℔ dozen	0	0½
——— No. 6 -	℔ dozen	0	1
——— No. 7, 8, 9, 10	℔ dozen	0	2
——— No. 11, 12	℔ dozen	1	0
Gloves of Spanish leather	℔ 12 pair	0	0½
Goats' Hair -	℔ 100lb.	0	6
Grain for dyers, *viz.*			
— of scarlet powder	℔ lb.	0	0½
— of Seville in berries and grains of Portugal or Rotta	℔ lb.	0	0¼
Grocery, *viz.*			
— Almonds -	℔ 112lb.	0	3
— Aniseeds -	℔ 112lb.	0	2
— Cinnamon -	℔ 100lb.	1	0
— Cloves -	℔ 100lb.	1	6
—* Currants -	℔ 112lb.	0	2
— Dates -	℔ 112lb.	0	4
—* Figs -	℔ 112lb.	0	1
— Fusses of cloves	℔ 100lb.	0	8
— Ginger -	℔ 100lb.	1	0
— Liquorice -	℔ 112lb.	0	1½
— Mace -	℔ 100lb.	2	0
— Nutmegs -	℔ 100lb.	1	6
— Pepper -	℔ 100lb.	0	6
—* Prunes -	℔ 112lb.	0	1
— Raisins, great, or Malaga	℔ 112lb.	0	1
——— of the sun	℔ 112lb.	0	2
—* Sugar, refined	℔ 112lb.	0	10
——— Candy	℔ 112lb.	0	8
——— Muscovadoes, and white	℔ 112lb.	0	4
——— St. Thome and Panelles	℔ 112lb.	0	2

		s.	d.
Grogram. See Camlets.			
Gunpowder	℔ barrel of 112lb.	0	3
Gum Arabic -	℔ 112lb.	0	2
Hair called Goats' Hair. See in G.			
Hawks of all sorts	℔ hawk	0	2
Hats, *viz.*			
— Bast or straw hats knotted	℔ dozen	0	0½
——————— plain	℔ doz.	0	1½
— Wool Felts	℔ dozen	0	1
— Demi castors	℔ piece	0	0½
— Beaver hats -	℔ piece	0	2
*Headings for pipes, hogsheads, or barrels	℔ 1000	0	2
Heath for brushes	℔ 112lb.	0	1
*Hemp, *viz.*			
— undressed -	℔ 112lb.	0	1
— dressed -	℔ 112lb.	0	2
Hides, *viz.*			
— Buff hides -	℔ piece	0	0½
— Cow or horse hides	℔ dozen	0	3
Honey -	℔ barrel	0	1½
Horses and mares -	each	0	6
Hops -	℔ 112lb.	0	2
Indigo -	℔ 100lb.	2	0
—— Dust -	℔ 100lb.	0	8
Incle, *viz.*			
— wrought -	℔ 12lb.	0	1½
— rolls	℔ 12 pieces, 36 yds. each	0	1
— unwrought -	℔ 100lb.	0	4
Iron, wrought	℔ 112lb.	0	1
— unwrought -	℔ ton	0	6
— Pots -	℔ dozen	0	1½
Juice of Lemons. See Lemons.			
Lamp-black. See Blacking.			
Latten, *viz.*			
— shaven latten	℔ 112lb.	0	6
— black latten	℔ 112lb.	0	3
Lace, *viz.*			
— Bone-lace of thread	℔ 12 yards	0	0½
— Silk bone lace	℔ 16 ounces	0	2
— Silk lace of other sorts	℔ 16 oz.	0	1
Lemons -	℔ 1000	0	1
—— Juice of lemons	℔ pipe	0	6
—— pickled lemons	℔ pipe	0	3
Linseed -	℔ quarter	0	1
Leaves of goid	℔ 100 leaves	0	0½
Lures for hawks	℔ dozen	0	0½
Leather, *viz.*			
— Brazil leather	℔ dozen skins	0	0½
Leather Hangings	gilt per piece	0	3
— Leather for masks	℔ 12lb.	0	2
Lutes -	℔ dozen	0	4
Lutestrings, *viz.*			
— Catlings	℔ 144 dozen knots	0	1
— Minikins	℔ 12 dozen knots	0	0½
Linen, Brabant, Flemish, Embden, *viz.*			
— British cloth	℔ 100 ells	0	5
— Frieze cloth, Ghentish Holland, Isinghams, Overissels, cloth Rows, Cowssield, or Plats cloth	each 30 ells	0	2
— Calicoes, or dutties	℔ piece	0	0
— Cambrics	℔ piece of 12 ells	0	2½
— Damask, tabling, *viz.*			
—— of Holland	℔ dozen yards	0	4

Linen — *continued.*		s.	d.
—— of Silesia	℔ dozen yards	0	2
— Damask, towelling and napkining, *viz.*			
—— of Holland	℔ dozen yards	0	2
—— of Silesia	℔ dozen yards	0	1
— Diaper, tabling, *viz.*			
—— of Holland	℔ dozen yards	0	2
—— of Silesia	℔ dozen yards	0	1
— Diaper, towelling and napkining, *viz.*			
—— of Holland	℔ dozen yards	0	1
—— of Silesia	℔ dozen yards	0	0½
Linen, French or Normandy canvas and line narrow, Vandales, or Vitry canvas, Dutch Barras, and Hessen canvas	℔ 120 ells	0	2
— Gutting and spruce canvas, Drillings, Pack-duck, Hinderlings, Middlegood, Head-lake, Muscovia, line narrow, Hamburgh cloth, narrow Irish cloth	℔ 120 ells	0	1
— Hamburgh and Silesia cloth, broad -	℔ 120 ells	0	3
— Poledavies -	℔ bolt	0	1
— French canvas and line, 1⅛ ell broad or more	℔ 120 ells	0	3
— Lawn	℔ piece of thirteen ells	0	2
— Calico lawn -	℔ piece	0	0¾
— French lawn -	℔ piece	0	1½
— Lockrams of all sorts	℔ 106 ells	0	1½
— Soultwich -	℔ 120 ells	0	1½
— Strasburgh linen	℔ 30 ells	0	1
— striped or tufted canvas with thread	℔ piece of 15 yards	0	1
— striped, tufted, or quilted canvas, with silk	℔ piece of 15 yards	0	1
Litmus -	℔ 112lb.	0	1
* Malt -	℔ quarter	0	0½
Magnus -	℔ 112lb.	0	1
Masks of velvet or satin	℔ dozen	0	1
*Masts, *viz.*			
——— above 12 inches	℔ mast	0	2
——— 8 to 12 inches	℔ mast	0	1
——— 6 to 8 inches	℔ mast	0	0½
Maps, printed -	℔ ream	0	1
Madder, *viz.*			
— Crop and all other bale-madder	℔ 112lb.	0	2
— Fat madder -	℔ 112lb.	0	1½
— Mull-madder -	℔ 112lb.	0	0½
*Meal, or Flour	℔ 30 cwt.	0	4
Minikins. See Lutestrings.			
Mocado ends -	℔ 12lb.	0	1½
Mohairs. See Camlets.			
*Oars -	℔ 120	0	4
*Oats -	℔ quarter	0	0½
Oils, *viz.* *Seville, Majorca, Minorca, Provence, Portugal, and sallad oil -	℔ tun	2	8
— Rape and linseed oil	℔ tun	2	6
— Train-oil of Greenland or Newfoundland -	℔ tun	1	4
Olives -	℔ hogshead	0	4
Onions -	℔ 100 bunches	0	1
Onion-seed	℔ 112 lb.	0	3

		s.	d.
Oranges - -	℔ 1000,	0	1
Orchal - -	℔ 112lb.	0	1½
Packthread - -	℔ 100lb.	0	1½
Pans, *viz.*			
— Dripping, or frying pans	℔ 112lb.	0	1½
— Warming-pans	℔ dozen	0	1½
Paper, brown	℔ 100 bundles	0	6
— of all other sorts	℔ 100 reams	1	8
Pears. See Apples.			
*Pease -	℔ quarter	0	0½
Pitch or tar -	℔ last	0	3
Plates, single, white or black	℔ 100	0	1
— double, white or black	℔ 100	0	2
Pomegranates -	℔ 1000	0	2
Pork - -	℔ barrel	0	1½
Pots, earth, or stone, covered	℔ 100	0	1
— earth or stone, uncovered,	℔ 100 casts, containing a gallon to every cast, whether in one pot or not - - -	0	2
Quails -	℔ dozen	0	0¼
Quicksilver -	℔ 100lb.	0	10
Quinces -	℔ 100	0	0½
Rape-seed -	℔ quarter	0	1
*Rosin - -	℔ ton	0	8
Rice - -	℔ 112lb.	0	1
*Rye - -	℔ quarter	0	0½
Rims for sieves	℔ 12 dozen	0	0½
*Russia. All goods of Muscovy or Russia, for every 20 shillings of their rates or values on oath		0	1
Saffron - -	℔ lb.	0	0½
Safflower -	℔ 100 lb.	0	4
*Salt - -	℔ wey	0	2
Salt petre - -	℔ 112lb.	0	1¼
Says, *viz.*			
— Double says, or Flanders serges	℔ piece	0	3
— Hounscot and milled says	℔ piece	0	0
Shumac - -	℔ 112lb.	0	1½
Silk, *viz.* Bridges, Granados, Naples, Organzine, Pole, and Spanish, satin-silk, sleeve-silk, fine and thrown silk	℔ 16 oz.	0	1
— Raw China silk	℔ 24 ounces	0	1
— Ferret or floret silk, Fillozel, sleeve-silk, coarse	℔ 16 oz.	0	0½
— Raw long silk -	℔ 24 oz.	0	0½
— Raw short silk, and raw Morea silk - -	℔ 24 oz.	0	0½
Silk stockings - -	℔ pair	0	0½
Silks, wrought, viz.			
— Boratos of silk, Catalopher, China, damask, silk Camlet, China grograms, tabby grograms, Philosellos, narrow tabbies of silk, Towers taffety	℔ dozen yards	0	2
— Silk grograms narrow, silk Say, Callimancoes, and Philosellos, broad -	℔ 12 yards	0	3
—— Grograms broad, caffa, or damask -	℔ 12 yards	0	4
— Satins of Bolonia, Lukes, Jeans, others of like making	℔ 12 yds.	0	6
Silks — *continued.*			
—— Bridges, China, and Turkey satin - -	℔ 12 yards	0	1
— Sarsnets of Bolonia or Florence	℔ 12 ells	0	1½
—— of China -	℔ 12 ells	0	1
— wrought, viz.			
— Sypers of silk, broad	℔ 12 yds.	0	0½
——— of silk, narrow	℔ 24 yds.	0	0¼
— of Taffety, ell broad	℔ 12 yds.	0	2
——— China and Levant	℔ 12 yds.	0	0½
— Velvets, China velvets	℔ 12 yds.	0	1
—— all other velvets or plushes	℔ 12 yds.	0	6
Skins, viz.			
— Cordivan skins	℔ dozen	0	2
— Goat-skins in the hair	℔ dozen	0	1
— Kid-skins of all sorts	℔ 100	0	2
Smalts - -	℔ 100	0	4
*Spars. — Boomspars	℔ 120	0	3
——— Cantspars	℔ 120	0	2
——— small spars	℔ 120	0	1
*Spirits, as Brandy, &c. for every 20*s.* of their rates or values, on oath - -		0	1
Stockings of silk. See Silk.			
Stones. — Dog-stones	℔ last	0	6
——— Marble stones	℔ ton	0	8
——— Mill-stones	℔ piece	0	6
——— Quern-stone	℔ last	0	3
Sword blades -	℔ dozen	0	1
*Staves; pipe or hogshead staves	℔ 1000	0	6
——— Barrel staves	℔ 1000	0	3
——— Firkin-staves	℔ 1000	0	1½
Steel; long steel, whisp-steel, and such like	℔ 112lb.	0	2
—— Gad steel	℔ half barrel	0	4
Sturgeon. See Fish.			
Succades, wet or dry	℔ 100lb.	0	10
*Syder - -	℔ tun	0	4
Tallow - -	℔ 112lb.	0	1
Tapestry, viz.			
— with hair	℔ 100 Flemish ells	0	4
— with wool	℔ 100 Flemish ells	0	6
— with caddas	℔ 100 Flemish ells	1	0
— with silk	℔ 12 Flemish ells	0	2
Tarras - -	℔ barrel	0	0¼
Teazels - -	℔ 1000	0	0¼
Tykes of all sorts -	℔ tyke	0	1½
Thread, *viz.*			
—— Bridges thread	℔ 12lb.	0	1
—— Outnal thread	℔ 12lb.	0	1
—— whited-brown, or piercing-thread - -	℔ 12lb.	0	1½
—— Sisters' thread -	℔ lb.	0	0½
—— Lyons or Paris thread	℔ 100 bolts	0	8
Tobacco, *viz.* Spanish, Varinas, Brazil tobacco	℔ 100lb.	2	0
— St. Christopher's tobacco, or the like -	℔ 100lb.	0	6
Tiles; Pantiles or Flanders tiles	℔ 1000	0	2

GOODS.	Drawback. £.	s.	d.
Canella Alba, the lb.	0	0	5
Cantharides, the lb.	0	2	4
East India, the same.			
Capita Papaverum, the 1000	0	2	4
East India, the same.			
Cardamoms, the lb.	0	1	4
East India, the same.			
Cassia Fistula, the lb.	0	0	6
East India, the same.			
Castor, the lb.	0	3	4
China Root, the lb.	0	0	10
East India, the same.			
Cinnabaris Nativa, the lb.	0	1	4
East India, the same.			
Cinnamon, the produce of and imported from any British colony or plantation, the lb.	0	2	3
——— otherwise imported, (except under licence) the lb.	0	3	2
East India, *viz.*			
——— the lb.	0	2	3
Cloves, the produce of and imported from any British colony or plantation, the lb.	0	1	9
——— otherwise imported, (except under licence,) the lb.	0	2	7
East India, *viz.*			
——— the lb.	0	1	9
Coloquintida, or Colocynth, from place of growth, the lb.	0	1	1
..... not from place of growth, the lb.	0	1	8
East India, *viz.*			
..... per lb.	0	1	1
Columbo Root, the lb.	0	1	4
East India, the same.			
Costus, the lb.	0	0	8
East India, the same.			
Couhage, the lb.	0	0	10
East India, the same.			
Currants, the cwt.	2	0	0
Dates, the cwt.	4	0	0
Dimity. See Calicoes.			
Dittany, the lb.	0	0	8
E.			
Euphorbium, the lb.	0	0	5
F.			
Figs, the cwt.	0	19	0
G.			
Galangal, from place of growth, the lb.	0	0	4
——— not from place of growth, the lb.	0	0	6
East India, *viz.*			
——— per lb.	0	0	4
Galbanum, from place of growth, the lb.	0	0	10
——— not from place of growth, the lb.	0	1	3
East India, *viz.*			
——— the lb.	0	0	10
Gamboge, the lb.	0	1	1
East India, the same.			
Gentian, the lb.	0	0	4
Ginger, the produce of the British plantations, colonies or settlements in America, or of the west coast of Africa, the cwt.	1	0	0
East India, the same.			
Ginseng, the lb.	0	1	0
East India, the same.			
Gum, Ammoniac, from place of growth, the lb.	0	0	10

GOODS.	Drawback. £.	s.	d.
Gum—*continued.*			
Ammoniac, not from place of growth, the lb.	0	1	3
—— Anime, the lb	0	1	1
—— Cashew, the cwt.	0	5	0
—— Copal, the lb.	0	1	1
—— Elemi, the lb.	0	0	5
—— Guaiacum, the lb.	0	1	2
—— Kino, or Rubrum Astringens, the lb.	0	1	0
—— Lac, *viz.* Cake Lac, the lb.	0	0	3
..... Lac Dye, the lb.	0	0	4
..... Seed Lac, the lb.	0	0	4
..... Shell Lac, the lb.	0	0	5
..... Stick Lac, the cwt.	0	13	4
—— Opopanax, from place of growth, the lb.	0	2	4
..... not from place of growth, the lb.	0	3	6
—— Sagapenum, from place of growth, the lb.	0	0	6
..... not from place of growth, the lb.	0	0	9
—— Sandarach or Juniper, the cwt.	0	12	8
—— Sarcocolla, from place of growth, the lb.	0	0	6
..... not from place of growth, the lb.	0	0	9
—— Tacamahaca, the lb.	0	1	4
—— Tragacanth, from place of growth, the lb.	0	0	8
... . not from place of growth, the lb.	0	1	0
East-India, *viz.*			
—— Ammoniac, the lb.	0	0	10
—— Anime, the lb.	0	1	1
—— Cashew, the cwt.	0	5	0
—— Copal, the lb.	0	1	1
—— Elemi, the lb.	0	0	5
—— Guaiacum, the lb.	0	1	2
—— Kino, or Rubrum Astringens, the lb.	0	1	0
—— Lac, *viz.* Cake Lac, the lb.	0	0	3
..... Lac Dye, the lb.	0	0	4
..... Seed Lac, the lb.	0	0	4
..... Shell Lac, the lb.	0	0	5
..... Stick Lac, the cwt.	0	13	4
—— Opopanax, the lb.	0	2	4
—— Sagapenum, the lb.	0	0	6
—— Sandarach or Juniper, the cwt.	0	12	8
—— Sarcocolla, the lb.	0	0	6
—— Tacamahaca, the lb.	0	1	4
—— Tragacanth, the lb.	0	0	8
H.			
Hellebore, the lb.	0	0	4
J.			
Jalap, the lb.	0	1	4
L.			
Linens, Cambrics and French Lawns, the piece, not exceeding 8 yards long, and $\frac{7}{8}$ of a yard broad	0	4	0
—— Cambrics and French lawns, the piece, exceeding 8 yards long, or $\frac{7}{8}$ of a yard broad	0	5	0
—— Canvas, Hessens, or Dutch Barras, the 120 ells	1	2	4
—— Packing, Guttings, Spruce, Elbing, or Queensborough Canvas, the 120 ells	0	15	0
—— Damask Tabling of the manufacture of the kingdom of the Netherlands, *viz.*			
..... not exceeding $1\frac{1}{8}$ ell broad, the yard	0	4	2
..... exceeding $1\frac{1}{8}$, and under 2 ells broad, the yard	0	4	10
..... 2 and under 3 ells broad, the yard	0	5	6
..... 3 ells broad or upwards, the yard	0	8	0
..... of the manufacture of any other place, the square yard	0	1	0

GOODS.	Drawback £.	s.	d.
Linens — *continued.*			
——— Damask Towelling and Napkining of the manufacture of the kingdom of the Netherlands, the yard - - -	0	1	8
..... of the manufacture of any other place, the yard	0	0	6
——— Diaper Tabling of the manufacture of the kingdom of the Netherlands, *viz.*			
..... not exceeding $1\frac{1}{8}$ ell broad, the yard - -	0	2	2
..... exceeding $1\frac{1}{8}$, and under 2 ells broad, the yard -	0	2	6
..... 2 and under 3 ells broad, the yard - -	0	2	8
..... 3 ells broad or upwards, the yard - - -	0	3	10
..... of the manufacture of any other place, the yard	0	1	2
——— Diaper Towelling and Napkining of the manufacture of the kingdom of the Netherlands, the yard - - - -	0	0	10
..... of the manufacture of any other place, the yard	0	0	6
——— Drillings and Pack Duck, the 120 ells - - -	1	18	4
——— German, Switzerland, East Country (except Russia) and Silesia Cloth, plain, *viz.*			
..... not exceeding $31\frac{1}{2}$ inches broad, the 120 ells	1	4	6
..... exceeding $31\frac{1}{2}$ and not exceeding 36 inches broad, the 120 ells - - - -	2	11	8
..... exceeding 36 inches broad, the 120 ells - -	3	19	6
——— Hinderlands, brown, under $22\frac{1}{2}$ inches broad, the 120 ells -	0	14	0
——— Lawns (except Cambrics and French Lawns), not bleached in the kingdom of the Netherlands, the piece, not exceeding 8 yards long	0	2	8
——— Lawns, (except Cambrics and French Lawns), bleached in the kingdom of the Netherlands, the piece, not exceeding 8 yards long	0	3	4
——— of the manufacture of the kingdom of the Netherlands, plain, unenumerated, *viz.*			
..... not exceeding $1\frac{1}{8}$ ell broad, the ell - -	0	1	2
..... exceeding $1\frac{1}{8}$ and under 2 ells broad, the ell - -	0	1	4
..... 2 and under 3 ells broad, the ell - -	0	1	6
..... 3 ells broad or upwards, the ell -	0	2	2
——— Russia Towelling and Napkining, plain, not exceeding $22\frac{1}{2}$ inches broad, the 120 ells - - - -	0	13	2
——— Russia, plain unenumerated, *viz.*			
..... not exceeding $22\frac{1}{2}$ inches broad, the 120 ells -	0	13	6
..... exceeding $22\frac{1}{2}$ and not exceeding $31\frac{1}{2}$ inches broad, the 120 ells - - - -	1	1	6
..... exceeding $31\frac{1}{2}$ and not exceeding 36 inches broad, the 120 ells - - - -	1	12	0
..... exceeding 36 and not exceeding 45 inches broad, the 120 ells - - - - -	2	17	10
..... exceeding 45 inches broad, the 120 ells - -	4	0	0
——— unenumerated, *viz.*			
Not being checkered or striped, or printed, painted, stained or dyed, after the manufacture, or in the thread or yarn before the manufacture, the 100*l.* value. - - - -	26	13	4
Checkered or striped (of Germany and Russia), the thread or yarn of which the same is made being coloured, stained or dyed before the manufacture, exported to the British West Indies (including the Bahama and Bermuda Islands), the 100*l.* value	117	10	0
M.			
Mace, the produce of and imported from any British Colony or Plantation, the ℔. - - - - -	0	3	2
——— otherwise imported (except under licence), the ℔. - -	0	4	0
East India, *viz.*			
——— the ℔. - - - - - -	0	3	2
Manna, the ℔. - - - - - -	0	0	10
East-India, the same.			
Mastich, from place of growth, the ℔. - - - -	0	0	10
——— not from place of growth, the ℔. - - -	0	1	3
East-India, *viz.*			
——— the ℔. - - - - -	0	1	0

GOODS.	Drawback. £.	s.	d.
Musk, the oz.	0	3	4
East-India, the same.			
Muslins, East-India, *viz.* Muslins plain, and Nankeen cloths, printed, painted, stained or dyed in Great Britain, the 100*l.* value	20	0	0
Myrrh, from place of growth, the ℔.	0	1	1
——— not from place of growth, the ℔.	0	1	8
East-India, *viz.*			
——— the ℔.	0	1	1
N.			
Nankeen Cloth, East-India. See Muslins.			
Nardus Celtica, the cwt.	0	13	4
Nutmegs, the produce of, and imported from any British colony or plantation, the ℔.	0	2	3
——— otherwise imported (except under licence,) the ℔.	0	3	2
East-India, *viz.*			
——— the ℔.	0	2	3
Nuts, Cashew, the ℔.	0	1	4
O.			
Olibanum, from place of growth, the cwt.	1	11	8
——— not from place of growth, the cwt.	2	7	6
East-India, *viz.*			
——— the cwt.	1	11	8
Opium, from place of growth, the ℔.	0	6	0
——— not from place of growth, the ℔.	0	9	0
East-India, viz.			
——— the ℔.	0	6	0
P.			
Pellitory, the ℔.	0	0	4
Pimento, of the British Plantations, the ℔.	0	0	9
Pink root, the ℔.	0	0	6
Q.			
Quicksilver, the ℔.	0	1	1
East-India, the same.			
R.			
Radix Contrayervæ, the ℔.	0	1	1
——— Enulæ Campanæ, the cwt.	0	9	0
——— Eringii, the ℔.	0	0	4
——— Ipecacuannæ, the ℔.	0	2	8
——— Rhataniæ, the ℔.	0	1	4
——— Senekæ, the ℔.	0	1	2
——— Serpentariæ, or Snake Root, the ℔.	0	1	2
East-India, *viz.*			
——— Contrayervæ, the ℔.	0	1	1
Raisins, Denia or Lexia, the cwt.	0	18	0
——— of the Sun, the cwt.	1	18	0
——— of any other sort, the cwt.	1	0	0
East-India, *viz.*			
——— of all sorts, the cwt.	0	9	0
Resina Jalappæ, the ℔.	0	4	6
Rhinehurst, the cwt.	0	9	6
Rhubarb, the ℔.	0	2	8
East-India, *viz.*			
——— the ℔.	0	1	8
S.			
Saccharum Saturni, the ℔,	0	1	6
Saffron, the ℔.	0	5	0
East-India, the same.			

		s.	d.
For a great chest or great case		0	8
— small chest or case, of 3 cwt. or under		0	4
— small box		0	2
— great trunk		0	6
— small trunk, not above 2 cwt.		0	3
— bag or sack		0	4
— seron		0	3

PORTAGE-DUTIES.

The Packers' water-side Porters' Table of Duties for landing Strangers' Goods, and of the like Duties or Rates to be paid unto them for Shipping out their Goods.

		s.	d.
For a butt of currants		1	4
— a carateel of currants		0	8
— a quarterole of currants		0	4
— a bag of currants		0	4
— pieces of raisins	the ton	1	8
— a barrel of raisins		0	4
— all sorts of puncheons		0	6
— a barrel of figs		0	2
— tapnets and frails of figs	the ton	1	8
— Brazil, or other wood for dyeing	the ton	1	8
— iron	the ton	1	2
— copperas	the ton	1	2
— oil, wine, or vinegar	the ton	1	2
— hemp and flax	the last	1	8
— loose flax and tow	the cwt.	0	2
— a great bag of tow		0	8
— a small bag of tow		0	4
— a great bag of hops		0	8
— a packet or little bag of hops		0	4
— packs, trusses, fats, or maunds	℔ piece	0	8
— great chest		0	8
— a small chest		0	4
— all cases, barrels, or bales	℔ piece	0	4
— a bale of madder		0	8
— a bale of ginger or shumac, containing 4 cwt.		0	8
— a faggot of steel		0	1
— any serons	℔ piece	0	4
— fat of pot-ashes		0	8
— a last of soap ashes		1	0
— a last of pitch or tar		1	0
— a last of fish		1	0
— wainscots	℔ 120	5	0
— clapboards	℔ 120	0	6
— deal boards	℔ 120	1	4
— a great mast		5	0
— a middle mast		2	6
— a small mast		1	3
— great balks	℔ 120	5	0
— middle balks	℔ 120	2	6
— small balks	℔ 120	1	3
— a mill-stone		5	0
— a dog-stone		2	6
For a wolf-stone		2	0
— a yard-stone		0	3
— a grind-stone		1	0
— a step-stone or grave stone		0	8
— quern stones	the last	1	0
— emery-stones	the ton	1	2
— ten cwt. of Holland cheese		1	0
— Rosin	the ton	1	2
— Woad	the ton	1	2
— a chest of sugar		0	6
— Half wainscots	℔ 120	2	6
— raw hides	℔ 100	5	0
— Boom-spars	℔ 120	0	6
— small spars	℔ 120	0	4
— ends of boom-spars	℔ 120	0	9
— a horse, gelding, or mare		2	6
— alum	the ton	1	8
— Heath for brushes	℔ 112 ℔	0	1
— iron pots	the dozen	0	3
— Rings of wire, loose	the ring	0	0½
— Pipe staves	℔ 1000	2	6
— Rhenish-wine	the awm	0	6
— Burr-stones	℔ 100	2	6
— half packs of teazels	the piece	0	4
— Wicker bottles	the dozen	0	0½
— Stone pots	℔ 100	0	1
— loose fish	℔ 100, landing	0	3
— a barrel of salmon		0	2
— a barrel of stub eels		0	2
— a bundle of basket-rods		0	0½
— a ton of cork		1	8
— a thousand of ox-bones		1	0
— a thousand tips of horns		0	6
— a thousand shank-bones		1	0
— brimstone	the ton, loose	1	3
— a fother of lead		1	2
— Rims of sieves	℔ load	1	0
— a load of fans		1	0
— a load of bull-rushes		0	8
— 100 reams of paper, loose		1	0
— a barrel of tarras		0	2
— a barrel of ling		0	2
— a keg of sturgeon		0	0½
— iron backs for chimneys	℔ piece	0	1
— one hundred weight of elephants' teeth		0	1
— copper and iron plates	℔ piece	0	0½
— 100 small barrels of blacking		1	0
— a dozen of scales		0	1
— a hundred of oars		2	6
— every twenty sugar-flags		0	4
— a barrel of shot		0	4
— a bundle of canes		0	1
— a cage of quails		0	4
— a cage of pheasants		0	4
— a cage of hawks		0	4
— a winch of cable-yarn		0	4
— a firkin of shot		0	2

All other goods not mentioned in this table pay portage duties as other goods do of like bulk or like condition herein expressed.

APPENDIX, No. V.

LONDON PORT OR DOCK DUTY.

TONNAGE.	℔ ton burth. £.	s.	d.
From or to Alderney, Guernsey, Jersey, Sark, or Man, Antwerp, Brabant, Bremen, or any part of the Netherlands, Denmark, France within Ushant, Hamburgh, Holstein, or any part of Germany bordering on the German Ocean, Holland, Iceland, Norway, or Lapland on this side the North Cape - - - -	0	0	2½
From or to Courland, Finland, Prussia, Poland, Lapland beyond the North Cape, Livonia, Russia, Sweden, or any place with the Baltic	0	0	4
From or to the American States, British North American colonies, East Florida, France between Ushant and Spain, the Azores, Madeira, and the Canary Islands, Portugal, and Spain without the Mediterranean - - - - -	0	0	5
From or to the Adriatic Sea, Africa, the West Indies, the East Indies and China, places within the Mediterranean, Gibraltar, Greenland, Louisiana, Mexico, or South America - - -	0	0	7
Vessels trading coastwise between London and any port of Great Britain	0	0	2
Note. — If laden with Corn, or if the greater part of the cargo consist of Corn or Grain, vessels trading coastwise are exempt from this duty.			

APPENDIX, No. VI.

QUARANTINE DUTY

VESSELS.	℔ ton burth. £.	s.	d.
Vessels arriving from any part of Turkey, from Africa within the Streights of Gibraltar, or from West Barbary on the Atlantic Ocean, *viz.*			
——— at London, with clean bill of health - - -	0	8	6
..... without clean bill of health - -	0	16	0
——— at out ports, with clean bill of health - - -	0	7	6
..... without clean bill of health - -	0	15	0
Vessels arriving from any other place, *viz.*			
——— at London, with clean bill of health - - -	0	4	0
..... without clean bill of health - -	0	11	0
——— at out ports, with clean bill of health - - -	0	3	0
..... without clean bill of health - -	0	10	0
Vessels arriving with a cargo which wholly or in part consists of Goods the produce or manufacture of Turkey, Africa within the Streights of Gibraltar, or West Barbary on the Atlantic Ocean; or arriving from any port or place whatever at which there is not a regular establishment for the performance of quarantine, *viz.*			
——— at London, with or without clean bill of health - -	0	8	6
——— at out ports, with or without clean bill of health - -	0	7	6
Vessels arriving under such circumstances as shall induce the privy council to subject them to the like performance of quarantine as ships arriving from Turkey, *viz.*			
——— at London, with clean bill of health - - -	0	8	6
..... without clean bill of health - - -	0	16	0
——— at out ports, with clean bill of health - - -	0	7	6
..... without clean bill of health - - -	0	15	0

APPENDIX, No. VII.

A TABLE of the DUTIES payable on Goods and Vessels arriving from any Place within the Limits of the sole and exclusive Trade heretofore granted to the South Sea Company.

GOODS AND VESSELS.	Duty. £.	s.	d.
Goods imported into any port of the United Kingdom from any place within the aforesaid limits, the 100*l.* value - - -	2	0	0
Except			
Blubber, Train Oil, Head Matter, Whale-fins, Seal Skins, and other produce of fish or creatures living in the seas, caught by the crews of British or Irish-built vessels; Bullion and Foreign Coin of Gold and Silver; and Goods secured in warehouses, and afterwards taken out for exportation.			
Vessels entering inwards or outwards at any port of the United Kingdom from or to any place within the said limits, the ton burthen -	0	1	6
Except			
Vessels importing Blubber, Train Oil, Head Matter, Whale-fins, Seal Skins, and other produce of fish or creatures living in the seas, caught by the crews of British or Irish-built vessels, and no other cargo as merchandise.			

APPENDIX, No. VIII.

A TABLE of the DRAWBACKS of CUSTOMS and EXCISE allowable on the Exportation of Goods, Wares, and Merchandise, on which the Import Duties have been paid.

Note. — The Goods must be shipped within 36 calendar months from the day on which the duties were paid; and the drawback claimed within 24 months after shipment.

Note. — The following drawbacks are allowed only on Goods which shall have been entered after the 5th July 1819, and which have paid the duties expressed in Table (A.)

Note. — Foreign and Colonial Goods exported to Ireland are entitled to a drawback of all the duties paid on importation into Great Britain.

GOODS.	Drawback. £.	s.	d.
Acacia, the lb. - - - - -	0	1	4
Acorus, the lb. - - - - - -	0	0	6
East India, the same.			
Adianthum, the lb. - - - - -	0	0	5
Alkali, *viz.* any article not otherwise charged with duty in Table (A.) whereof Mineral Alkali is the most valuable part, containing on importation more than 20 per cent. of such Alkali, the cwt. -	0	5	8
——— containing above 20, and not exceeding 25 per cent. the cwt. -	0	7	6
——— containing above 25, and not exceeding 30 per cent, the cwt. -	0	9	2
——— containing above 30, and not exceeding 40 per cent. the cwt. -	0	11	8
——— containing above 40 per cent. the cwt. - - -	0	15	0
East India, the same.			
Alkanet Root, the lb. - - - - -	0	0	6
Almonds, Bitter, the cwt. - - - -	1	8	0
——— Jordan, the cwt. - - - -	4	4	0

GOODS.	Drawback. £.	s.	d.
Almonds — *continued.*			
——— of any other sort, the cwt.	2	2	0
East India, *viz.*			
——— Bitter, the cwt.	0	14	0
——— of any other sort, the cwt.	2	2	0
Aloes, Hepatica or Barbadoes, the ℔.	0	0	10
——— Socotorina, from place of growth, the ℔.	0	1	8
..... not from place of growth, the ℔.	0	2	6
——— of any other sort, the ℔.	0	0	6
East India, *viz.*			
——— Socotorina, per ℔.	0	1	8
——— of any other sort, per ℔.	0	0	6
Amber, rough, per ℔.	0	1	1
East India, the same.			
Anacardium, the ℔.	0	1	4
East India, the same.			
Angelica, the ℔.	0	0	6
Aristolochia, the ℔.	0	0	6
Asafœtida, from place of growth, the ℔.	0	0	6
——— not from place of growth, the ℔.	0	0	9
East India, *viz.*			
——— the ℔.	0	0	6
Asarum Root, the ℔.	0	0	5
Asphaltum, the ℔.	0	0	6
B.			
Balsam, Canada, the ℔.	0	0	10
——— Copaiba, or Capivi, the ℔.	0	1	4
Bark, Angustura, the ℔.	0	1	4
——— Clove, the ℔.	0	0	6
——— Eleutheria or Cascarilla, the ℔.	0	1	4
——— Guaiacum, the cwt.	0	18	8
——— Peruvian, or Jesuits', the ℔.	0	1	4
——— Sassafras, the ℔.	0	0	5
——— Simarouba, the ℔.	0	0	8
——— Winter's, the ℔.	0	0	5
East India, *viz.*			
——— Angustura, the ℔.	0	1	4
——— Clove, the ℔.	0	0	6
——— Peruvian, or Jesuits' the ℔.	0	1	4
Bdellium, from place of growth, the ℔.	0	1	1
——— not from place of growth, the ℔.	0	1	8
East India, *viz.*			
——— the ℔.	0	1	1
Benjamin, or Benzoin, the ℔.	0	1	4
East India, the same.			
Bitumen Judaicum, the ℔.	0	0	6
Bole Armenic or Armenian, the cwt.	0	5	4
Borax refined in Great Britain, from a larger quantity imported unrefined, the ℔.	0	0	8
East India, the same.			
Brimstone, in any way refined in Great Britain from a larger quantity imported rough, the cwt.	0	15	0
C.			
Calamus Aromaticus, the ℔.	0	0	6
East India, the same.			
Calicoes, East India, *viz.* Plain White Calicoes, and Plain White Dimity, printed, painted, stained, or dyed in Great Britain, the 100*l.* value.	45	0	0
Camomile Flowers, the ℔.	0	0	4
Camphor, refined in Great Britain, from a larger quantity imported unrefined, the ℔.	0	1	3
East India, the same.			
Cancrorum Oculi, the ℔.	0	0	10

GOODS.	Drawback. £.	s.	d.
Salep, from place of growth, the lb.	0	0	10
—— not from place of growth, the lb.	0	1	3
East-India, *viz.*			
—— the lb.	0	0	10
Sanguis Draconis, from place of growth, the lb.	0	1	1
——— not from place of growth, the lb.	0	1	8
East-India, *viz.*			
——— the lb.	0	1	1
Sarsaparilla, the lb.	0	0	10
Scammony, from place of growth, the lb.	0	4	2
——— not from place of growth, the lb.	0	6	4
East-India, *viz.*			
——— the lb.	0	4	2
Seed, Worm, from place of growth, the lb.	0	1	0
——— not from place of growth, the lb.	0	1	6
East-India, *viz.*			
——— the lb.	0	1	0
Sena, from place of growth, the lb.	0	0	10
—— not from place of growth, the lb.	0	1	3
East-India, *viz.*			
—— the lb.	0	0	10
Silk, Knubs, or Husks, the lb.	0	1	8
—— Raw, the lb.	0	2	9
—— Thrown, dyed, the lb.	0	19	2
..... not dyed, the lb.	0	6	2
—— Waste, or Floss, unenumerated, the lb.	0	1	8
East-India, *viz.*			
—— Knubs or Husks, Waste or Floss Silk unenumerated, the lb.	0	1	6
—— Thrown in Great Britain from a larger quantity imported raw, *viz.*			
..... as the produce of the British territories in the East-Indies, the lb.	0	4	0
..... as the produce of any other part of the East Indies, the lb.	0	5	6
—— Thrown, the lb.	0	6	2
Skins and Furs, Badger, undressed, each	0	1	4
——— Ermine, undressed, each	0	0	7
——— Fitches, undressed, the dozen	0	2	10
——— Kid, in the hair, the 100	0	1	5
——— Leopard, undressed, each	0	9	0
——— Martin Tails, undressed, the 100	0	15	6
——— Mole undressed, the dozen	0	0	5
——— sable, undressed, each	0	7	6
——— tails or tips, undressed, the piece	0	1	1
——— Squirrel or Calabar, undressed, the 100	0	10	4
——— Tyger, undressed, each	0	8	6
——— Weazel, undressed, the 100	0	4	3
Spikenard, or Nardus Indica, the lb.	0	1	10
East India, the same.			
Sponge, from place of growth, the lb.	0	1	4
..... not from place of growth, the lb.	0	2	0
Stavesacre, the cwt.	0	18	8
Storax or Styrax, Calamita, from place of growth, the lb.	0	1	4
..... not from place of growth, the lb.	0	2	0
——— Liquida, from place of growth, the lb.	0	2	2
..... not from place of growth, the lb.	0	3	4
——— in the tear or gum, from place of growth, the lb.	0	5	6
..... not from place of growth, the lb.	0	8	4
East India, *viz.*			
——— Calamita, the lb.	0	1	4
——— Liquida, the lb.	0	2	2
——— in the tear or gum, the lb.	0	5	6
Succinum, the lb.	0	1	1

GOODS.	Drawback. £.	s.	d.
T.			
Tobacco, *viz.*			
Excise drawback on shag, roll, or carrot Tobacco manufactured at any of the ports of Great Britain into which Tobacco may be imported (*i. e.* London, Bristol, Cowes, Falmouth, Hull, Lancaster, Liverpool, Newcastle, Plymouth, Whitehaven, Leith, Greenock, and Port Glasgow) from Tobacco on which the duty has been paid since 9th June, 1819, the ℔.	0	3	6
East India, the same.			
Turbith, from place of growth, the ℔.	0	1	8
——— not from place of growth, the ℔.	0	2	6
East India, *viz.*			
——— the ℔.	0	1	8
Turmeric, the ℔.	0	0	5
East India, the same.			
Turpentine of Venice, Scio, or Cyprus, the ℔.	0	0	6
V.			
Vermilion, the ℔.	0	1	4
East India, the same.			
W.			
Wine, French, Rhenish, German, and Hungary, the tun	59	17	0
—— Madeira, the tun	39	18	0
—— of the Cape of Good Hope, the tun	12	19	0
—— of all other sorts, the tun	38	17	0
Excise drawback, *viz.*			
Wine of the Cape of Good Hope, the tun	16	9	0
..... of any other sort, the tun	49	7	0
Note. — No drawback of customs or excise is allowable on Wines except shipped in bottles, and in packages containing six dozen at least.			
Note. — The whole of the duties of customs is still allowed to be drawn back on Wine shipped for the use of naval or marine officers.			
Note. — No drawback of customs or excise is allowed on Wine Lees exported.			
Imported from the East Indies, the same.			
Z.			
Zedoaria, from place of growth, the ℔.	0	0	10
——— not from place of growth, the ℔.	0	1	3
East India, *viz.*			
..... the ℔.	0	0	10
For other allowances, and re-payments of duty, see Appendix No. IX.			

APPENDIX, No. IX.

A TABLE of BOUNTIES and ALLOWANCES on BRITISH GOODS, WARES, and MERCHANDISE exported, and of repayments of duty on Articles used or consumed in Great Britain.

BRITISH GOODS.	Bounty. £.	s.	d.
Brimstone, *viz.*			
A repayment is allowed of nine-tenths of the duties paid on foreign Brimstone consumed in Great Britain, in making Oil of Vitriol.			
Coals, (except charcoal) brought coastwise from any port in Great Britain, to the port of London, and afterwards exported, *viz.*			
..... usually sold by weight, the ton	0	4	0
..... usually sold by measure, the Winchester chaldron	0	5	10

BRITISH GOODS.	Bounty. £.	s.	d.
Coals—*continued.*			
—— (except Charcoal and Coals carried coastwise within the principality of Wales till August 1, 1820), brought coastwise from any port in Great Britain to any port in England or Wales, except London, and afterwards exported, *viz.*			
..... usually sold by weight, the tun - -	0	3	8
..... usually sold by measure, the Winchester chaldron -	0	5	6
Note.—A repayment is allowed of the duties on coals used for smelting copper or tin ores within the counties of Cornwall and Devon; or used in fire engines, for draining water out of the mines of tin and copper in the county of Cornwall, or used for fire engines in mines of tin, copper, or lead, or for calcining or smelting lead ores, within the county of Devon; or in mines of lead, or for calcining or smelting lead ores, in Cornwall; or used in fire or steam engines, employed in drawing or raising ores or dead stuff, or rubbish, out of the said mines; or used in calcining or smelting copper and lead ores within the isle of Anglesea, or in fire engines for draining water out of the mines of copper and lead within the said isle; or used for any purpose relating to the carrying on the works for the manufacturing of tin plates, and for other purposes, at Pennygored, in the county of Pembroke, called the Pennygored Works, provided the amount exceeds not 1000*l.* in one year.			
Cordage, staple Cordage manufactured in Great Britain from foreign rough hemp (except from hemp of British America or the East Indies and China), and exported to all parts except Ireland and the isles of Man and Ferro, *viz.*			
..... if the import duty on the hemp was paid on or before 15th April, 1813, per cwt. - - -	0	6	6
..... if paid after 15th April, 1813, the cwt. - -	0	7	8½
Culm, brought coastwise from any port in Great Britain to the port of London, and afterwards exported, the Winchester chaldron -	0	1	5
—— brought coastwise from any port in Great Britain to any other port in England or Wales, except London, (except culm carried from any place within the limits of the port of Milford to any other place within the counties of Pembroke, Carmarthen, Cardigan, or Merioneth, and except culm carried coastwise within the principality of Wales, till 1st August, 1820), and afterwards exported, the Winchester chaldron - - - -	0	1	2
Linens, made of hemp or flax, in Great Britain, Ireland, and the isle of Man, and exported to Portugal, Spain, Africa, Minorca, the East Indies, Gibraltar, Malta, or the United States of America, of the breadth of 25 inches or more, *viz.*			
..... under 5*d.* the yard in value, the yard - -	0	0	0½
..... 5*d.* and under 6*d.* the yard in value, the yard -	0	0	1
..... 6*d.* and not exceeding 18*d.* the yard in value, the yard -	0	0	1½
——— British, checked or striped, exported to the parts before mentioned, of the breadth of 25 inches or more, *viz.*			
..... 7*d.* and not exceeding 18*d.* the yard in value, the yard -	0	0	0½
——— Diaper, Huckaback, sheeting, and other Linen of the manufacture of Great Britain or Ireland, above one yard broad, and not exceeding 18*d.* the yard in value, the square yard -	0	0	1½
——— Sail Cloth, British made, or canvas fit for or made into sail, the ell - - - - -	0	0	2
Plate, made or wrought in Great Britain. and touched, assayed, and marked therein, *viz.* - - -			
—— of gold, made between 1st December 1784, and 5th July 1797, the oz. - - - - -	0	8	0
..... made between 5th July 1797, and 31st August 1815, the oz. - - - - -	0	16	0
..... made since 31st August 1815, the oz. - -	0	17	0
—— of silver, made between 1st December 1784, and 5th July 1797, the oz. - - - -	0	0	6
..... made between 5th July 1797, and 10th October 1804, per oz. - - - -			

BRITISH GOODS.	Bounty. £.	s.	d.
Plate — *continued.*			
of silver made between 10th October 1804, and 31st August 1815, the oz. - - - -	0	1	3
..... made since 31st August 1815, the oz. - -	0	1	6
Note. — These drawbacks are allowed on all new plate, whether intended as merchandise or not.			
Silk Manufactures of Great Britain (except exported to the Isle of Man,) *viz.*			
—— Ribbons and Stuffs of Silk only, and Gauze or Crapes, the ℔. -	0	6	8
Note. — The allowance for Gum or Dress is two-thirds on Gauze and one-third on Crapes.			
—— Stockings, Gloves, Fringes, Laces, Stitching or Sewing Silk, the ℔.	0	4	0
—— Silk, and Ribbons of Silk, mixed with gold and silver, the ℔. -	0	8	$10\frac{2}{3}$
—— Stuffs of Silk and Grogram Yarn, the ℔. - -	0	1	$6\frac{2}{3}$
—— Ribbons, and Stuffs of Silk mixed with incle or cotton, the ℔. -	0	2	$2\frac{2}{3}$
—— Stuffs of Silk and Worsted, the ℔. - - -	0	1	$1\frac{1}{3}$
Note. — The bounty is due on Silk Stuffs, although ornamented with Embroidery, Tambour, Needle-work, Lace, or Fringe.			
Note. — Articles manufactured from refuse or waste Silk, are entitled to the bounty. The value of the silk must be at least four times the amount of the bounty claimed thereon.			
Slate, British, brought coastwise from any port in Great Britain to any other therein, and afterwards exported, the 100*l.* value -	26	8	0
Stone, *viz.*			
——— A repayment is allowed of the whole duties paid on British Stone brought coastwise from any port in Great Britain to any other port therein, used in making barn floors, or in paving streets and public ways.			
Sugar, *viz.*			
——— Refined Sugar called Bastards, or refined loaf sugar broken in pieces, or ground or powdered sugar,			
..... exported in a British ship, the cwt. - -	1	10	0
..... exported not in a British ship, the cwt. - -	1	9	0
——— other refined sugar, in loaf complete and whole, or in lumps, duly refined, or such sugar pounded, crashed, or broken, and Sugar Candy,			
..... exported in a British ship, the cwt. - -	2	6	0
..... exported not in a British ship, the cwt. - -	2	4	8
Double refined Sugar, the cwt. (additional) - -	0	8	0
Wood, *viz.*			
The following repayments are allowed of the duties paid on importation, on wood used in any of the mines of tin, lead, or copper, in the counties of Devon or Cornwall, *viz.*			
—— Deals, above 7 inches wide, 8 and not above 10 feet long, and not exceeding $1\frac{1}{2}$ inch thick,			
..... imported in a British ship, the 120 - -	4	1	3
..... imported not in a British ship, the 120 - -	4	3	6
—— Fir Timber, of the growth of Norway, 8 and not exceeding 10 inches square,			
..... imported in a British ship, the load - -	2	13	6
..... imported not in a British ship, the load. - -	2	16	3

THE END.

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